

Direct Pro 24/96 Specifications, Options, & Components

Direct Pro 24/96 Specifications:

Converters:

24 bit, 96 kHz A/D D/A Shielded Converters

THD+N: .002% @ 1 kHz

Dynamic Range: 110 dB D/A, 100 dB A/D

Frequency Response:

Sample Rates: 32 kHz, 44.1 kHz, 48 kHz, or 96 kHz

Mic Preamp:

- Frequency response at -3db: 1.6Hz-200kHz

- EIN at 20-20kHz, 150 Ohm: -130dBu

- THD at 20db gain: 0.00005%

Phantom Power:

Analog Inputs: Four Combo 1/4" & XLR Connectors:

- XLR MIC Inputs (w/ 60 dB Level Trim) & Phantom Power

• 1/4" UnBal Line Inputs at -10 dBv (w/ 30dB Level Trim)

- 1/4" Bal Line Inputs at +4 dBu (w/ 30 dB Level Trim)

Analog Outputs: Four Line Outputs on 1/4" Connectors: +4 dBu/-10 dBV

Two AUX Outputs on RCA Connectors: -10 dBv

Headphone Output: Stereo Headphone Jack on front

Digital I/O: 24 Bit S/PDIF In/Out, OPTIONAL: AES/EBU In/Out

MIDI In/Out on 5-Pin DIN Connectors

Sync I/O: S/PDIF Digital Clock, MIDI

Modes: Full Duplex Simultaneous Record/Play

Expansion: Up to four (4) cards can be used simultaneously in one PC.

Computer Card Type: PCI Bus Architecture, 5" length

Connectors on Card:

25-Pin Connector to Break-Out Box, S/PDIF Digital In/Out

Powerful DSP: 24 Bit, 80 MIPS

Minimum System: 133 MHz w/ Win 95/98; 32 MB RAM

Options:

AES/EBU I/O: AES/EBU I/O connects to S/PDIF I/O

19" 2U MONO Rack: MONO RACK for 1 DIRECT PRO 24/96

19" 2U DUAL Rack: DUAL RACK for 2 DIRECT PRO 24/96

The Direct Pro 24/96 Package Includes:

- Direct Pro 24/96 Break-Out Box

- Direct Pro 24/96 Host PCI Card with DSP

• Direct Pro 24/96 Manual

- Custom 25-pin Shielded Cable

- Software Control Panel

- Windows 95/98 and ASIO Drivers

- Multichannel Recording Application and Effects**

**** For updated software bundle check out our website: www.aardvark-pro.com/DirectPro/software**



THE ALL-IN-ONE PERSONAL STUDIO SYSTEM

Aardvark
Superior sound. Simplified.

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Welcome to the Direct Pro 24/96, the All-in-One professional studio PC interface!

System Requirements

- Microsoft Windows 95 or Windows 98
- Pentium or compatible of running at 200Mhz or higher
- 64 MB RAM
- One Available PCI slot

The Philosophy

The All-in-One Direct Pro 24/96 is truly a revolution in PC recording. This Personal Studio System is a clever combination of hardware and software that provides professional recordings right out of the box, all while keeping the audio quality and computer performance to the expectations of the world's top professional studios.

Because the Direct Pro 24/96 is an all-in-one system, it eliminates the need to purchase an expensive mixer to record your audio on the PC. The break-out box, software and powerful DSP engine allow you to have all the meters, faders, pan adjustments, input level trim, EQs and mic preamplifiers that expensive mixers have. In addition, you get the flexibility of presets and one-touch adjustments to make the whole system more efficient.

We also know that monitoring with effects is crucial in getting good recordings, so the effects delay doesn't get in the way of your creative spirit. That's why we've included a powerful DSP engine and three real-time DSP effects so you can monitor in real-time without the 1/2 second latency that you'll find in almost all other PC recording systems. The DSP not only gives you great sounding real-time effects, but it also completely powers the Direct Pro 24/96 system so it keeps your PC running lightning fast.

We hope you notice all the extra effort we put into the Direct Pro 24/96. The hand-crafted mic preamplifiers, perfectly shielded PCI card and our easy to use Control Panel should make using the Direct Pro 24/96 a refreshing beginning to many years of PC recording.

We welcome you to the Aardvark family and hope you enjoy being part of the new PC recording revolution!

FCC Statement

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 a reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency 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.



This product complies with European CE requirements.

This situation may result if you have previously installed audio hardware from other manufacturers (such as Event Electronics) that use Motorola chipsets for PCI access. You must remove the previous device driver by opening the folder C:\Windows\Win\Other, searching for the file name that matches the previous audio hardware, and deleting it. Next, in Start Menu/Settings/Control Panel, open the System control panel and select the Device Manager tab. Open Sound, Video, and game controllers, select the previous audio hardware and click Remove followed by Refresh. Windows should now begin installing the Direct Pro 24/96 drivers.

Problem: Some of the inputs or outputs aren't functioning

Make sure that the inputs and outputs are being properly routed in the Direct Pro control panel. Refer to the Patch Bay section of this manual for more information on how to do this. Also, check the connections between the Ark interface box and your outboard equipment. If the inputs or outputs are still not working, contact Aardvark technical support (tech@aardvark-pro.com)

Problem: The Direct Pro 24/96 is having or is causing an IRQ conflict.

Although Windows assigns and IRQ position to the Direct Pro 24/96, the IRQ is not actually used. For this reason, any other peripheral can share the same IRQ without performance problems, even if windows warns of a conflict.

Problem: The Direct Pro 24/96 sample rate switches to 32kHz for no reason.

This problem will occur if the Direct Pro 24/96 is being used by Windows to play system sounds. You can assign these sounds to another sound card by going to Start Menu/Settings/Control Panel/Multimedia, and selecting the other card as the Preferred Device for Playback and enabling Use Preferred devices only. Otherwise, you should disable the sound by going to Start Menu/Settings/Control Panel/Sounds and selecting No Sounds from the Schemes dropdown menu.

Problem: Echo is present when monitoring tracks

This can occur if you use the Direct Pro 24/96's monitoring capabilities at the same time as the monitor from your audio software. There will be a longer delay with the software monitored tracks than with the Direct Pro 24/96's input monitoring, so if you combine the signals, echoing will result. To avoid this, use only the Direct Pro 24/96's monitoring capabilities.

Problem: Jitter is present on digital S/PDIF recordings

Check your Source Select indicator settings in the Direct Pro 24/96 control panel. When recording S/PDIF, the Source Select should be set to S/PDIF.

5. At the bottom of the performance tab, you should see Your system is configured for optimal performance. Any other messages will alert you that there is an underlying problem with your system configuration, potentially causing performance problems. If this is the case, consult a computer specialist to resolve this situation.
6. CD-ROM drives and older hard drives should be located on the secondary IDE channel, away from your newer hard drives on the Primary channel. Mixing fast and slow drives on the same channel can lower performance.
7. In the System control Panel. Click on the Device Manager tab. double-click the CDROM header, select your CD-ROM drives. Click on Properties, select the Settings tab, and disable Auto Insert Notification. This can prevent problems with playback and recording. Please note that Adaptec DirectCD discs may not read correctly while this setting is disabled.
8. Deactivate any background tasks such as screensavers, crash protectors, virus scanners and disk compression agents. If Microsoft Office is installed, disable the Fast Find feature and Office Startup Assistant. Any of these tasks can interfere with playback or recording.

Problem: The Direct Pro 24/96 isn't working after a reboot

Because the Direct Pro 24/96 is directly powered from the computer, there are major advantages such as reduced ground loop potential and a complete absence of transformer noise. However, this also means that the Direct Pro 24/96 requires a full PCI bus reset when the computer is rebooted. A complete restart is needed to achieve this, and some computers may require the power turned off before booting to do this. If the PCI bus has not properly reset, you may see an error message such as "Direct Pro 24/96 alert- Unable to send software to host card" or "The Aark hardware is not responding", the direct pro will not function until you reset the PCI bus by rebooting.

Problem: The Direct Pro 24/96 does not seem to be functioning

Make sure the software is correctly installed by doing to Start Menu/Programs/Aark Manager and selecting Aark Manager. If this software is not installed, please refer to the installation section of this manual. Otherwise, turn off your computer, unplug the power cable and open the cover. Discharge any static by touching a bare spot on the metal chassis, then make sure the Direct Pro Host PCI card is firmly in place. Put the cover on and start your system. If the Direct Pro 24/96 is still not working, try putting the Direct Pro Host PCI card in another slot, swapping cards if necessary. Firmly reseal the card and screw it into place, then reattach the interface cable, replace the cover, and boot the computer, following the instructions from the installation section.

