

# Echo Digital Audio Corporation

Gina24

Layla24

Mona

Mia

MiaMIDI

Windows driver version 7.3 install

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## Disclaimer

This is a fully supported release. While we have tested these drivers extensively, there may still be bugs lurking. Please be aware that these drivers are used at your own risk; Echo Digital Audio Corporation is not responsible for any damage or loss incurred by the use of these drivers.

## Introduction

This driver supports the following versions of Windows:

- Windows 2000
- Windows XP
- Windows XP Professional x64 Edition
- Windows Server 2003
- Windows Server 2003 x64 Edition
- Windows Vista
- Windows Vista 64-bit Edition

**Windows ME is no longer supported.**

## **New features**

- Support for playing compressed Dolby Digital, WMA Pro, and DTS over S/PDIF
- Multichannel Windows volume controls for surround sound
- Console sessions are now saved in the user documents folder.

## **Fixes**

- Better physical memory management for x64 Windows
- Improved kernel streaming framing for better Vista and DirectKS support
- Fix for recording with NGWave

## **Known issues**

- In Vista, you may hear glitching with Windows Media Player. If so, try changing the preferred format to a lower sample rate in Vista's "Sound" control panel.
- In Windows XP, you may still see warnings that the driver is unsigned. Windows XP will display this warning unless a driver has been signed directly by Microsoft.
- ASIO Direct Monitoring changes are not updated in the console in real time
- ASIO Direct Monitoring panning control does not work

# Windows Vista

This release provides support for Windows Vista running in 32-bit and 64-bit mode.

Windows Vista features a completely new audio architecture. This new architecture affects any application that uses DirectSound, wave/MME, or the new Vista audio interfaces. Applications that use ASIO are unaffected and should work as before.

Please remember the following when using Windows Vista with your Echo hardware:

- Using the sample rate lock in the console may result in applications playing or recording at the wrong sample rate.
- Wave device configuration and PureWave are still supported. To change the wave device configuration without restarting the computer, you need to run the console as an administrator. To do so, right-click on "Show all console windows" and select "Run as administrator."
- Setting the device name in the console does not affect the name displayed for the audio devices.
- Windows Vista allows you to select the preferred sample rate for playing and recording. If you are using multiple audio applications at the same time, ensure that the preferred sample rate is set to the correct rate for each playback and record device in Vista's "Sound" control panel.
- Surround sound delay management is not supported in Windows Vista.

Finally, please be aware that not all audio applications have been updated for Windows Vista and may not behave properly. Some may require you to run them with administrator privileges.

## **64-bit Windows**

Using Windows in 64-bit mode is very similar to using 32-bit mode. Some features are not available when using 64-bit Windows:

- PureWave is not supported
- GSIF is not supported

This release includes support for both 32-bit ASIO applications and 64-bit ASIO applications.

## ASIO support

This driver release includes full ASIO 2.2 support. The WDM ASIO driver includes a number of improvements over the VxD-based ASIO driver:

- Rewritten for maximum performance – audio latencies should be improved.
- Supports mixing older and newer cards in the same ASIO application – you can now run Layla20 and Layla24 at the same time
- ASIO DirectMonitoring for Mia.
- Only shows available channels– if another program is using an input or output, Cubase will still run and not give you the annoying “No ASIO driver error.”

DirectMonitoring for Mia is a little tricky. Cubase (or any other ASIO program) doesn't know about Mia's virtual outputs; it just sees Mia as four inputs and eight outputs. Unfortunately, Mia's monitor mixer can only route real inputs to real outputs, and there is no obvious way to convert from the virtual outputs to the real outputs.

Therefore, if you are doing DirectMonitoring with Mia, the input will be simultaneously sent out both the analog and digital outputs. It's a compromise, but should be more useful than not having any DirectMonitoring support.

### **Help! I don't see all of my inputs and outputs.**

When you run Cubase, you may not see some of your outputs. This is probably due to the fact that another program is using them. The most likely culprit is the Microsoft wavetable synthesizer, which is being opened by Cubase as a MIDI output device. Exit Cubase and run the “Setup MME” program. Select “Microsoft GS Wavetable SW Synth” and click the “Set Inactive” button. Run Cubase again.

