New Windows Version 2 Driver Package

For the past several months, our driver team has been working diligently to put the finishing touches on the new **Version 2 Driver**. The Version 2 Driver (formerly the WDM Driver) supports the entire **LynxTWO** line (**LynxTWO**/**L22**/**AES16**) with Windows 2000 and Windows XP.

The Version 2 Driver includes several individual driver models within the single driver set. They are: Windows Driver Model (**WDM**), which supports Microsoft Multimedia Extensions (**MME**), **Direct Kernel Streaming** and **Direct Sound**; **ASIO 2.0** and **GSIF 2.0**. Each of the individual drivers may be used by any of the 16 devices (8 record and 8 play), so the driver is fully multi-client. This means that you may use GigaStudio™ 3.0, Nuendo 2.0 running ASIO and playback your favorite DVD all at the same time!

What advantages does the Windows Version 2 Driver have over the current Windows Version 1 (NT4) Driver?

True multi-client support. When using the MME or DirectSound driver model, multiple applications may run at the same time using the same device at different sample rates. The ASIO and GSIF drivers may also be used at the same time, although they require the same sample rate.

Multi-channel support. With the latest firmware on an **L22** or **LynxTWO**, multi-channel interleaved audio may be played and recorded. This is especially useful for playback of multi-channel encoded DVDs. Use the Dolby or DTS decode plug-in for your DVD playback software and you can listen to 5.1 or 7.1 surround audio through your LynxTWO.

True Plug-n-Play compatibility. All configuration is done through Windows standard Device Manager. You no longer set your BIOS "PnP OS" to No. It is now also possible to install or upgrade the driver without restarting your computer.

True DirectSound support. Applications written for Direct-Sound will have the full hardware functionality and no longer go through the problematic DirectSound emulation layer.

Direct Kernel Streaming support. This is very useful for Cakewalk applications that support Direct Kernel Streaming, however

David Hoatson, Lynx Cofounder and Software Guru

Soundworks Studio Combines Sequoia™ and Lynx Studio Technology for High End Digital Recording and Mastering Systems

A few years ago, Jeff Sheridan of North Hollywood-based Soundworks Studios adopted a computer-based mastering and tracking recording system to replace his aging Studer Dyaxis. After carefully examining his options, Sheridan updated the control room with a system anchored by **Sequoia** audio software from Germany's Magix. For the I/O, he chose the **LynxTWO** 192 kHz Multichannel Audio Reference Interface. Customer response to the new system was overwhelming. His studio owner and engineer clients soon demanded that Sheridan build and install similar systems into their facilities.

"At Soundworks, we tested the best known high-end digital recording and mastering systems. We concluded that the **Sequoia/Lynx** combination gave us the best audio quality, power and flexibility," explained Sheridan. "When our clients began to ask how they could get the same system, we launched '**sequoiaDIGITAL.com**' to meet their needs. Our customers are fanatical about audio quality. At first, when I recommended an audio card inside of a computer, many were skeptical. Knowing the exceptional audio quality of Sequoia, after listening to the Lynx cards, they raved about them, especially the quality of the converters.

"We spent a lot of time comparing high-end sound cards from several manufacturers. Not only did Lynx rate the best for its audio quality and stability, but company support has been second to none," explained Sheridan.

"And Lynx cards have been rock solid with the Sequoia system. We are currently developing a system using the Lynx **AES16**."

SequoiaDIGITAL offers turnkey in-studio systems for multitrack recording and mastering. The latest systems have Pentium4 Extreme processors with two gigabytes of RAM and Western Digital 10,000RPM hard drives in a 19" rack-mounted computer. The system is designed to be studio-quiet when used for 24-bit, 192 kHz recordings. The **LynxTWO-B** combined with an **LS-AES** LStream card offers two analog inputs, six analog outputs and ten AES/EBU digital I/O channels. With six analog outputs, the **Lynx-TWO-B** is ideal for monitoring 5.1 mixes. Calvin College in Grand Rapids, Michigan, has six systems for their Digital Audio courses, taught by Robert Fortner.