Problem: Windows won't install the Direct Pro 24/96 Driver

Table of Contents

Introduction.....	2
Contents	3
Direct Pro 24/96 Components	4
Installing the Direct Pro 24/96 Hardware	5
Windows 95 Setup Guide	6
Hardware Setup	6
Software Setup	8
Windows 98 Setup Guide	10
Hardware Setup	10
Software Setup	12
Direct Pro 24/96 Interface Box	14
Front Panel.....	14
Rear Panel.....	15
PCI Card.....	15
Direct Pro 24/96 Control Panel.....	16
Input Strips.....	16
Effects	19
Playback Channel Controls	24
Monitor Controls	25
Presets.....	26
Advanced Menu	26
Patch Bay	27
Samplitude Basic	29
Direct Pro 24/96 Quick Start Guides	30
Cubase	30
Cakewalk	31
Direct Pro 24/96 Troubleshooting Guide	33
Direct Pro 24/96 Specifications.....	36



THE DIRECT PRO 24/96 SYSTEM

The Direct Pro 24/96 box should contain all of the following items:

- 1 Direct Pro 24/96 PCI host card
- Connects directly to the motherboard of your computer
- 1 Direct Pro 24/96 Interface Box
- 1 6’ shielded 25-pin cable
- 1 Direct Pro Driver CD-ROM
- 1 Digital Audio Software CD-ROM
- 1 Direct Pro 24/96 Manual

If any items are missing or damaged, please contact your dealer or Aardvark Customer Support.

Email: Support@aardvark-pro.com

Tel: 734-665-8899

Fax: 734-665-0694

DIRECT PRO TROUBLESHOOTING GUIDE

Should you run into any difficulties with your Direct Pro 24/96, please consult this section. Although most problems are easily rectified this way, do not hesitate to contact Aardvark Technical Support, or check our website for up to date information.

Problem: Unable to achieve full 4 input/6 output performance.

In order to get the most out of the Direct Pro 24/96, you should have at least a 166 MHz processor with 64 MB of RAM and a Mode 4 EIDE hard drive. In addition, your motherboard should be PCI 2.1 compliant, and your graphics card should be AGP or PCI with a minimum of 2MB DRAM, VRAM or WRAM. Many performance problems can be attributed to poor throughput stemming from an older motherboard or standard IDE hard drive. If your system does not exceed the minimum recommended requirements, consider upgrading as soon as you can. Audio software requires a great deal of power, and many older machines simply cannot handle it.

Another possible cause of poor performance is using your system for a wide variety of applications. It is best to dedicate your system to audio as much as possible, avoiding shell extensions such as Internet Explorer, Microsoft Office, Norton Navigator, and background virus scanners. These, and many other programs, have elements running at all times, taking up valuable resources. Press Ctrl+Alt+Del to see what programs are running in the background. You may be surprised!

Here are some tips for optimizing your workstation:

1. In Start Menu/Programs/Accessories/System Tools, select Disk Defragmenter (unless you have another defragmentation program such as Norton SpeedDisk). Select all of your hard drives and defragment them. This procedure should be repeated at least once a week for optimal disk performance
2. In Start Menu/Settings/Control Panel, select System and click on the Performance tab. Click the File System button and set Typical Role of This Machine to Network Sever. Read ahead optimization should be set to Full. Click the Troubleshooting tab, activate Disable write-behind caching for all drives with a check mark and click OK. This will reduce the possibility of data corruption following a crash.
3. If you are using a Matrox PCI graphics card, click the Graphics button and set Hardware Acceleration to the third setting (Most accelerator functions). This will reduce the potential loss of PCI throughput to the graphics card.
4. Still in the System Performance area, click the Virtual Memory button and activate Let me specify my own virtual memory settings. Choose the hard disk with the best performance, set the minimum to 50 MB (making sure there is at least 75 MB available), leaving the maximum alone. This will greatly reduce “swap file thrashing”, and improve overall system performance.

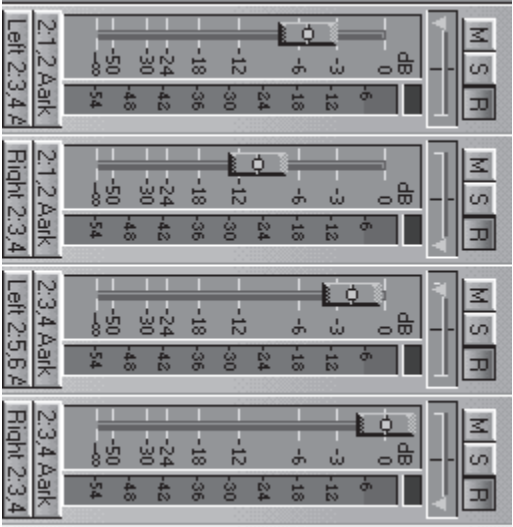


mixer will bring up a menu that provides the option to add an audio track. Repeat this command until you have your desired number of tracks. A new strip will appear on the mixer for each track you add. At the bottom of each strip, there is a button that indicates what inputs are used to record that track. To change inputs, simply click that button. To arm a track for recording, simply click the R button above a track's volume slider.

5. Initiate recording by clicking the record button near the top of the screen. Do not confuse this with the record mixer automation button, which looks similar. The correct button has a black box with a red circle in it.

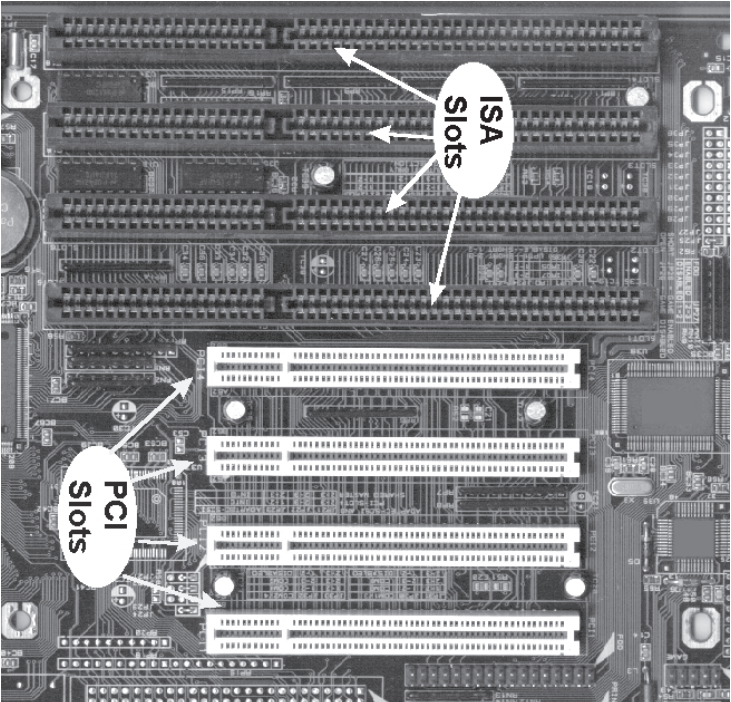
Sound Forge and Wavelab

To prepare Sound Forge or Wavelab for recording, open the Preferences dialog from the Options menu. Click on the Wave tab in Sound Forge, or the AudioCard tab in Wavelab, and select a Direct Pro 24/96 stereo pair for playback and recording. Since Sound Forge and Wavelab can only record or play one stereo file at a time, you will only utilize one input and one output pair with these programs. In sound Forge/ Wavelab, click the red Record button. Enable Monitor in Sound Forge or Meter in Wavelab with a check mark to view the input level meter, hit record then play your audio. When the recording is complete, click the Stop button and save the file with Save As from the file menu. Clicking the play button will play the sound file back through the stereo output set in the Preferences dialog.



INSTALLING THE DIRECT PRO 24/96 HARDWARE

1. Please unplug you PC before connecting or disconnecting the Direct Pro 24/96 interface box and PCI host card . Connecting or disconnecting the hardware with electricity present will cause physical damage to the Direct Pro 24/96 or your computer. It is best to disconnect the power cable completely before proceeding. If you are unfamiliar with installation of computer peripherals, please seek assistance from qualified computer technician. Aardvark will not be held responsible nor liable for damages resulting from improper installation.
2. Remove the cover from your computer. Most computers have a series of screws on the back of the case that keeps the cover in place.
3. Choose an empty PCI slot, it will look like the PCI slots show below.
4. Remove the small outer cover from the chosen PCI slot. This cover will likely be held in place by a screw. Ground yourself by touching an empty slot on the computer's metal chassis.
5. Gently align the Direct Pro 24/96 PCI Host Card with the chosen PCI slot and press it slowly but firmly into place. It should be seated tightly, with the metal connection bracket matching up perfectly through the hole in the back of the computer.
6. Use the screw from the small outer cover to lock the Direct Pro 24/96 Host Card in place while providing maximum grounding.
7. Replace the computer's cover.
8. Connect one end of the 6-ft shielded cable to the 25 pin connector on the Direct Pro 24/96 Host Card, and the other end on the back of the Direct Pro 24/96 interface box labeled To Aark Host. Tighten the screws to assure a firm connection and maximum grounding for the Direct Pro 24/96 system.

