STUDIO **EQUIPMENT REVIEW**

LynxTWO Digital Audio Interface Card

BY LOREN ALLDRIN

When manufacturers release a new piece of equipment, they aim it at a chosen target market. Some products go toward the lower end of the market, where there is a better chance of selling a large quantity of units. Some products aim for the middle ground, in hopes of achieving a reasonable balance of features and price.

With the LynxTWO digital audio card, Lynx Studio Technology (distributed by HHB) is definitely shooting for the higher end of the market. Clearly designed with a no-compromise mindset, the LynxTWO card delivers true pro-level performance for those that need it and can afford it.

FEATURES

LynxTWO is a digital audio interface that works with both PC and Mac computers. On the PC side, the card includes MME, DirectSound and ASIO 2.0 drivers (the latter were in beta for NT, 2000 and XP at the time of this review). For the Macs running OS 9, LynxTWO offers ASIO drivers with ASIO 2.0 drivers in beta. Lynx hopes to have Mac OS X support by the end of the year. Also scheduled for year-end release are LynxTWO GSIF (GigaStudio) drivers. Third-party Linux and FreeBSD drivers are also being developed.

LynxTWO boasts a 32-channel digital mixer, sample rate converter, dither generator, internal zero-latency monitoring system and other niceties. The card will support everything from 8-bit/8 kHz audio up to 24-bit audio at 192 kHz. A bit-perfect digital engine allows all processing to be disabled for clean transfers of AC-3, DTS and other "encoded" audio streams. Add in an LTC (Longitudinal Time Code) reader/writer and sync options galore, and it is clear this card is meant for professional level production environments.

In lieu of an external I/O box, LynxTWO includes a pair of breakout cables that connect to the backplate of the card - a 25-pin D-sub for audio connectors and 15-pin D-sub for digital I/O and sync duties. One carries analog audio signals; the other offers digital audio and sync inputs and outputs. The breakout cables are of extremely high

Fast Facts

Applications:
audio production, audio-for-video production, any digital audio task

Key Features:
PC and Mac support, up to 24-bit audio at 192 kHz, 32-channel internal mixer, direct zero-latency monitoring, balanced analog I/O, onboard sample rate converter, video sync, longitudinal timecode (LTC) read/write

Price:
$1,095 (model tested)

Contact:
Lynx Studio Technology, Inc. at 949-515-8265, www.lynxstudio.com

LynxTWO is its mixer application. Three windows control adapter setup, record/play parameters and output setup respectively. These three windows float inside a larger window, which is a rather clunky arrangement. A single floating window with several tabs may have been a cleaner solution. Neither the beta nor production mixer application allows you to save full mixer/routing setups, but this feature is supposedly in the works for the next software release.

The Adapter window controls the overall setup of the card, including sample clock (synchronization) and clock reference, sample rate converter, LTC reader/generator and dither. As already mentioned, LynxTWO offers an impressive array of sync options. These include internal, digital in, external (sync in), header, video and both LStream connectors. For external and header sync modes, LynxTWO offers numerous reference settings: 13.5 MHz video dot clock, 27 MHz video dot clock, word clock and SuperClock (256X)

Other controls in the Adapter window include sample rate converter (off, mode, SRC on input or SRC on output), digital format (AES/EBU or S/PDIF), analog refer-

quality. Though I am not usually a fan of such cables, these are generously long and very supple. The LynxTWO package even includes two high-quality XLR-to-RCA cables for converting the AES/EBU outputs to S/PDIF format. Many manufacturers skimp in the cabling department, but not Lynx. Thanks, guys.

The LynxTWO comes in three different analog I/O configurations, each with a slightly different price tag. The LynxTWO A model ($1,095) has four analog balanced XLR inputs and four outputs. Model B ($995) increases analog outputs to six, and drops inputs to two. The LynxTWO C model ($1,195) offers six analog inputs and just two outputs. Folks wanting to get into the Lynx product at a lower price point will find the Lynx L22 interesting — it boasts performance identical to the LynxTWO, but has just two analog inputs/outputs and no video sync or LTC support ($749).

The sync portion of the second breakout cable has four BNC connectors. Not exactly common connectors on lower-end audio equipment, these BNCs carry LTC in both directions as well as sync in and clock out. Folks involved in video production will appreciate the LynxTWO's ability to speak LTC, which it can also translate to MIDI timecode. Header connectors on the card itself allow multiple LynxTWO cards to be used in synchronization within the same computer.

