About this manual:

The product described in this manual has been developed and produced by Hoontech Co., Ltd.

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December 2000

It is the policy of Hoontech to improve products as new technology, newer components, improved software and drivers become available. Hoontech, therefore reserves the right to change specifications without prior notice.

A/S Center

This documentation was created by Hoontech Co., Ltd. (Korea) and RIDI multimedia (Germany).

Note: To avoid damage of your speakers, always turn down the volume or turn off the power of your amplifier connected to the SoundTrack Audio DSP24 Value when you are rebooting or shutting down your PC.

Contents

I.   Introduction

Congratulations on your purchase of the SoundTrack Audio DSP24 Value. The Audio DSP24 Value is a PCI digital soundcard for high quality recording applications.
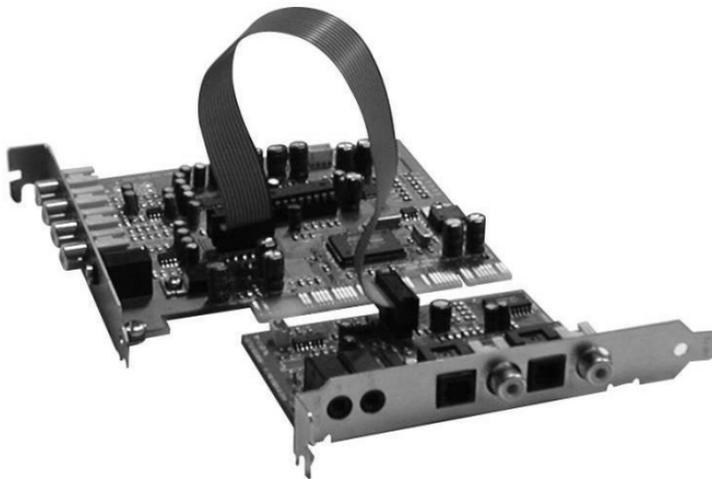
You should have received the following with your Audio DSP24 Value:

- Hoontech SoundTrack Audio DSP24 Value PCI soundcard
- 4pin-3pin cable for analog CD-ROM audio connection
- Sound Track Audio DSP24 Value Bracket (optional)
- MIDI in/out cable (optional)
- 10 pin flat for Value Bracket (optional)
- 2pin cable for CD-ROM digital output (optional)
- driver and installation CD
- this manual

Superb multi-track quality:

The Audio DSP24 Value supports up to 24-bit resolution and 96kHz sample rates for two in- and output channels. Optionally, you can connect the DSP24 Value Bracket to supply optical and coaxial S/PDIF and MIDI in/out connectors. In addition, all internal signal paths are processed at 36-bit resolution ensuring the highest amount of headroom and fidelity.

Intuitive Software Interface:

The Audio DSP24 Value comes with a selection of software interfaces.

The *Output Mixer* software Iis used to route the output signals. Also it displays level meters for in- and output monitoring of all signals.

The *Internal Mixer* allows to control the function for Windows multimedia system sounds. It controls the levels of the CD and Wave signals. The output signal of *Internal Mixer* is always played through the Line Output on the card. This makes it possible to use the card as an ordinary standard soundcard.

II. Specifications

- PCI 2.1 compliant interface
- 2 inputs and 2outputs channels (RCA connectors)
- supported sample rates in kHz: 22.05, 32, 44.1, 48, 88.2, and 96
- 24-bit converter rsolution
- Internal CD in, Aux In, and Line Out via AC-97 Codec (*Internal Mixer*)
- Optical and coaxial S/PDIF standards (optional)
- MPU-401 compatible MIDI interface (optional)
- Drivers for Windows 95/98/ME, NT4 and Windows 2000 available

III. In- and output connectors

SoundTrack Audio DSP24 Value PCI-card
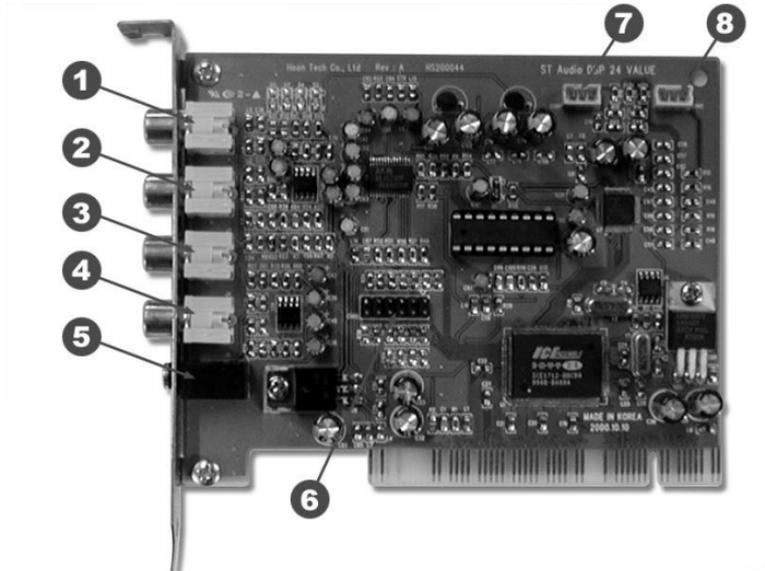
1. Analog Input 1 (RCA)
2. Analog Input 2 (RCA)
3. Analog Output 1 (RCA)
4. Analog Output 2 (RCA)
5. Line Out – 1/8 stereo jack, used for system sounds
6. 10 pin connector for optional DSP24 Value Bracket
7. CD In – can be connected to the analog output from CD-ROM
8. Aux In – can be connecte to the analog output from a TV-card or different analog sources