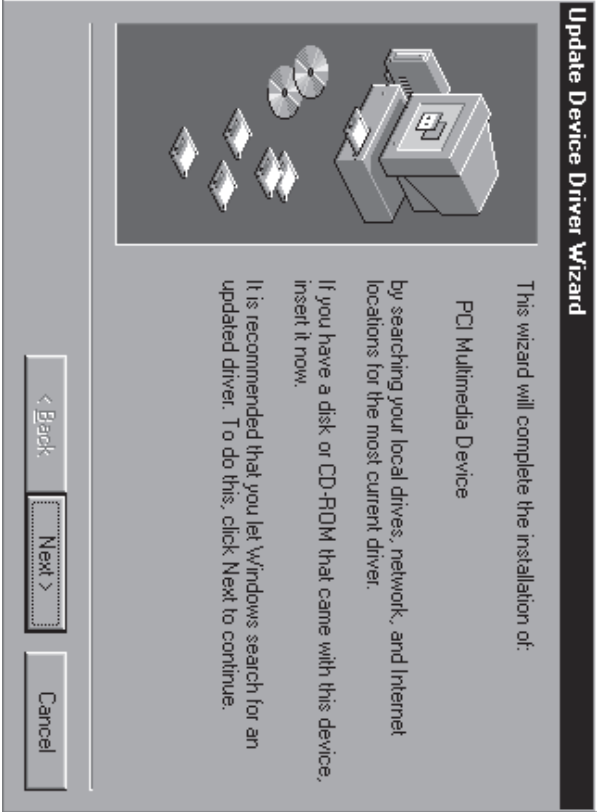


- 9. Avoid putting the Direct Pro 24/96 interface box near your computer or TV screen. This may cause interference and degrade the quality of the audio.
- 10. Keep analog cables connected to the Direct Pro 24/96 away from power cords and monitors.
- 11. Reconnect the computer’s power supply, then turn on the computer. The Direct Pro 24/96 system is completely powered by your computer. Because of this, you must never detach the shielded interface cable without first turning off the computer. Otherwise, damage will occur.

WINDOWS 95 HARDWARE SETUP

- 1. When windows restarts, it will automatically detect the card you installed. Since it is a PCI card, it will identify itself as a “Plug and Play” device.

Windows will indicate detecting the hardware with these dialogs:



- 7. Go to AUDIO | MONITOR. This will bring up your monitor mixer. To change inputs for each channel, hold the CTRL key while clicking the input channel button at the top of each channel strip. Set Channel 1 to IN 1 L, Channel 2 to IN 1 R, Channel 3 to IN 2 R and so on. If you click the IN button on each channel, you can see the Cubase mixer metering the corresponding input on the Direct Pro 24/96.
- 8. Go to AUDIO | MASTER and make sure the master output is set to Aark 1,2. This is located on the lower portion of the strip, and can be changed by right clicking it.
- 9. Minimize the mixer, and activate the desired audio tracks for recording. Activate a track by highlighting it, and clicking the Enable button on the left.
- 10. Place the left locator at the desired starting point for recording, and click the red record button to begin. (If the Cubase transport controls are not on screen, hit the F12 button to reveal them.) Also, Cubase may bring up a window asking where it should write the audio. This is up to you. Be aware, though, that it is unwise to have it written at the hard drive's root directory.
- 11. To add more tracks, disable the tracks just recorded, and enable new ones. The previous tracks will play back, while you add more tracks to the project.

Cakewalk Pro Audio 8.0 +

This is an example of a typical setup for recording multitrack in Cakewalk Pro audio. Cakewalk and the DirectPro 24/96 are not limited to this configuration. These instructions pertain specifically to Cakewalk 8.x; steps will vary slightly for other versions.

- 1. Plug outputs 1-2 into your amplifier/mixer. In the Direct Pro 24/96 patch panel, connect Monitor L,R to Output 1,2..
- 2. Open Cakewalk, go to TOOLS | AUDIO OPTIONS. Enter these settings: On the General tab Record and Playback Timing Master should be set to 1,2 Aark24. On the Drivers tab, make sure all of the Aark drivers are enabled. On the Advanced tab, make sure Enable Simultaneous Record/Playback is checked off. Depending on your setup, other settings may need to be changed for optimal performance. Click OK to save your settings
- 3. Go to TOOLS | AUDIO HARDWARE. Make sure Windows Sound Cards (Direct Show 5.1) is selected.
- 4. Go to VIEW | CONSOLE. This will open up the Cakewalk mixer. Right clicking a blank area of the



Here, dropdown menus allow the Play Device and Record device to be selected for each track. Choose which Direct Pro stereo input pair you want to use for recording and which Direct Pro stereo output you want to use for playback.

- 6. Tracks can be armed for recording by clicking the R(number) button for each track. Click the Multi Card Mode button in the upper left corner of your track window.
- 7. Click the Record parameter button. It's the big red circle at the top toolbar. When the Record parameter window pops up, make sure Playback While Recording is checked off.
- 8. Begin recording by clicking the multirecord button, which is just to the left of the standard record button. It looks like 3 exclamation points on their side.

Before recording begins, a window may come up asking where to save the audio files. Be sure not to select the root directory of the hard drive. There are a limited number of files that can be written to the root, and the program will have more trouble streaming the audio, since it is among many small, non-audio files. Another window may com up stating buffers are ready. Just click OK

QUICKSTART GUIDES

Sometimes, it can take a while to fully unlock the power of the Direct Pro 24/96 and today's digital audio software. However, we know how much you want to start recording. These quick start guides will allow you to quickly configure your setup for multitrack recording!

Cubase VST 3.5+

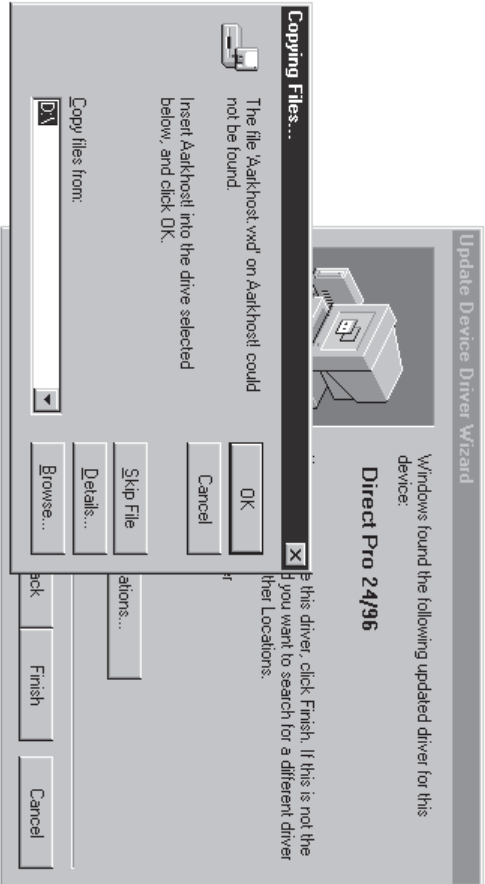
This is an example of a typical setup for recording multitrack in Cubase VST. Cubase and the Direct Pro 24/96 are not limited to this configuration.