If your outputs still don't show up, you may have some other software that's doing the same thing. Look in the “Setup MME” program for other programs that may be grabbing audio outputs or inputs. In addition, see what other audio software you have running.

### **Why is my first input monitor always muted when I run Cubase?**

This is because we support ASIO 2.0 Direct Monitoring. Direct Monitoring gives Cubase control over the hardware monitors. When Cubase starts up, it uses DirectMonitoring to mute that monitor.

We realize that this is annoying. As far as we can tell the concept behind Cubase is that you should have all your monitors muted at first and then enable them within Cubase in the Channel Mixer window as you prepare to record tracks, etc.

If you don't like this behavior, you can always go to Options/Audio Setup/System...., click on “ASIO Control Panel” and uncheck the box labeled “Enable ASIO 2.0 Direct Monitoring”. This will cause our ASIO driver to reject any Direct Monitoring commands and prevent the mute on startup. Of course, it also means that you can't use Direct Monitoring.

## Using SONAR

SONAR supports ASIO and WDM/KS for low-latency access to audio hardware. The ASIO mode performs well and is straightforward to set up, requiring no special configuration.

If you prefer, you can also use SONAR in WDM/KS mode. Here are the required settings for using SONAR with our driver in WDM/KS mode:

Within SONAR, go to Options/Audio.

- On the “General” tab, set “Audio Driver Bit Depth” to 24.
- On the “Advanced” tab, we suggest selecting “Trigger & Freewheel”
- On the “Driver Profiles” tab, uncheck “Access Driver In Mono”. Be sure to set “Stream > 16 bit data as” to “32-bit PCM, left justified”.

You may get a message that your audio devices are not compatible with the specified format; you may need to restart SONAR several times. Make sure each time that the settings are correct; once SONAR starts successfully without the “not compatible” message, be sure to run the Wave Profiler under Options/Audio/General.

Note: When installing a new hardware device, you may need to delete the aud.ini file in your Sonar install folder. This resets the settings back to their defaults and facilitates installing new or different hardware.

## Windows volume controls

The WDM driver supports the Windows volume control program.

When you run it (Start/Programs/Accessories/Entertainment/Volume control), you should see a slider marked "Line volume". This is the same as the "Virtual Out" slider in the console.

Adjusting the "Wave" and "Synth" sliders will set the volume levels for the Windows kernel mixer, not the hardware. These settings are *not* the same as the volume sliders in the console. The console sliders adjust the levels in the hardware; the Windows volume controls are for adjusting the levels in the Windows mixer.



## Troubleshooting

If you are running Windows 2000, XP, or Vista and your computer spontaneously reboots on you, you probably have experienced what Microsoft calls a “bug check”, but what everyone else calls the Blue Screen of Death (BSOD).

The default setting for the BSOD is not to show the BSOD, but to reboot the computer. This isn't very helpful for tracking down problems. If you are experiencing blue screens, here's how you can help us track it down:

Select Start/Settings/Control Panel/System  
Go to the Advanced tab and click on “Startup and Recovery”  
Uncheck “Automatically reboot”  
Set the memory dump to “Small Memory Dump”

Now, next time you get a blue screen, look at it. See if the crash occurred in echo24.sys; if it did, it may be something we need to fix.

Restart your computer and find the most recent .dmp file – this is the memory dump. It's probably in a folder called “minidump” under your main Windows folder.

Zip up this .dmp file and send it to [techsupport@echoaudio.com](mailto:techsupport@echoaudio.com) along with a description of how it happened.

# Version History

## 7.3

- Support for playing compressed Dolby Digital, WMA Pro, and DTS over S/PDIF
- Multichannel Windows volume controls for surround sound
- Console sessions are now saved in the user documents folder.
- Better physical memory management for x64 Windows
- Improved kernel streaming framing for better Vista and DirectKS support
- Fix for recording with NGWave

## 7.2

- Added support for Windows Vista 64-bit Edition.
- Installer and drivers are digitally signed.
- Optimizations for Windows Vista.
- Installers re-written for improved Windows Vista support.