SoundTrack Audio DSP24 Value Bracket

The DSP24 Value Bracket is used to add optical and coaxial I/O connectors. It also adds a digital input which for CD-ROM drives with digital output and MIDI in- and outputs. The bracket is available as option.
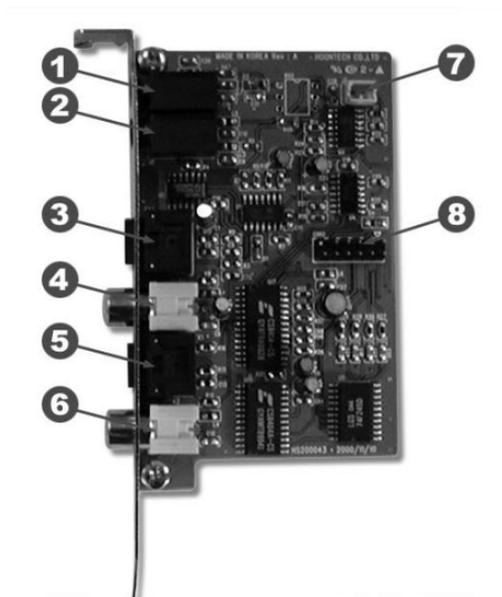
1+2. MIDI In/Out connectors (using 1/8" to DIN adapter cables)

3+5. Optical In/Out connectors.

4+6. Coaxial In/Out connectors.

7. CD digital In 2-pin connector for CD-ROM signals.

8. 16pin Connector for use with Audio DSP24 Value card

IV. Block diagram
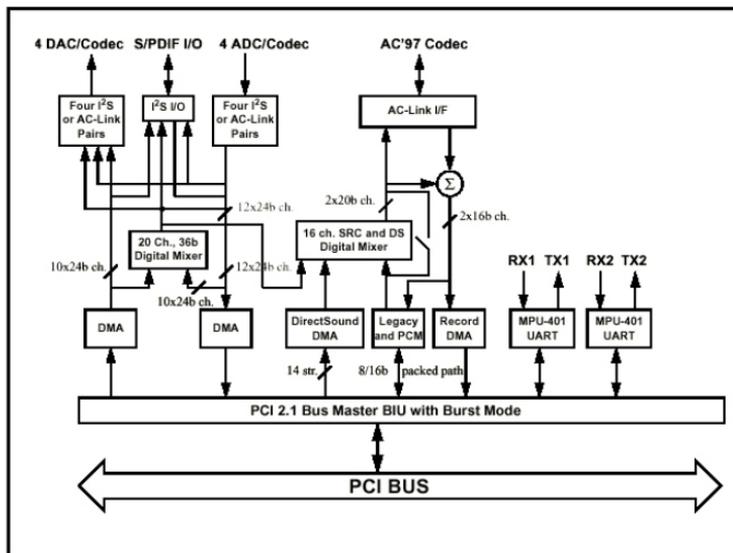
Note: The Internal and Output Mixer are completely independent. The Internal Mixer controls normal PC audio functions such as Windows sounds or CD Audio playback. It is represented by the AC-97 Codec on the card. The Output Mixer section is separately used by the audio recording/mixing applications with support for up to 24bit/96kHz.

The Line-Out, Aux and CD-In are routed through the AC-97 Codec on the DSP24 Value and are controlled by the *Internal Mixer*.

S/PDIF I/O (optional) and the analog signals (RCA connectors) are controlled by the *External Mixer*.

V. Hardware installation

Make sure the computer is switched off and unplugged. Remove the external computer cover. If you own the DSP24 Value Bracket, check that you have connected it to the Audio DSP 24 correctly: the red pin-1 marking on the ribbon cable must be alligned to the triangle-marked pin on both sides. Insert the Audio DSP 24 Value PCI-card into a free PCI slot making sure that it is pressed firmly into position and secure it to the computer case. If available, position the DSP24 Value Bracket to a free slot and secure it to the computer case.