Other clients, such as Rich Mays of Sonare Recording in Savannah, Georgia, requested a portable recording and mastering format. Mays' speciality is live recording using very high sample rates. Sheridan designed a clever system using a cube-style computer (shown left) with a CD burner, sixteen channels of I/O, compact LCD screen and small keyboard. The **LynxTWO-C** offers six analog inputs for location recording and two analog outputs for monitoring. With the **Lynx TWO-B**, the system becomes a portable 5.1 mixing and mastering station. The entire system weighs just 35 pounds and fits into a 15" x 11" x 8" flight case.

"We use a Sequoia system here at Lynx for testing and product development," stated Lynx co-founder Bob Bauman. "It is a stable, powerful and very fast system - perfect for our products, especially multiple card systems."

For more information on Soundworks, go to their website at http://www.sequoiadigital.com.

we still recommend using our ASIO driver whenever possible, as it is considerably more efficient.

Power Management support. The driver now allows the computer to be put to sleep or into hibernate mode, thereby saving boot-up time and conserving energy.

Full Bus Mastering support. Bus Mastering relieves the CPU from the task of moving the audio from system memory onto the audio card and thereby frees up the CPU to do other useful things, such as run plug-ins. All drivers included in the Version 2 driver set use Bus Mastering.

What are the disadvantages of switching to Version 2?

No MIDI support. At the moment, there is no MIDI driver included in the Version 2 Driver. Users wanting to do LTC to MTC conversion will need to stick with the Version 1 driver.

No Mixer API support. Although the Lynx Mixer application functions exactly the same with both the Version 1 and Version 2 drivers, the Version 2 driver no longer supports the Microsoft Mixer API. Any application that controls some of the features of the hardware through the Mixer API will no longer be able to do so. Some broadcast applications (BSI Simian, for example) used the Mixer API to control volume and channel muting of the hardware.

KMixer and Sample Rate Conversion. When using the MME or DirectSound driver models, an additional Microsoft component, KMixer, is inserted between the application and the hardware driver. Although KMixer allows the multi-client and multi-sample rate support, it also touches every sample as is passes through, so there is no guarantee that the audio is unaltered. When you require the absolute best audio performance, we recommend using our ASIO 2.0 driver instead of MME or DirectSound and avoid KMixer altogether.

Convergent Digital Chooses Lynx for Audiophile Jukebox

Convergent Digital offers a compact, simple-to-use and functionally integrated home entertainment system, to manage movies, music, HDTV, gaming, digital photos, home movies and internet content of all types for people who want an affordable yet unparalleled home entertainment experience. For their **Audiophile Jukebox System**, which can store (uncompressed) and play back up to 2400 CDs, Convergent Digital selected the **LynxTWO-B** for their standard equipment for stereo as well as 5.1 playback. The PC-based system is operated by the wireless touchscreen shown on the left.

"We are really excited about the **LynxTWO-B**, which allows us to be competitive with the best conventional audiophile systems. In fact, it outperforms many conventional systems," stated the company's founder Robert Davidson. "Convergent Digital is committed to giving customers the advantages of the next generation of digital technology, such as a harddrive-based music library and true digital convergence of audio and video without any compromise on performance. Pro level performance is not just for the studio anymore, you can have it in your living room today."

Go to http://www.convergent-digital.com for more.

Short Links

Just the FAQs, Ma'am

Our website FAQ information has been greatly expanded with a lot more on the **LynxTWO** and a new section on the **AES16**. The FAQ format, which features click and read utility, is based on actual end-users' questions. You can go directly to the FAQs at:
http://www.lynxstudio.com/faq

New Lynx User Support Forum Launched

Unless you really like pop up ads for things you'll never need, you'll love the new Lynx Forum. Now you can read and place your own posts on any topic about Lynx. Press releases and industry news will also be among the topics.