- 1. Plug outputs 1-2 into your amplifier/mixer. In the Direct Pro 24/96 patch panel, connect Monitor L,R to Output 1,2.
- 2. Open Cubase and go to AUDIO | SYSTEM. Set Number of Channels to 10. ASIO Device should read ASIO Aardvark Aark Cards. Set Monitoring to Global Disable.
- 3. In the AUDIO dropdown menu, make sure Disable Audio is not checked off.
- 4. Go to AUDIO | INPUTS and activate all of the Direct Pro 24/96 inputs with the green buttons corresponding to each input pair.
- 5. Go to OPTIONS | MULTIRECORD, set it to Active.
- 6. In the main window of Cubase, the first tracks listed should be labeled Audio1, Audio2, etc. If this is not the case, right click on any musical note in the C column, and select Audio track. This will turn a MIDI track into an audio track

- 2. Insert the Driver CD-ROM packaged with the Direct Pro 24/96 , and click Next. The Following dialog should appear:



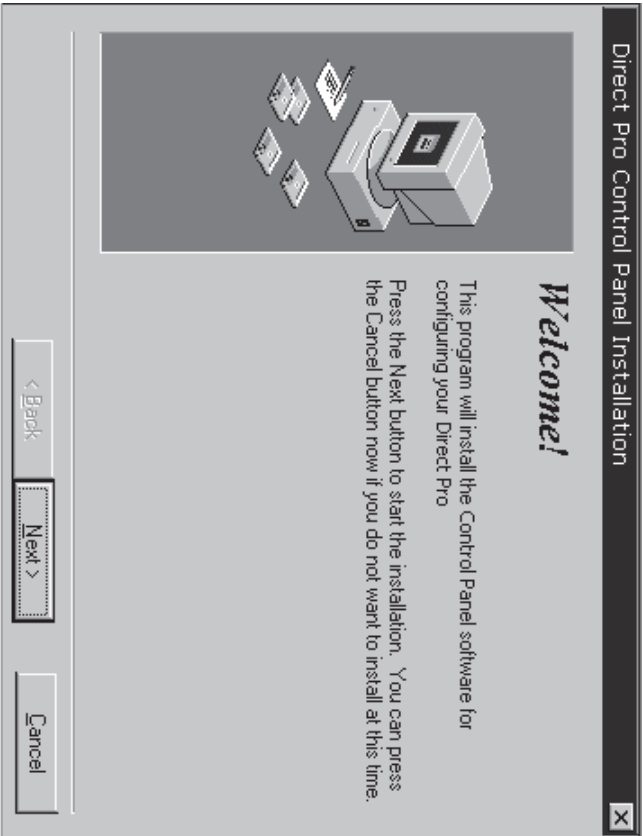
- 3. Click Next. Windows may now ask for the location of the drivers. If this is the case, specify the CD-ROM drive (usually D:). Otherwise, simply click Next again. Windows will copy the files from the Direct Pro 24/96 CD-ROM.



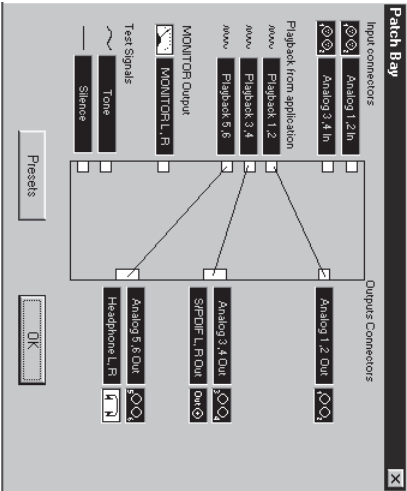
- When the files have been copied, Windows will ask to restart the computer. This is because the files just installed will not take effect until the next time Windows is loaded. Click NO, since you will restart the computer after completing the Direct Pro 24/96 software installation in the next section.

WINDOWS 95 SOFTWARE SETUP

- Once Windows has finished loading, the Direct Pro 24/96 Control Panel installation program may appear automatically. If not, go to My Computer, find your CD-ROM drive, and click the setup.exe icon.
- Click Next when you see the welcome screen:



- Setup will allow you to select the Destination Directory. Otherwise, it will put the Direct Pro 24/96 software and drivers in the "C:\Program Files\Aark manager" directory. If you would like the files elsewhere, simply type the new destination or select Browse to put the files in another directory.
- Click the Next button to continue. The Ready to Install! Dialog should now appear. Click Next again to begin installation.



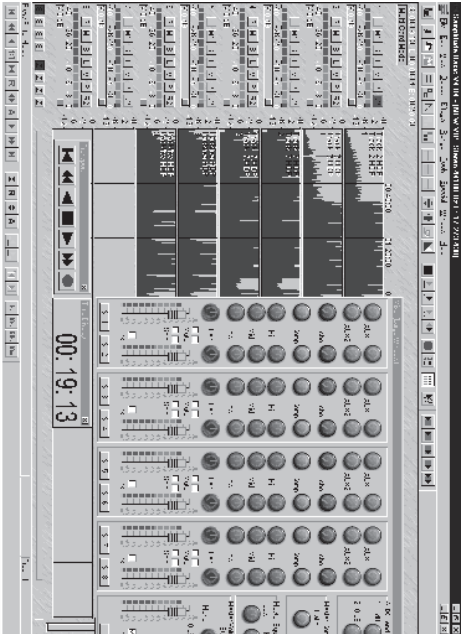
EXTERNAL MIXDOWN:
If you want to mix down a song through a mixer, routing the computers output channels to separate outputs, con-figure the patchbay in this manner.

SAMPLITUDE BASIC

Samplitude Basic is a feature-filled introduction to the full Sek'd Samplitude line that includes Samplitude Studio and Samplitude 2496. A complete manual can be found on the Samplitude Basic CD-ROM, along with a multimedia tutorial that will prepare you for working on any Samplitude project.

This is an example of a typical setup for recording stereo multitrack in Samplitude . Samplitude and the Aark 24 are not limited to this configuration.

- Plug outputs 1-2 into your amplifier/mixer. In the directpro control panel, go to the patchbay, and drag Monitor L,R to all 3 output pairs.



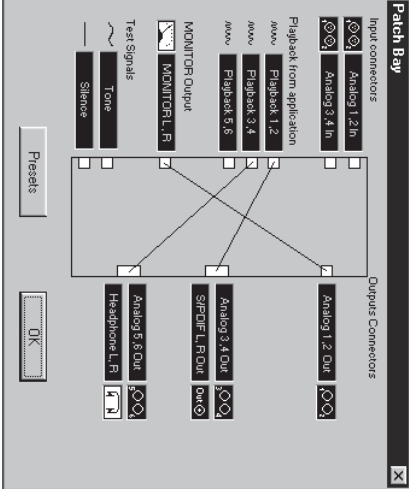
- Open Samplitude. As soon as it opens, there will be a Record Parameter window. Click OK.
- Go to FILE | OPEN NEW MULTITRACK PROJECT(VIP), Select "8 Tracks" under Mono L & R.
- Go to WINDOW | MIXER. A mixer win-dow should appear. Click on the ? under Mas-ter Volume + Image. This will bring up a play parameter window. Set the device to 1,2 Di-rect Pro then close the window. Now, the mixer window can be closed as well.
- Clicking the ? symbol by each track opens a Track Info window for that particular track.

SILENCE options are provided as diagnostic tools to make sure that your computer is working properly, and to troubleshoot potential cabling problems. Every output pair on the right must have a source on the left connected to it. If you wish to disable an output pair, drag silence to it.

In your multitrack software, an input pair input 5,6 will be available as a recording device. This is not included in the patchbay, and does not correspond to physical inputs on the Direct Pro 24/96 interface box. Inputs 5,6 are virtual inputs that record your monitor mix. They are also the only way to record our Reverb.

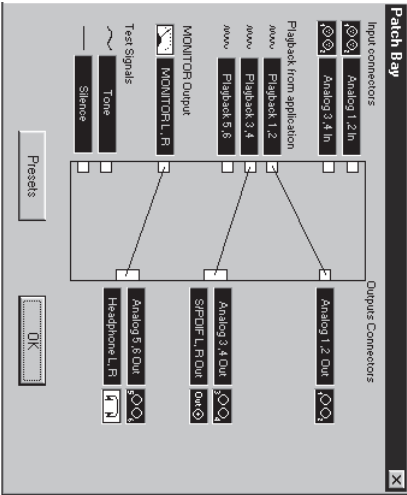
Most users will make a lot of use of the MONITOR by dragging it to the Headphone Output so they can monitor their mix in real-time along with all of the effects. This monitor can also simultaneously be sent to any of the analog line outputs and even the digital output.