## 7.1

- Improved kernel streaming for Sonar in WDM/KS mode
- Improved kernel streaming to reduce glitching in Windows Vista

## 7.0

- Added support for x64 Windows XP and Server 2003
- Added support for 32-bit Windows Vista
- Fix for mono recording with Adobe Audition

## 6.14.1

- Added support new revision 4 Mia MIDI hardware

## 6.14

- Added support for DirectShow “WDM Streaming Rendering Devices” and “WDM Streaming Capture Devices.”
- The ASIO driver is now called “ASIO Echo PCI” instead of “ASIO Echo WDM”.
- Various minor code changes to prepare for 64 bit support
- Minor code changes in cross-platform code to support Mac OS X
- Rewrote the DSP handshaking
- Simplified the Gina24, Layla24, and Mona-specific code
- Fixed a problem with wave device sync in WDM audio mode
- Fixed a problem with saving settings on shutdown
- Fixed a problem with synchronizing wave devices
- Improved the DMA code
- Fixed several bugs that could potentially cause the machine to crash.
- Fixed problems with delay management code and 7.1 audio playback
- Fixed minor bug with getClockSources in the ASIO driver

## 6.11

- Full support for Tascam's GigaStudio 3, including support for GSIF 2 audio input and low-latency kernel-level MIDI input
- Support for sending Windows Media Audio over S/PDIF
- The "non-audio" status bit is now set when sending Dolby Digital or Windows Media audio content over S/PDIF
- Multichannel record support for Windows Media Encoder 9 Series
- Speaker delay management for surround sound playback
- Support for new surround sound formats for Windows XP Service Pack 2
- The ASIO driver now supports 64 sample buffers
- The wave device configuration can now be saved as part of a console session
- Full support for the Windows mixer control applet
- Added dithering to PureWave record
- ASIO driver now works with Adobe Premiere Pro
- Fixed a bug in the console where the right-channel +/-10 output button wouldn't display properly
- Fixed a bug with saving console session files
- The console now displays properly on a multi-monitor system
- The arrow, page up, and page down keys now work correctly with the faders
- The console now properly detects if the driver has restarted or not when changing the wave device configuration
- Various security fixes for mixer controls
- You can now change the GSIF buffer size while GigaStudio is active
- Fixed an ASIO DirectMonitoring bug

## 6.08

- New firmware for MiaMIDI and Layla24; this fixes a problem with MIDI output.
- MIDI output is now more efficient
- Fixed a problem with ASIO Direct Monitoring
- Fixed waveOutPause support for PureWave mode
- Added support for waveOutSetVolume and waveOutGetVolume for PureWave mode
- Fixed some minor issues with the ASIO driver

## 6.07

- Fixed a power management problem that could cause a system crash on shut down

## 6.06

- Support for Mia MIDI
- MIDI output has been made more efficient
- Mia now has lower hardware latency
- The GSIF buffer size is now saved per card instead of for all cards
- Analog input dithering has been added to PureWave when recording in 16-bit or 8-bit formats
- Console sessions now save and restore the wave device configuration
- The WDM driver has been rewritten to conform with Microsoft's latest recommendations on writing efficient WDM audio drivers.
- MIDI input timestamping is now more accurate
- If a mixer, ASIO, or PureWave app crashes, the driver now cleans up after the crashed app. You should be able to re-open the app without rebooting your machine.
- Improved parameter checking for the user-mode interface.
- Improved physical memory management
- The console now saves and restores wave device configuration settings in sessions

- A "Load Wave device configuration settings" check box has been added to the console
- If the hardware wasn't working right, it was possible for the MIDI driver to wait for the hardware forever. Now, the driver gives up after trying to play MIDI data for a while. This shouldn't matter if your hardware is working OK.
- The user-mode interface for the driver now uses a jump table.
- Added some more parameter validation to the WDM transport interface (used for PureWave and ASIO)
- Fixed a power management problem where multiprocessor machines couldn't resume from standby
- Fixed a rare potential blue screen that could occur when restarting the driver
- Fixed a bug with the PureWave driver where data could get corrupted while recording if the processor was very busy.
- New firmware for all the cards except Gina20 & Darla20; this fixes a long-standing bug where audio could be corrupted on Mia
- Fixed a bug with PureWave where Windows 2000 or XP could crash during logon