You can use an analog cable to from the CD-ROM drive if you want to listen to audio CDs via the Line Out on the card. The cable can be connected to the CON1 connector on the card.

VI. Driver and software installation

Driver installation

The Audio DSP24 Value comes with a CD that contains drivers for Windows 95/98/ME and NT4. The following instructions pertain to Windows 98 only. The installation under Windows 95 or Windows ME is very similar.

After installation of the Audio DPS24 Value in a PCI slot in the computer, boot up the system. Windows 98 will detect new hardware and display the following screen.

Click *Next*.

Select *Search for the best driver for your device* and click *Next*.

Check *Specify a location*. Type in the <drivename>:\sound\dsp24ve\driver in the window displayed above and click *Next*. In the alternative, you can click Browse and find the above file on the CD, then click *Next*.

Note: you cannot use the driver from the directory \sound\dsp24\driver for the SoundTrack Audio DSP24. Make sure you are using the correct directory!

After Windows finds the driver you should see the above screen naming the driver file indicated in the screenshot. Click *Next*.

At this window complete the installation by clicking *Finish*. Windows will now install the driver for you through a series of installation screens. If you are prompted to do anything (this would be unusual), it is usually safe to simply press Enter.

After the driver is installed ensure the installation worked by pressing *Start>Settings>Control Panel>System>Device Manager>Sound*, *video and game*

controllers. You should see the SoundTrack device listed there. Highlight it and click on Properties. You should see the message *This device is working properly*. Click on the Resources tab, you should see the message *No conflicts*. If so, congratulations are in order. You have successfully installed the drivers for the Audio DSP24 Value.
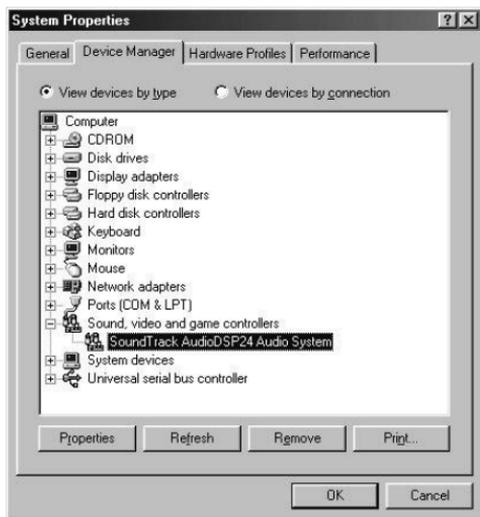
Software installation

After successfully installing the driver above, setup your Audio DSP24 software. Insert the installationCD into the drive. Click *Start>Run* and type in <drive letter>:\sound\dsp24ve\setup.exe in the window. Click *OK*.

You will see the Windows Setup indicator begin to work as below.
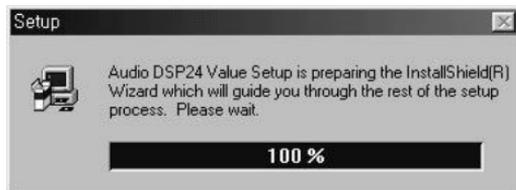
Next you will see the *Welcome to Audio DSP24 Value Setup* window:

Click *Next*.

Choose the default directory by clicking *Next* or select your own by clicking Browse then *Next*.
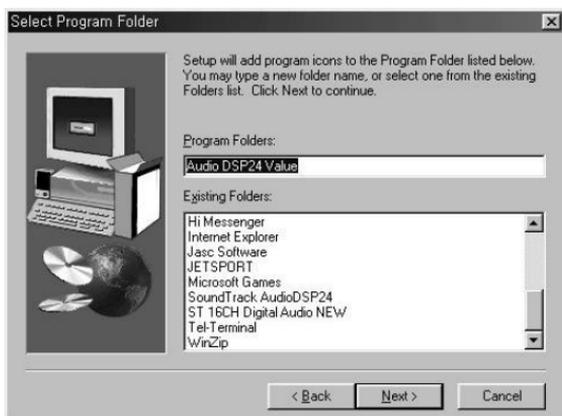
Choose the default Program folder name by clicking *Next* or type in your own and click *Next*. Now you will next see the SoundTrack Audio DSP24 installation indicators.

Just wait while the files are copied to your system. Next you will see the setup completion window and will be asked if you wish to launch External Links:
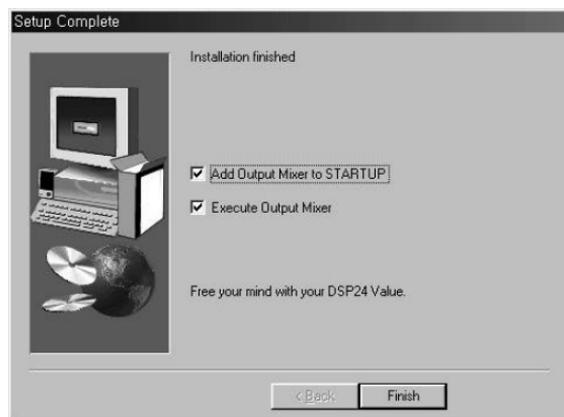
Click *Finish* if you wish to Finish and launch *Output Mixer*. If you do not want to have the *Output Mixer* automatically loaded on startup, declick *Add Output Mixer to STARTUP*. We recommand leave the option. Declick the *Execute Output Mixer* if you do not wish to do so and click *Finish*. Congratulations! You have successfully installed the SoundTrack Audio DSP24 Value software.