Patchbay Configuration Examples



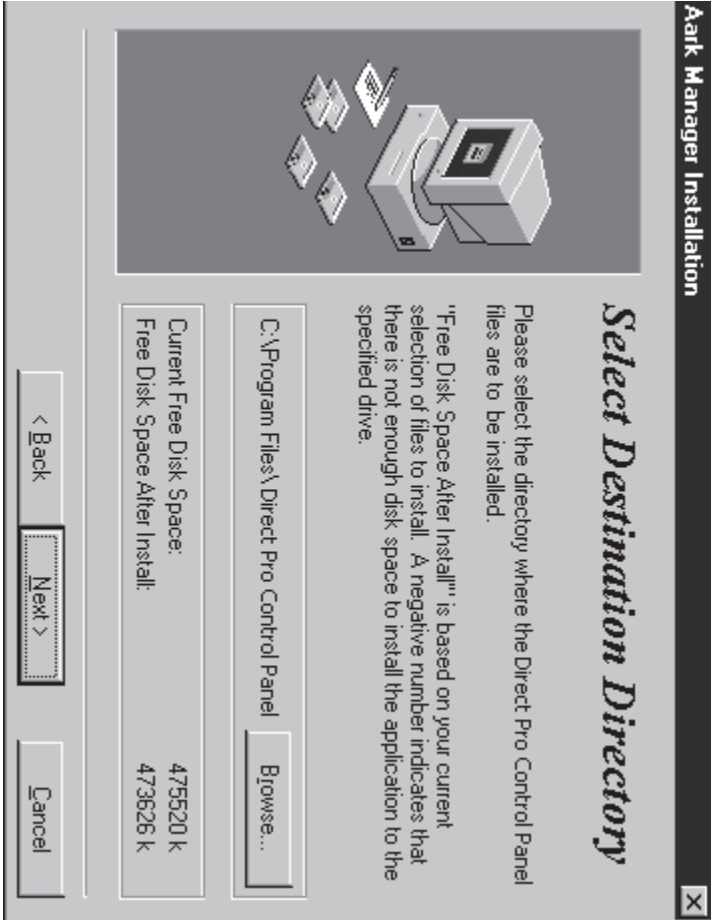
INPUT/OUTPUT MONITOR:

If you want to hear what is plugged into your inputs, as well as the tracks you have already recorded, through Outputs 1 and 2, set up the patchbay like this:



HEADPHONE MONITORING:

If you want to use headphones to hear what is plugged into your inputs, as well as the tracks you have already recorded, set up the patchbay like this.



9. When the installation is complete, a new folder for the Direct Pro 24/96 Control Panel application will reside in the destination directory, and a shortcut will automatically appear on the desktop for easy access.

10. You must now turn your computer off for the change to take place. Instead of restarting, select Shut Down from the Start Menu/Shut down menu. If you choose restart the installation will not be complete, and you will have to repeat this process!

Note: Always turn off your monitors or speakers when rebooting! Often, the speakers will pop during startup, causing potential damage!

WINDOWS 98 HARDWARE SETUP

1. When Windows restarts, it should automatically detect the card you installed. Since it is a PCI card, it will identify itself as a "Plug and Play" device.
Windows will indicate detecting the new hardware with these dialogs:



2. Click Next then select the option Search for the best driver for your device, then click Next again.

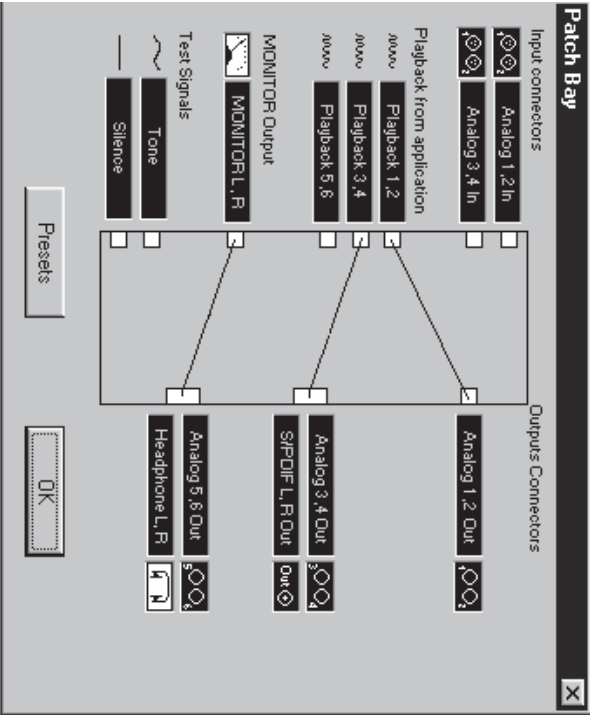
and outputs functioning simultaneously. High indicates that you should have no problems with maximum performance. If it reads Medium, you will most likely function fine, but it may be difficult to achieve optimal performance. If it reads Low, your setup may not be suitable for digital recording. You may have to upgrade your computer. If it reads Error , it means the drivers are unable to communicate with Direct Pro 24/96 hardware. Turn the system off, and make sure everything is plugged in securely, and the card is properly in place. Check the windows control panel for possible conflicts, and if the problem persists, please contact Aardvark technical support.

- ASIO CONFIGURATION: This is for using the Direct Pro 24/96 with ASIO compatible drivers, such as Steinberg's Cubase VST and Emagic's LogicAudio. Here, you can select whether you want to have 16 or 24 bit audio in these applications. Also, the size in samples of the audio buffers in the ASIO driver. Higher buffer sizes improve the ability of slower computers to handle a large number of tracks.

Patch Bay

By clicking on the 'Patchbay' button in the control panel, it opens up a very easy to use system for routing and re-routing all the signals so you don't have to keep connecting and re-connecting physical cables. By simply selecting the sources from the left and dragging them to the physical outputs on the right (notice everything on the right represents a physical output), you can easily customize your audio routing with the click of a mouse.

The choices on the left side of the patchbay represent the various sources of audio available. The top two choices are the physical stereo inputs (both the mic/line analog inputs or digital input if it's activated). The next 3 choices are the Playback channels, which represent the files that you're playing back from your multitrack software application. These playback channels also directly correspond to the 6 Playback meters on the main Control Panel page. The MONITOR source is the 2 channel mix (of all input and output signals, plus effects) determined by the control panel. Finally, the TONE and



Source Select

This lets you select your desired sample rate for recording and playback. This must always correspond to the selected sample rate in your multitrack software application. Otherwise, playback and recording will not function properly.

The first four selections (Int 32kHz, Int44.1 kHz, Int 48kHz, Int 96kHz) will make the Direct Pro 24/96's internal (Int) clock the master for your system. Unless the Direct Pro 24/96 is slaving to another digital device, one of the 4 Int settings must be chosen.

The Direct Pro 24/96 can slave to other digital devices via the S/PDIF input on the host card. Selecting S/PDIF in Source Select will allow you to slave to the device. If you are attempting to record via S/PDIF, and an internal (Int) sync is selected, unwanted noise will be present in your audio.

The number below the white box is the actual measured sample rate of the system. This value shows the sample rate of the system which makes it very easy to verify that your system is running exactly at the rate you need. It is also very handy when locking to external digital sources to make sure the file you're loading in is what you expect it to be.

Presets

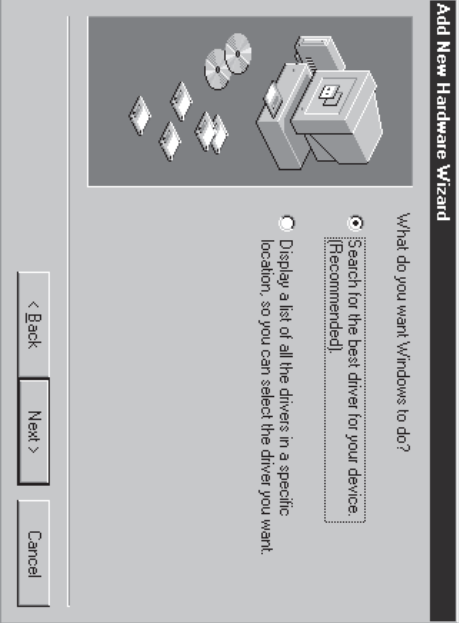
Because of the versatility of the Direct Pro 24/96, you may have multiple configurations for different situations. These various configurations can be saved using the preset feature. Individual effect settings can be saved and recalled by using the effect's PS button. In addition, the Presets button allows you to save the configuration of the entire Direct Pro 24/96 software configuration, including effects, fader levels, trim, syncselection, and patchbay settings.

When you push a preset button, a preset menu will appear. To save an effect, type its name in the textbox on the left and click add. To recall a preset, double-click the desired preset in the box on the left, then click recall, and close the window. Compression and EQ can have individual settings for each channel, so recalling the presets for these effects will only alter the settings of the channel selected.

Advanced Menu

You can access the Advanced Menu by pressing the advanced button on the Direct Pro 24/96 control panel.