The new forum has categories for easy searching and messaging, such as: Support; Wish List; Audio for Video; Broadcast; Home Theater and others. You can check it out and register today at:
http://www.lynxstudio.com/forum/

Paul's Card Tricks

Firmware – when to flash it, when to forget it...

One of the frequent support questions I get is: "I'll be installing a new driver for my Lynx card, should I update the firmware too?" To answer this question, it is helpful to have an idea what the heck firmware is. Our official definition is:

Firmware is a set of configuration data that controls the low-level operation of a hardware device. The firmware can be altered to change how a particular function works or add new features. From time to time, Lynx provides new firmware to improve the functionality of a product. End users cannot alter firmware supplied by Lynx.

In addition to this technical definition, some firmware updates only address compatibility with components on the PCI board, and add no new functionality or features. The firmware update process is not wholly without risk: if your computer loses power, or the process is interrupted in some way, the EEPROM on the card may be erased and the card may need to be sent to the factory to be re-programmed.

With that in mind, you should follow these three criteria to determine when firmware should be updated:
A. You are installing a card into a Macintosh for the first time (the cards ship from the factory with Windows firmware) or you are installing the card into a PC after it had been used in a Mac, or vice versa.
B. You intend to update the driver and a firmware update is required for full driver functionality (the driver release notes will indicate if this is the case).
C. You are instructed to do so by Lynx technical support.
Otherwise, you can remove "Is my firmware up-to-date?" from the list of things to worry about.

Five-One plus LynxTWO – the equation for pristine surround sound

Without a doubt, surround sound has changed the audio industry for good. In addition to traditional sound for video, surround encoding is fast becoming standard for audio projects of all types. Increasingly engineers need high-quality, no-fuss solutions for multi-channel monitoring and verifying playback of surround-encoded materials.

Additionally, computer-based media centers are quickly expanding in prominence. (See Convergent Digital in column one.) Many consumer 5.1 systems offer poor performance or high price tags for sub-Lynx quality. Whether you are an audio engineer or audiophile entertainment aficionado, Lynx offers a 5.1 solution with the best bang-for-the-buck.

Our new Version 2 Driver Package features multi-channel playback capabilities. Now you can play surround encoded material using 5.1 compatible media playback software, and all six channels will be distributed to the analog outputs of the **LynxTWO-B**. You will discover that no expensive standalone decoders are required, and the results are as pristine as the Lynx name denotes.

Here's what you need:
- Windows 2000 or XP.
- A **LynxTWO-B.**
- The Version 2 (WDM) driver downloaded from the Lynx website.
- The latest **LynxTWO** firmware.
- Media playback software that features Dolby or DTS 5.1 decoding (i.e. WinDVD, PowerDVD, TheaterTek, etc. – optional surround plug-ins may be required for correct playback).

Here's what you need to do:
- Connect your powered monitors or surround amplifier according to the following channel distribution: Left/Right = Outputs 1&2; Center = 3; Sub= 4; Left/Right Rear = 5&6.
- Flash the firmware.
- Install the Version 2 driver package.
- Set Windows to use 5.1 as the speaker setup
  1. Start> Control Panel> Sounds and
  2. Audio Devices> Audio> Sound Playback: Advanced> Speaker Setup = 5.1 surround sound speakers.
- Launch the media playback software. Choose **LynxTWO** Device 1 as the playback device. Choose 5.1 surround as the audio format.
- Play a surround encoded file or disk.

Here's what will happen:
- The Lynx Record/Play mixer will show 5.1 surround over Play 1.
- The Lynx outputs mixer will show meter activity for all 6 analog outputs (if not, restore defaults!).
- You'll hear all 6 channels with clarity and realism that will make you want to dance, sing or shout...

That's it from the tech corner for now. Until next time, happy bit-wrangling!

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Lynx STUDIO TECHNOLOGY