#### **6.05**

- Added PureWave
- Added MIDI time code hardware sync
- Added new console interface for wave device configuration
- Various ASIO changes to improve support for Sonic Foundry products
- Wave sync start has been made smarter; the driver no longer tries to sync wave devices that are being started by two different programs.
- Mia now supports transmitting compressed Dolby Digital data over S/PDIF
- MIDI input and output code has been rewritten and improved
- New firmware for Gina24; fixes a minor error with the internal clock sample rate

#### **6.04**

- Fixed a problem that could cause a blue screen while playing or recording
- Fixed a problem that could cause a blue screen while using MIDI in Windows 2000
- The Windows General MIDI softsynth now works in Windows XP with Mia, Mona, and Gina24

#### **6.03**

- Fixed a problem with recording from multiple inputs

#### **6.02**

- Fixed shutdown problems
- Fixed MIDI sysex output

#### **6.01**

- Super interleave
- Configurable wave devices
- Surround sound playback – four speaker, 5.1, and 7.1
- Console sessions
- Card naming
- Support for dynamic card removal in the console launcher
- Digital input auto-mute for Gina24, Layla24 and Mona
- Power management
- New hot keys
- Mia device names
- New firmware for Gina24 361 and Layla24 – fixes minor error in internal clock sample rate
- Less non-paged memory usage
- New integrated DSP code

## **6.00**

- Version number

## **0.67**

- New InstallShield-based setup program
- Fixed an issue in the Mia firmware that could cause ticks and pops
- Fixed issues with pausing and seeking
- Fixed digital CD audio playback with Winamp, CD Max, Sonique, and UltraPlayer
- The ASIO driver works with Reason now.
- Fixed issues with interchannel phase and polarity for Mia and Gina24 analog I/O
- Fixed a problem where the computer would lock up on shutdown

## **0.66**

- Fixed a problem with the DSP loading for some Gina24 & Mona cards
- Fixed a problem with the PC locking up while seeking or pausing playback

## **0.64**

- Fixed problems with loading the DSP for some cards
- Fixed problems with saving/restoring settings
- Memory usage has been reduced
- Fixed problems with mixer support for some cards

## **0.63**

- Added GSIF support
- Windows mixer support
- Fixed bug with ASIO driver where you couldn't select the sample rate in Cubase
- We think we've finally fixed the infamous blue-screen-when-I-run-the-console bug; this was happening when the driver either ran out of memory or couldn't initialize the hardware. Now, the console will display an informative error message and refuse to run.
- Driver now uses less non-paged memory
- Fixed a memory leak in the ASIO driver
- Fixed a bug with Mia and ASIO 2.0 DirectMonitoring; the monitors could be unmuted but not muted again.
- The ASIO driver will remember the most recent sample rate; this means that the sample rate will not revert to 44.1 if you switch between Cubase and another application.

## **0.62**

- Added ASIO support
- Worked around a problem where Windows was locking up on multiprocessor machines
- Fixed a bug with Mia not saving/restoring virtual output settings
- Fixed a potential blue screen that could happen if two apps were trying to open the same wave device
- Fixed a bug that could cause lockups on MIDI output
- Fixed the sample rate lock so it works properly
- Fixed a bug where Mona wouldn't let you set professional S/PDIF mode
- Cleaned up code that saves/restores mixer settings
- The driver installer has been improved.
- Fixed some minor bugs in the driver installer.

## **0.61**

- Darla20, Gina20, Layla20, and Darla24 are now supported
- MIDI input and output is now supported for Layla20 and Layla24
- This driver will run much better on Windows Me
- All of the audio outputs should now appear as wave devices (i.e. the "asymmetry problem" has been fixed).

- Improved multi-client support
- New driver installer
- Some internal changes for better SONAR support – you should see fewer of the “Format not supported” messages.
- Analog input +/-10 buttons now show up on the console for Mia.
- A typo was fixed in the Mia INF file

#### **0.60**

- First public release

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