- **ISSUE WARNINGS ON SAMPLE RATE ERRORS:** If activated, the Direct Pro 24/96 control panel will give a warning if you are trying to play a sample rate not supported by the Direct Pro 24/96, or if your multitrack software is set to a different sample rate than what is configured in the control panel, or if you are trying to record S\PDIF without setting the Sync Source to S\PDIF.
- **PCI BUS EFFICIENCY:** shows the potential of your system to function with all Direct Pro 24/96 inputs

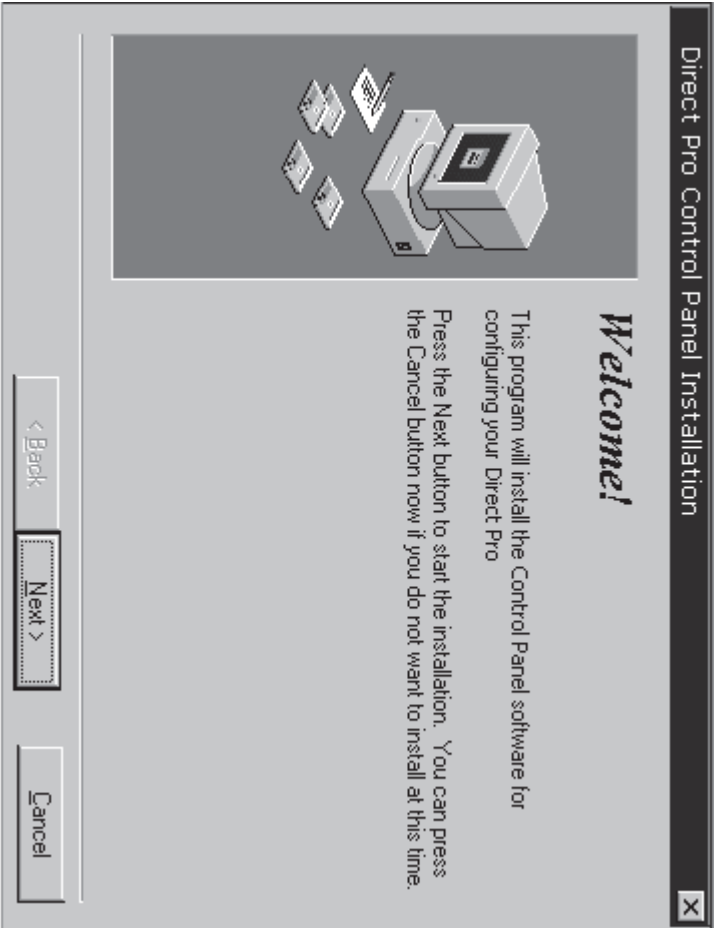


3. Insert the driver CD-ROM that came with the Direct Pro 24/96. Place a check mark beside CD-ROM drive by clicking on it. All other boxes must be cleared. Click Next.
4. Windows will now locate the Direct Pro 24/96 driver software. Click Next to begin installation. Windows will copy the files from the Direct Pro 24/96 driver CD-ROM.

5. When the installation is complete, you must press Finish to exit the setup. Windows will ask to restart the computer. This is because the files you just installed will not take effect until the next time Windows is loaded. Click NO, since you will restart the computer after installing the Direct Pro 24/96 Control Panel software in the next section.

WINDOWS 98 SOFTWARE SETUP

6. If the welcome screen does not automatically appear, run Setup.exe from your CD-ROM. This can be done from Windows by opening your CD-ROM drive (usually D:) in My Computer and double clicking the Setup.exe icon.
7. Click Next when you see the Welcome Screen.
8. Setup will allow you to select the Destination Directory. Otherwise, it will put the Direct Pro 24/96 software and drivers in the C:\Program Files\Aark Manager Control Panel directory. If you would like the files elsewhere, simply type the new destination or select Browse to put the files in another directory.
9. Click the Next button to continue. The Ready to Install! Dialog should now appear. Click Next again to begin installation.

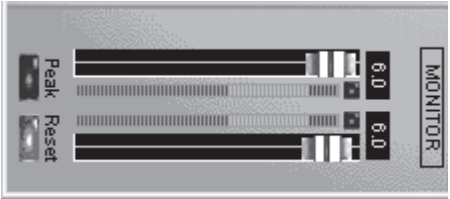


MONITOR CONTROLS

The monitor channel plays all audio routed in or out of the Direct Pro 24/96 . In order to hear the monitor, it must be routed to a physical output in the patch panel. For more detailed information, please read the Direct Pro 24/96 Patch Bay section.

- FADERS: Cut or boost the volume of the monitor signal. All faders, input, output and master, deal with the levels of the monitor signal ONLY. In order for these faders to work, Monitor L,R must be assigned to an output on your patchbay. (See the Patchbay section for more detailed information on how to do this)
- PEAK: When pressed, will display the highest volume that has gone through the monitor
- RESET: Will reset the peak volume to zero.

If you would like to record the monitor mix in your multitrack software, select inputs 5,6 as your recording device. This input pair does not correspond to physical inputs on the breakout box. Instead, it is made available to record your monitor mix. This is useful for recording the reverb, and bouncing tracks.

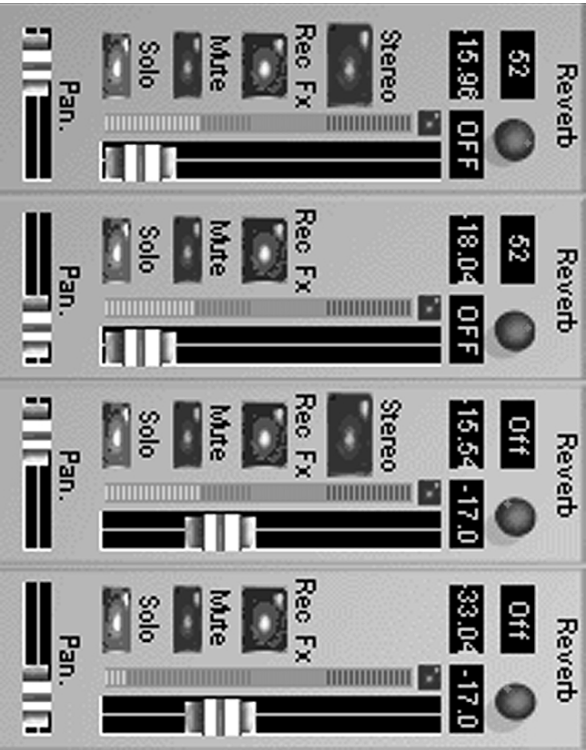


Playback Channel Controls

An important thing to note, is that the playback faders are not hard wired to the Direct Pro 24/96's outputs. Controls for Playback 1,2 do not necessarily need to correspond to the Direct Pro 24/96's outputs 1 and 2.

These playback channels refer to the playback channels recognized in your software. Playback channels and the Direct Pro 24/96's physical outputs are separate entities, although they typically work together. While this may seem complex at first, this versatility allows you to take full advantage of the Direct Pro 24/96's power!

- **PLAYBACK FADERS:** These faders allow you to cut or boost the volume of audio routed to the channel.
- **REVERB SEND:** This controls how much of the Master Reverb the channel receives.
- **MUTE:** Turns off the channel's signal entirely.
- **SOLO:** The opposite of mute. Soling an input channel will mute all other output channels. It will be the only audible channel.



10. When the installation is complete, a new folder for the Direct Pro 24/96 Control Panel application will reside in the destination directory, and a shortcut will automatically appear on the desktop for easy access.

11. You must now turn your computer off for the change to take place. Instead of restarting, select Shut Down from the Start Menu/Shut down menu. If you choose restart the installation will not be complete, and you will have to repeat this process!

Note: Always turn off your monitors or speakers when rebooting! Often, the speakers will pop during startup, causing potential damage!





DIRECT PRO 24/96 INTERFACE BOX

The Direct Pro 24/96 interface box houses 4 shielded analog combo jack inputs, 6 shielded analog outputs, MIDI IN and MIDI OUT jacks, and a headphone jack for monitoring. Additional S/PDIF IN and S/PDIF OUT jacks are on the Direct Pro 24/96 PCI host card.

Front Panel

The Direct Pro 24/96's front panel consists of 4 analog combo jack inputs, a headphone output, and phantom power controls.

The combo jacks accept either 1/4", or XLR mic connectors. The 1/4" inputs can accept either balanced (+4dBu) or unbalanced (-10dBV) signals. The XLR jacks have built-in preamps with 60 dB level trim. In addition, they are equipped with an invariable 48V phantom power, allowing you to power professional condenser microphones.



WARNING: All line level connections MUST use the 1/4" input. XLR inputs are ONLY for microphones. If the inputs are used incorrectly, damage may occur!