VII. Mixer controls

Internal Mixer

You can launch the *Internal Mixer* via the start menu.

You can control the systems internal components with the *Internal Mixer*. The *Internal Mixer* works basically like a normal soundcard and can be used for standard multimedia software or games for example. Please see the following section with more details:

Master

Controls the output volume of the *Internal Mixer*. The signal controlled here will be played through the Line Out connector of the PCI-card.

You can control the panning and the master volume. Muting the signal is possible as well.

Wave

Controls the volume of the signal played using the device *ADSP24 Int. WaveOut*.

You can control the panning and the wave volume. Muting the channel is possible as well.

Record

If you want to record a signal from the *Internal Mixer* (using the device *ADSP24 Int. Input*), you can control the signal volume and the source in this section. Please note that this section in the mixer is not used to control recordings from the analog RCA- or S/PDIF-inputs.

With the drop-down menu you can select the record source. The slider controls the volume of your recording.

CD In

This sections controls the volume of the internal analog CD input of the PCI-card.

You can control the panning and the CD volume. Muting the channel is possible as well.

Aux

This sections controls the volume of the internal analog Aux input of the PCI-card.

You can control the panning and the Aux volume. Muting the channel is possible as well.

Output Mixer

The Output Mixer application is the command center for the Audio DSP24 Value system . With the *Output Mixer* you can control all incoming and outgoing signals.

Note: The *Output Mixer* will only change the audible signal. You can output it either through Ouput 1,2 and/or through the S/PDIF Output (setup under *Master*). When you are recording an input signal, the *Output Mixer* does not change the signal level. This ensures that you are always recording with best possible quality.

Master

Controls the output volume of the *Output Mixer*. The signal controlled here will be played through Output 1,2 and/or the S/PDIF Output.

You can control the the volume of the left and right channels independandly. Muting the signal is possible as well.

With the buttons on the left side, you can hide or display each mixer channel.

In the lower right corner you can select the output routing for the analog output channel 1/2 and the S/PDIF output:

- *Output Mixer* – plays the mixed signal through S/PDIF Out or Output 1/2
- *S/PDIF In* – routes the signal from the S/PDIF input to S/PDIF Out or Output 1/2 (= direct monitoring without latency)
- *Wave Out* – routes the signal from the Wave Out device (the playback from the applications) to S/PDIF Out or Output 1/2
- *Input 1/2 In* – routes the signal from the analog input to S/PDIF Out or Output 1/2 (= direct monitoring without latency)

You can make the same setting in the menu under *File>Outputs*.

Wave (1/2 to 7/8)

In the *Wave* section you can control the volume of the playback signal (for the devices *ADSP24 Ext.(n) WaveOut x/x*).

Muting each channel is possible. Also you can control the panning independand for the left and right channel of each stereo device.

S/PDIF Out

In the *S/PDIF Out* section you can control the volume of the signal of the device *ADSP24 Ext. S/PDIF Out (n)* – if the optional DSP24 Value Bracket is installed.
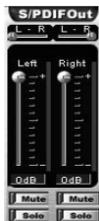
Muting the left and right channel is possible independandly.

S/PDIF In

This section controls the signal from the digital input of the card (if the optional DSP24 Value Bracket is installed).

Muting the left and right channel is possible independandly.

Input 1/2

This sections controls the volume of the analog Input 1/2 (RCA connectors).

Muting the left and right channel is possible independandly.

VIII. Hardware settings

Clicking *File>Hardware settings* on Output Mixer will open the Hardware settings window. You can select the *Internal Master Clock* settings in kHz (22, 32, 44.1, 48, 88.2 and 96kHz) for synchronisation, DMA buffer settings for Wave and ASIO devices and *External Master Clock* settings here.
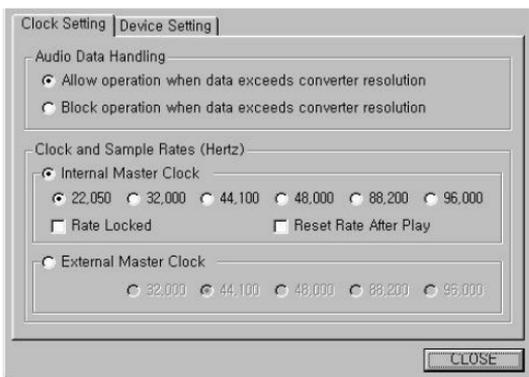
Audio Data Handling

This function enables the system to allow or block continuing operation when a specific converter resolution is exceeded (24-bit).