The connector carrying the digital audio

and sync also carries Lynx's LStream proprietary serial audio data protocol, as does a header connector on top of the card. By the time you read this, Lynx should be shipping its LStream interface cards including one for

ADAT (16-channel lightpipe plus sync, under $300) and one AES/EBU (four in/out plus SRC, under $500). A TDIF LStream card is reportedly also in the works.

IN USE

Installation of the LynxTWO into my Micron Millennia 933 MHz computer was easy. I downloaded and installed the latest (beta) drivers off the Lynx Web site before installing the card, after which Windows ME recognized the new hardware without a hitch. A quick update of the firmware (also downloaded off the Web) brought the card up to the latest version.

The main point of control over

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ence level and dither. Input/output analog reference level can be set to -10 dBV or +4 dBu for each stereo pair. The dither controls allow you to select between no dither, triangular, shaped triangular and rectangular. When one of the three dither options is set and you are working with 8 or 16-bit word lengths, you can then enable dither on individual inputs and outputs.

Finally, the Adapter window offers a stack of very useful readouts and indicators. High-accuracy frequency counters read out the frequency at every valid clock source (seven in all), and one even reports the PCI bus speed. Ten additional indicators track various aspects of the digital

audio signal. Thanks to the Adapter window, you should be able to quickly track down and fix any problems with the LynxTWO's configuration (or some other aspect of your digital audio system).

The card's Record/Play window holds high-resolution input meters for each of its 16 inputs. Each input also has a physical input selector pull-down menu, a mute button and dither button. Beneath these sit bit depth and stereo/mono readouts for both playback and record modes, as well as a handy dropout counter. Notably lacking from this window is a peak indicator with hold, which would nicely complement recording software that lacks good input metering.

LynxTWO's Outputs window looks much like the Record/Play window, with the addition of faders to attenuate output levels. Peak hold indicators grace the high-resolution meters on this screen, as do digital "over" counters. Each of the 16 output channels has four input selector buttons and corresponding pull-down list, from which you can choose any LynxTWO input or output. Hence LynxTWO will combine up to four signals (input or output) on the respective channel.

This ability to patch an input (or several inputs) directly to an output is the key to the LynxTWO's onboard monitoring capabilities. Output 1, for example, could combine the software's left playback channel with the signal hitting inputs 1, 3 and 4. The peak meter and "over" counter, in concert with the output fader, help keep output signal levels in check. Other controls on each output include mute and dither buttons.

Sonically, the LynxTWO puts in an extremely good showing. Its converters are clean and smooth, with a "big" sound one normally associates with high-end outboard A/Ds. Performance at higher sampling rates is nothing short of pristine, with an open, effortless high-frequency character. This is not just another card that captures high-resolution recordings of a bad-sounding 20 kHz bandwidth analog front end. When you

crank up the clock, LynxTWO delivers the goods from input to output.

Overall stability of LynxTWO is excellent, a testimony to good driver design. Speaking of drivers, the card is capable of extremely low latency figures — Lynx Technologies reports Windows 2000/XP users achieving latency figures below 2 ms (ASIO, bus mastering). While my Windows ME test system was not capable of 2 ms latency times, I found the LynxTWO to work happily with buffer sizes smaller than I was

as when controlling the volume of monitors plugged directly into LynxTWO's outputs (a connection I risked for this test).

SUMMARY

Lynx Studio Technology does not churn out products at the torrid pace of some of its competition — when a new product is unwrapped, however, Lynx seems to get it, a few software hitches aside, right. LynxTWO is a truly pro-quality interface that exhibits a great deal of diligence and care in its design.

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comfortable with.

Beyond the manual, I do have a few other complaints with the LynxTWO package. First is with the system's metering, which may or may not be a crucial point depending on the software you use. I do not find the wide-range metering to be very practical (do you really need to know what's going on at -114 dB?), and I would love to see some way to adjust the range.

I am also disappointed that the LynxTWO Outputs mixer does not offer a way to pair up adjacent faders for stereo operation, nor does it give a numeric readout of attenuation for precise fader matching. There are times when paired faders would be very nice, such

The card's stellar sound quality is just one half of its appeal — the other lies in its flexibility.

Whether you are doing multitrack studio recording, surround mixing or some other audio-for-video task, LynxTWO is a solid enough performer to build your production system around. In fact, when it comes to raw sound quality, you will likely have a hard time surrounding the LynxTWO card with gear that can keep up with it.

Loren Alldrin is a contributor to **Pro Audio Review** *and author of* The Home Studio Guide to Microphones.

REVIEW SETUP

Micron Millennia 933 MHz computer; Emagic Logic Audio 4.6, Syntrillium Cool Edit Pro 1.2 DAW software; Mackie HR824 monitors.