Phantom Power

The phantom power on/off switch activates phantom power for all 4 XLR inputs. Phantom power is not delivered to the 1/4" input.

Headphone Jack

The headphone output enables you to monitor the audio without speakers.

Note: The headphone Jack is optimized for 60-150 ohm headphones. Headphones with impedance higher than 150 ohm will sound softer.

STEREO

This button on Channel 1 links all the effects and knobs of that strip with Channel 2, and the same is true with Channel 3 & 4. This can also be thought of as a 'Link' button because every control on either strip affects the other strip. There is no 'master' or 'slave' strip because changes on either strip will directly make changes on the other.

The PAN slider at the bottom is automatically forced in the far Left and far Right positions. The PAN slider is not 'linked' to the corresponding strip.

Only Channels 1 & 2 can be linked and Channels 3 & 4 can be linked. There is no way to 'link' all 4 input strips together.

- MUTE: Turns off the channel's signal entirely
- SOLO: The opposite of mute. Soloing an input channel will mute all other output channels. It will be the only audible channel.

REC FX

This button allows flexibility in recording the effects that are on the Direct Pro 24/96 Control Panel input strips. This button only affects the Compressor and EQ for that input channel strip. It does not allow recording of the REVERB. For information on how to record our Reverb, refer to the Master Reverb section of the manual.

Note: If you choose to record 96kHz audio, the Rec Fx button cannot be activated. All effects will be disabled.

If the REC FX button is pressed

The EQ and Compressor (assuming they are not bypassed) that are on that channel strip will be recorded into the corresponding recording device driver. This allows each of the 4 input channels to have their own effects separately recorded onto 4 different tracks.

In this case, the digital peak meter shows the value of the wet signal that is being sent to the computer. This is a post-fader meter so if you move the volume fader, the meter will move accordingly and affect the level of the signal that is being recorded. It will also affect the level of that track as it is sent to the MONITOR bus.

If this button is NOT pressed

The EQ and Compressor on the input channel strip can only be heard via the MONITOR bus should you be listening or recording the MONITOR bus. The input device drivers 1,2 Direct Pro & 3,4 Direct Pro will not record either the EQ or Compressor.

In this case, the digital peak meter shows the value of the dry signal that is being sent to the computer for recording. The volume fader changes the volume of that track and sends it to the MONITOR bus. This meter is before the fader (pre-fader) so if you move the volume fader, the meter will not be affected.



These faders can boost or cut the volume of the incoming signal in the monitor mix. It does not affect the actual input volume of the track unless the REC FX button is pressed (see REC FX below). At all times, this fader adjusts the level of the track as it is being sent into the MONITOR bus.

The text box above the fader displays the actual fader value in dB. It can range from minus infinity (OFF) to +6 dB gain. If you would like no gain at this stage, just set this fader so the text box reads 0.0 dB.

DIGITAL PEAK METERS

These individual peak meters at all times show the value of the signal that is being sent to the computer for recording. With one exception listed below, all of the meters are post-fader (meaning the value of the meter is calculated after the fader) so moving the fader affects the value of the meter.

The text box above each meter displays the actual meter value in dB.

On the 4 input strip meters, the value of the meter at all times shows the level of the signal this is being recorded to the computer. The meters on the 4 input strips can change in meaning when the REC FX button is pressed. (read REC FX below)

On the 6 Playback meters, the value of the meter shows the level being routed to the MONITOR bus AND the level of the Playback channels.

On the MONITOR digital peak meter, it shows the combined levels of all things routed to the MONITOR bus.

PEAK & RESET

All of the above digital meters can be switched to Peak meters by pressing the 'PEAK' button below the MONITOR meters in the bottom right hand corner of the Control Panel. This affects all the digital meters on the Control Panel and can be reset by hitting the 'RESET' button next to the 'PEAK' button.

Rear Panel

The Direct Pro 24/96 rear panel has 6 analog outs, MIDI in, MIDI out, and a 25 pin port for connecting the interface box to the PCI host card.

Analog outputs 1-4 are 1/4" jacks. They can be used as balanced or unbalanced, and output at the professional +4dBu level. Outputs 5-6 are auxiliary RCA jacks, outputting at consumer level -10dBu.



MIDI

MIDI in and out ports are provided for interfacing with other MIDI products, and producing MIDI time code (MTC). This acts as a normal MIDI interface so you may easily connect any keyboard or MIDI synth directly to your Direct Pro 24/96.

Direct Pro Host Port

The 25 pin port is reserved for the 6-foot cable included with the Direct Pro 24/96. This connects directly with the 25 pin connector on the PCI card. Note: Only the original cable should be used; damage may result from using a different cable.

PCI Card

The PCI card houses S/PDIF ins and outs, and our DSP processor. Our shielding process, along with the powerful DSP engine prevents unwanted computer noise in your audio.

S/PDIF Digital I/O

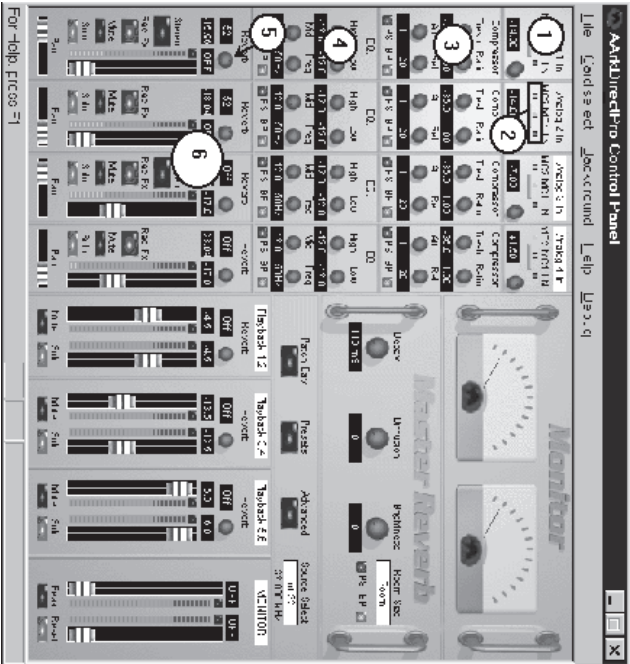
S/PDIF (Sony/Philips Digital Interface Format) allows a full 24 bit digital connection to a DAT, CD player, or most any S/PDIF compatible unit. S/PDIF ports are stereo, allowing a full stereo signal to pass through one S/PDIF cable. We recommend using only professional S/PDIF cables for these ports. To activate the S/PDIF inputs, go to the Direct Pro Control Panel. Click on the Analog 3 In or Analog 4 In on the top of the Analog 3,4 channel strip. This changes the 3,4 input to S/PDIF digital. The MIC/LINE 3,4 inputs will not record.



If you are recording via the S/PDIF input, be sure you have S/PDIF chosen in the Source Select section of the Direct Pro control panel. Otherwise, jitter and unwanted noise may occur.

DIRECT PRO 24/96 CONTROL PANEL

The Direct Pro 24/96 Control Panel is the easy to use interface that completely controls both the Direct Pro 24/96 hardware and its powerful DSP engine. It is also the first panel that you'll see when you click on the Direct Pro 24/96 ICON on your desktop. This entire control panel is powered by the DSP engine



on the PCI card. This means the Direct Pro 24/96 features won't slow down your PC so it keeps giving you the performance you need to make truly professional recordings.

Note: You will need an audio recording application to actually record your audio to your computer. This Control Panel only acts as a software interface for the Direct Pro 24/96 interface box and the DSP effects.

THE PHILOSOPHY

The Direct Pro 24/96 was designed from the ground up to be an All-In-One solution for PC recording. This means that you don't have to get an outboard mixer and effects to get no-latency monitoring with your audio card. The Direct Pro 24/96 gives you all the capability of these devices

in one easy to use system and this Control Panel is the focal point of the whole process. Keep in mind that all of the features in this control panel use the powerful DSP engine, so not only is everything in Real-Time, but it also won't slow down your computer.

10 INPUT/ 2 OUTPUT MIXER

The center of most professional studios is the mixer, and the same is true with the Direct Pro 24/96. In our case, however, the mixer is software based. This 10 channel mixer has 10 inputs and one stereo MONITOR output. The first of the 10 inputs are the 4 physical inputs (2 mic/line + 2 from either Mic/Line or S/PDIF). The other 6 inputs are 6 playback channels that have already been recorded in your multitrack software. You can record up to 4 tracks at once with the Direct Pro. Each of the 6 playback channels can play back multiple tracks from your multitrack software application. The amount of tracks available to you is limited only by your CPU, RAM, and hard drive speed. All of the mixers channels, input and output, can be heard through a single stereo pair by using the MONITOR output.