Clock and Sample Rates

These settings determine the sample rate at which the system will operate and whether an *External Master Clock* will control clock timing. The Audio DSP24 Value can be synchronized to an external device or set its own internal rate and impose this rate on the other devices (conncted to the digital output). You must ensure that all components are operating at the same sample rate. Checking the *Rate Locked* box will result in support for only the indicated sample rate. With *Reset Rate After Play* it is possible to change the samplerate back to the previous setting after an application stopped playback.

Caution: Please note that you cannot use the card when no signal is connected to the S/PDIF input when the option *External Master Clock* is activated at the same time. The card cannot record or playback without a significant loss in audio quality in that case. So please make sure that the option *Internal Master Clock* is activated

before you start to record. However, to record from a S/PDIF source through Value Bracket, the option must be set to *External Master Clock*.
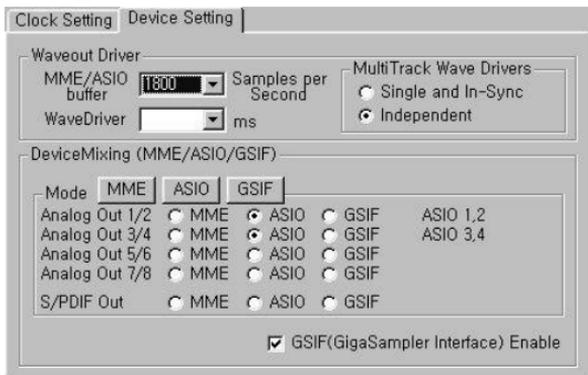
Device Setting

These settings determine latency response to system change commands. Higher buffer settings will result in greater latency but fewer playback and recording dropouts. Lower buffer settings will result in lesser latency but you may encounter playback and recording dropout problems as the system gets overloaded. Many software programs provide suggested buffer settings that you can try. Each system is different and may require experimentation and adjustment to find optimal buffer setting levels.

When you experience drop outs during playback and/or recording, please try to increase these values.

DeviceMixing (MME/ASIO/GSIF)

In this section, you can assign each output channel to a specific WaveOut channel. Applications using the ASIO, MME and GSIF-interfaces are supported. All programs can be used at the same time but please make sure to follow the applications setup procedures and never change the setting while an application is using the DSP24 Value.

IX. Usage with software applications

For each application you are using with the Audio DSP24 Value you have to follow some configuration steps. Basically, every stereo input or output channel of the card can be used like a normal soundcard using the corresponding devices. Normally every program will have a configuration function where you can select the devices.

Available in- and output devices

The available wave devices for playback and recording are:

- *ADSP24 Int. WaveOut* – plays audio data through the *Internal Mixer* (which will be audible on the Line Out of the card). Please note that this driver only supports 16bit/48kHz as maximum resolution and samplerate.

- *ADSP24 Ext.(1) WaveOut 1/2* – first stereo wave output device. Use this driver to play audio through outputs to the RCA outputjacks.

- *ADSP24 Ext.(1) WaveOut 3/4* – second stereo wave output device (virtual). If you use this driver, you can control the signal in the *Output Mixer*.

- *ADSP24 Ext.(1) WaveOut 5/6* – third stereo wave output device (virtual). If you use this driver, you can control the signal in the *Output Mixer*.

- *ADSP24 Ext.(1) WaveOut 7/8* – fourth stereo wave output device (virtual). If you use this driver, you can control the signal in the *Output Mixer*.

- *ADSP24 Ext. S/PDIF Out (1)* – plays audio through the stereo S/PDIF digital output of the Value Bracket. See section VII in this manual for output routing details.

- *ADSP24 Int. Record* – records the signal from Internal Mixer. Use this driver to record from the CD or Aux Input on the card. Please note that this driver only supports 16bit/48kHz as maximum resolution and samplerate.

- *ADSP24 Ext.(1) Input 1/2* – stereo input driver to record input signals from Input RCA jacks.

- *ADSP24 S/PDIF In (1)* – records signal from the S/PDIF input of the DSP24 Value Bracket. Check section V in this manual to learn how to use Value Bracket.

- *ADSP24 Digital Mixer (1)* – with this driver you can record the output signal of the *Output Mixer*.

Additionally, the card provides an ASIO 2.0 driver called *ADSP24 ASIO*. It allows access to all 4 input and 10 output channels of the in applications that support ASIO (like Cubase VST). ASIO allows applications to record and playback at a very low latency (down to 2ms). This means that it is possible to apply realtime effects with your systems CPU input or output signals. Also, you can use software synthesizers to output through ASIO.

Please note that most applications will need special settings to ensure that the SoundTrack Audio DSP24 Value is working properly. We are continuously testing the card with various popular applications. In the following sections we have provided examples of a few applications. Please take the time to review it to avoid problems later. If you still encounter problems or if you are using different programs, we recommend to contact Hoontech using the Q&A support forum on the internet (http://www.hoontech.com).

Setting up Emagic Logic SoundTrack24

Logic SoundTrack24 is a special version of the Logic Software from Emagic, designed to be used with the Audio DSP24 Series. It can use the ASIO driver of the Audio DSP24 Value for recording and playback.

- call *File>Hardware settings* in External Links.
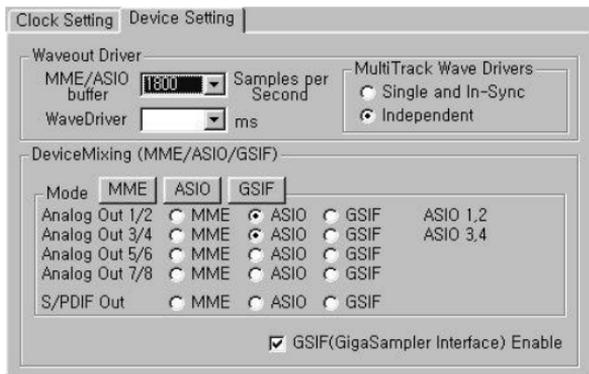
- under *Device Setting* select the ASIO buffer size: we recommend using a value of about *1800* – depending on the system performance.

- click on the *ASIO* button under *DeviceMixing*.

- make sure the option *Rate Locked* under *Clock Setting* is disabled

- set the option *MultiTrack Wave Drivers* to *Independent* (under *Clock Setting*)

- launch Logic SoundTrack24 and select the option *Audio>Audio Hardware & Drivers*.
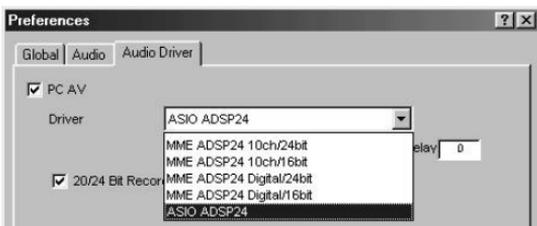
- select *Audio & Hardware Drivers* and select *ASIO ADSP 24* as ASIO device. If you want to work with 24-bit resolution, enable the option *20/24 Bit Recording*.

- exit Logic and launch it again to activate the settings.

Please also refer to the documentation of Logic SoundTrack24.

Setting up Steinberg Cubase VST/24 3.72

Cubase VST 3.72 from Steinberg uses the ASIO specification to access recording hardware. Steinberg has defined ASIO and improved support for recording multiple channels at the same time. ASIO features reduced latency for playback of VST plugins and instruments. Please note, that other Steinberg programs (like Nuendo, Cubasis VST or Cubase VST 5.0) have a very similar setup when using the ASIO driver. To setup the Audio DSP24 in Cubase VST, please follow these steps:

- call *File>Hardware settings* in External Links.
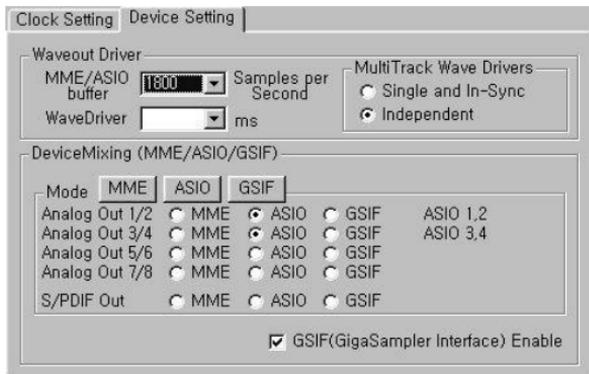
- Select the ASIO buffer size. On faster systems (Pentium III, Athlon) it is usually safe to use *512* as a small setting. On other systems you may try this setting but increase the buffer size later, depending on the performance. Also you can decrease the buffer size but please test if the performance is OK on your specific system.

- click on the *ASIO* button under *DeviceMixing*.