Master Reverb

This reverb can be sent to as many channels as you wish, by using the channel's reverb send. The Reverb send only adjusts how much of the master reverb each channel receives. Adjustments to the effect are performed in this section.



Note: In order to record our reverb in your multitrack software, you must select recording inputs 5,6. These inputs do not correspond to physical inputs on the breakout box. Rather, they are virtual inputs that record the monitor mix.

- **DECAY:** This determines how long the reverberated signal will last
- **DIFFUSION:** Determines the amount of time early reverb reflections will precede late reflections. For realistic reverb, make sure the diffusion is less than the decay time.
- **BRIGHTNESS:** At its highest setting, brightness filters no treble from the reverberated signal. In real life, treble is reduced as a signal reverberates. Brightness will allow you to find the perfect mix of clarity and realism.
- **ROOM SIZE:** This determines the size of the room our reverb simulates. This can be anything from a small room to a large cathedral. To change room size, simply click on the current room, and select your desired room.

5) Reverb Send

The reverb send knob determines how much of the master reverb is applied to the incoming signal. For more details about our effects, please look at our effects section.

6) Input Volume Faders



3) Compression

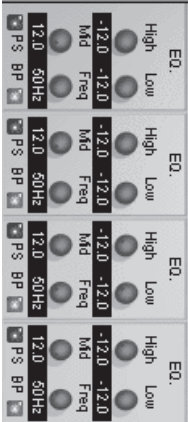
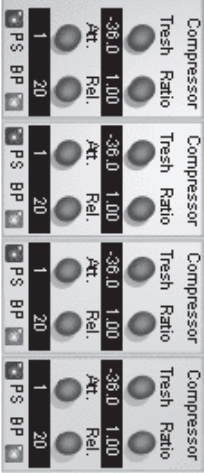
Compression helps you deliver the strongest signal possible. It prevents unwanted jumps in volume, resulting in a more consistent average volume. Because the peaks in volume are less severe, the signal can be boosted far higher without distortion or clipping. Our real time compression allows you to do this before the audio is recorded to the PC's hard disk, resulting in a signal that takes better advantage of high resolution digital recording.

- **THRESHOLD**: This knob determines how loud a signal can get before compression is applied, measured in dB.
- **RATIO**: This determines how much level reduction is applied when the signal exceeds the threshold level. Larger ratios produce more drastic compression.
- **ATTACK**: Tells the compressor how soon to apply compression after the signal exceeds the threshold level, measured in milliseconds.
- **RELEASE**: Controls how soon compression is disabled once the signal returns beneath the threshold level, measured in milliseconds.
- **PS (preset)**: Allows you to recall or save compressor settings, for more information, see "Presets"
- **BP (bypass)**: Bypasses compression entirely

4) Equalization (EQ)

Why mess with plugins after tracking, when you can tailor your sound while recording? Our real time EQ allows you to cut or boost frequencies before the signal is recorded by the computer.

- **HIGH**: Boosts/Cuts the signal's high end at 8 kHz
- **LOW**: Boosts/Cuts the signal's low end at 220 kHz
- **MID**: Boosts/Cuts frequency selected with frequency knob
- **FREQ**: Selects desired frequency to boost/cut from 50 Hz to 15 kHz
- **PS (preset)**: Allows you to recall or save EQ settings, for more see "Presets"
- **BP (bypass)**: Bypasses EQ entirely



GAIN

The Direct Pro 24/96 has a lot of flexibility for level gain. The input trim at the top of each input strip is done in the analog stage to maximize your audio level before the A/D conversion. There are 3 different gain stages each specifically designed and optimized for that gain level. This control works just like an analog mixer and allows precise input trim before any of the audio signals get into the Control Panel and all its effects.

Once you got the proper input gain, the signal goes through the effects strip and you'll see the appropriate level in the digital meter. This level can again be adjusted by the volume fader at the bottom of each strip which gives more flexibility on mixing signals to the MONITOR bus or recording directly to the computer. For more detailed information on these meters and the volume faders, the VOLUME FADERS and DIGITAL PEAK METERS section.

PS & BP

Each effect in our control panel has these two buttons. The PS stands for 'PRESETS' and the BP stands for "BYPASS". See more about Presets later in the manual.

KEYBOARD ADJUSTMENTS

In many cases when using the Direct Pro 24/96 Control Panel, you can also use your computer's keyboard to change the values of the control. Use the arrow keys to make fine tune adjustments on many of the Control Panel's knobs & faders.

MULTIPLE CARDS

Up to four Direct Pro 24/96 units can be run simultaneously on the same PC. The Card Select menu at the top of the control panel allows you to select which card is being configured by the control panel. Each card can have different control panel settings. For multiple to work properly, one must be the master, and the rest must slave to it. The master card's source select should be internal (Int 32kHz, Int 44.1kHz, Int 48kHz, Int 96kHz), and the slave cards set to S/PDIF. The S/PDIF out of the master card should connect to the S/PDIF in of the slave. For more than two cards, you can daisy chain, using the slave's output to send S/PDIF to the next slave's S/PDIF in.

MAIN CONTROL PANEL

This will be the first screen you see when you click the Direct Pro 24/96 Control Panel icon on your desktop.

1) Input Trim Adjustments



These settings provide real-time gain adjustments to the analog inputs. They operate exactly like trim adjustments on an analog mixer. Each of the 4 input channels have their own separate 3-stage analog input gain adjustment to make each analog input on the Direct Pro 24/96 universal. It is truly versatile because each input accept either an XLR Mic or 1/4 inch connector, and a very wide range of gain adjustability is provided.

The numerical display shows the gain in dB of the input signal. This is assuming that MC1 & MC2 are used with a microphone input on the XLR connector, and the LN gain stage is used with a line level on the 1/4" connector.

MC2	MC1	LN
Mic (far away)	Mic (normal)	Line Level (either -10dBv or +4dBu)
Gain Range: +75 dB to +52 dB	Gain Range: +55 dB to +32 dB	Gain Range: +9 dB to -14 dB
For XLR input connector only.	For XLR input connector only.	For 1/4" input connector only.
LN (Line Level 1/4" Input)		

This setting should be used for the line level inputs from any tape machine, mixer, analog multitrack or keyboard analog outputs with either +4 dBu (professional) or -10 dBv (consumer) level. You can set the gain adjustment knob to get 0 dB gain (no gain) or you can tweak the level up +9 dB from the original or cut the signal down -14 dB.

MC1 (Normal Microphone Gain)

This setting can be used for any normal microphone gain setting such as guitar, vocals or drums. It will add a typical gain that you would find on many mixers with a fine tune adjustment to bring the overall gain up +32 dB all the way to +55 dB.

It is also normal to use this setting for -10dBv line level signals that are very low. This extra gain may

improve recordings from portable CD players or other devices that output only a low level consumer audio signal so there is enough signal to provide for better recordings.

MC2 (Low Level Microphone Gain)

This setting can be used for any low level microphone or room ambience mics that need extra boost in the mic preamplifier. This adds more than normal gain to microphones for the few specific applications that require more gain to get a good level signal into the computer. The knob will allow +75 dB to +52 dB gain on the input.

You must never plug in a +4dB professional level audio signal into the XLR connector. This can damage the Direct Pro 24/96!!

2) Input Select

The input strips Analog 1 and Analog 2 are always for the physical inputs on the front of the Direct Pro 24/96. However, the Analog 3 and Analog 4 input strips can be switched between the Analog 3 and Analog 4 inputs on the front of the Direct Pro 24/96, OR it can be the digital S/PDIF input that is located on the PCI host card.

To record S/PDIF digital, use the bottom RCA connector on the PCI card and click on the white box at the top of input strips 3 and 4. This will change the 3, 4 input to record S/PDIF. Then you can easily record or add effects to any digital signal in your studio.

EFFECTS

Our effects are processed by the Direct Pro 24/96's dedicated DSP chip. Unlike plugins, these effects bypass the CPU, allowing zero-latency monitoring of effects. Each input channel has a dedicated compressor and EQ, and all input and output channels share the same master reverb.

Coarse adjustments of effects can be performed by clicking the knob, and dragging it to the desired position. Then, you can make fine adjustments by highlighting that knob and using the left and right arrow buttons on your keyboard.

Note: If you choose to record in 96 kHz, you will not be able to use the Direct Pro 24/96's DSP effects.