- Start Cubase VST and select the option *Audio>System*.
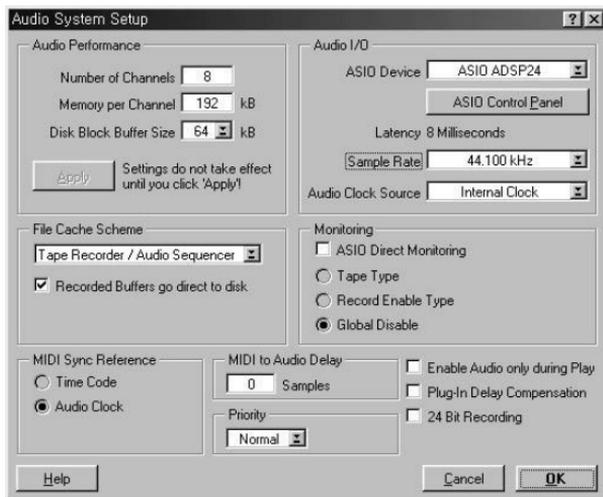
- In the section *Audio Performance*, set *Number of Channels* to *16* (recommended).

- In the *Monitoring* section, select *Global Disable* (recommended). If you want to monitor signals in realtime and adding VST plugin effects at the same time, select *Tape Type* instead.

- In the upper right corner under *ASIO Device* select *ADSP24 ASIO*. By clicking on *ASIO Control Panel*, you can also change the *samples per buffer* value.

- Below that you can choose the *Sample Rate*.

- If you want to use the Audio DSP24's realtime monitoring functions (without adding effects to the monitor signal), select *ASIO Direct Monitoring*

To define which input and outputs to use in Cubase VST, first go to *Audio>Inputs*. A window will appear that allows you to activate or deactivate each input (stereo). You can assign these inputs to the channels in the *VST Channel Mixer* then (via *Audio>Monitors*). For the outputs, you need to open *Audio>Master*. In this window you can deactivate a stereo bus for each stereo output. These busses can be used internally in Cubase VST to route signals to the outputs. You can find more information about this in the Cubase VST documentation. Also, the latest updates for Cubase VST can be downloaded from http://www.steinberg.de.

Setting up Emagic Logic Audio Platinum 4.5

The powerful Audio-/MIDI-Sequencer Logic Audio Platinum 4.5 (and higher) from Emagic also uses ASIO drivers. Follow these steps to setup the application for the Audio DSP24.

- call *File>Hardware settings* in External Links.
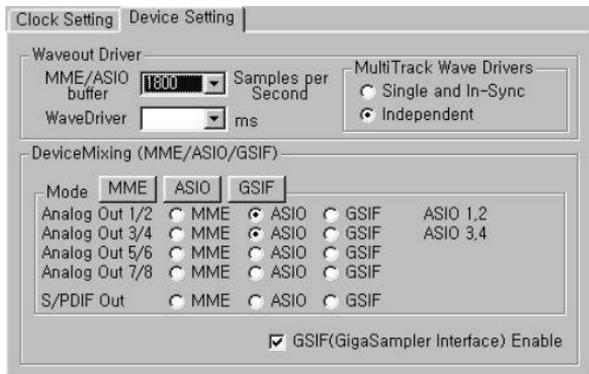
- select the ASIO buffer size: we recommend using a value of about *1024* – depending on the system performance.

- click on the *ASIO* button under *DeviceMixing*.

- launch Logic Audio Platinum and select the option *Audio>Audio Hardware & Drivers>Audio Driver 2*.
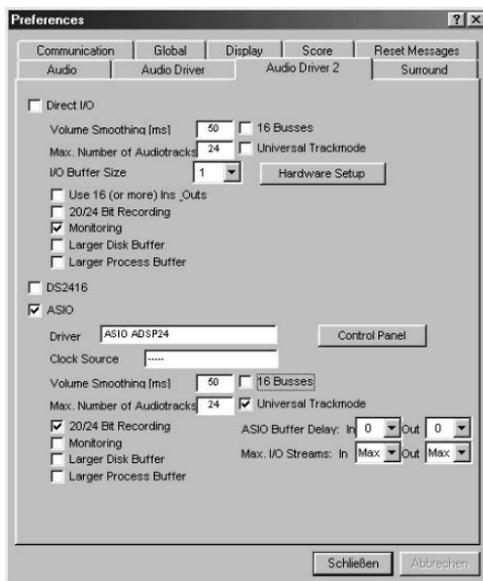
- check the box *ASIO* and select *ASIO ADSP24* as ASIO device. If you want to record with 24-bit resolution, check the box *20/24 Bit Recording*

- exit Logic Audio and launch it again to activate the changes.

You can get the latest informations about Logic Audio Platinum at http://www.emagic.de. If you use previous 4.xx versions of Logic Audio, we recommend to get the free update to Version 4.5 at least.

Setting up Cakewalk 9.x

Cakewalk is a famous Audio-/MIDI-Sequencer and Recordingsoftware. It uses the MME drivers of the SoundTrack Audio DSP24 Value.

- launch Cakewalk and select *Options>Audio*. The *DirectShow Audio* dialog will be displayed.
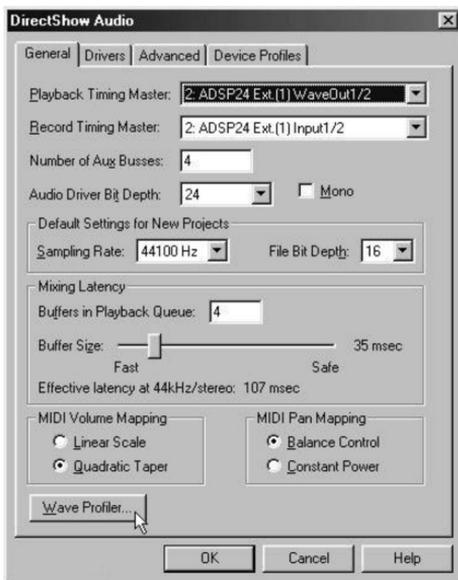
- Click on *Drivers*. You will see a list of MME devices for Input and Output. Select the entries you want to use (check the section AVAILABLE IN- AND OUTPUT DEVICES earlier in this chapter for reference). Usually you should select at least *ADSP24 Ext. (1) Input 1/2* and *ADSP24 Ext. (1) WaveOut 1/2*.

- Go back to *General* and select *Wave Profiler*. Follow the directions on screen until you see the message *Audio hardware has been successfully profiled*.

- Select *ADSP24 Ext.(1) WaveOut 1,2* as *Playback Timing Master and ADSP24 Ext. (1)* Input *1,2* as *Record Timing Master*. If you are recording from the S/PDIF input, select *ADSP24 S/PDIF In (1)* instead. The option *Audio Driver Bit Depth* should be set to *24*.

- Select the sample rate and resolution you want to use under *Default Settings for New Projects*.

- *Mixing Latency*: Basically, you can set *Buffers in Playback Queue* as *4*. Settings less than *4* will result in lower latency but the system performance could be lower, resulting in possible drop-outs. Start with buffer sizes suggested by *the Effective latency* tests, usually around 100msec. When the latency needs to be under 100msec, click on the *Advanced* tab and enable the *WavePipe(TM) Acceleration* option. Please note that each system will have different optimal settings. You should experiement with the settings to get the perfect setup for your system.

- Under *Device Profiles*, enable the option *Use Wave Out Position For Timing*.

You can get the latest updates and informations on Cakewalk on http://www.cakewalk.com.

Setting up Nemesys GigaSampler 1.6

GigaSampler from Nemesys is a powerful and very popular software sampler. The SoundTrack Audio DSP24 Value provides a special GSIF-driver (GigaSampler-InterFace) that allows you to use the separate outputs of the card with GigaSampler.

- call *File>Hardware settings* in External Links.
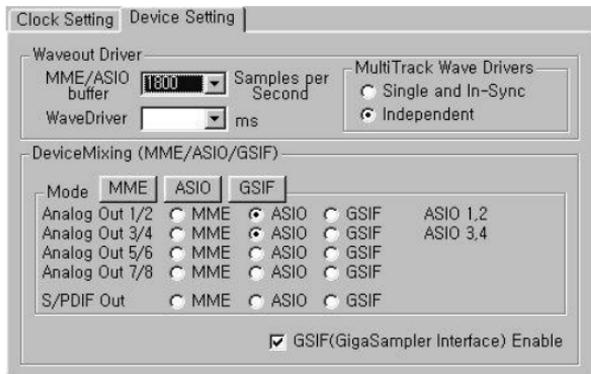
- press on the *GSIF* button under *DeviceMixing* – or select *GSIF* for at least one channel.

- launch GigaSampler and select *Config>Outputs*.
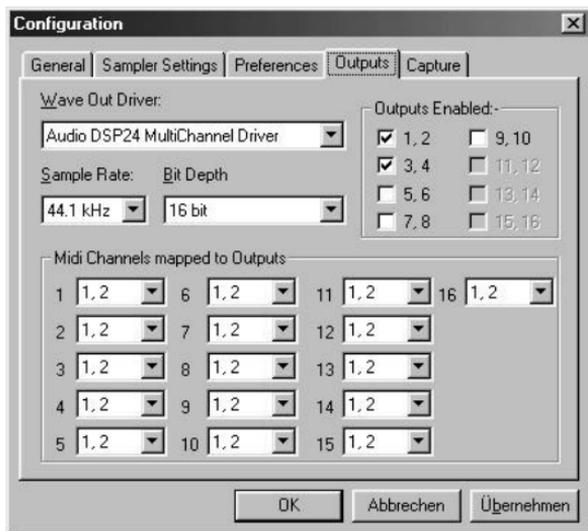
- Under *Wave Out Driver*, select *Audio DSP24 MultiChannel Driver*.

- Select the Output channels you want to use on the right side under *Outputs Enabled*.

- Now assign the *Midi Channels mapped to Outputs* in the lower area.

You can get the latest informations and updates of GigaSampler on their website
http://www.nemesysmusic.com.