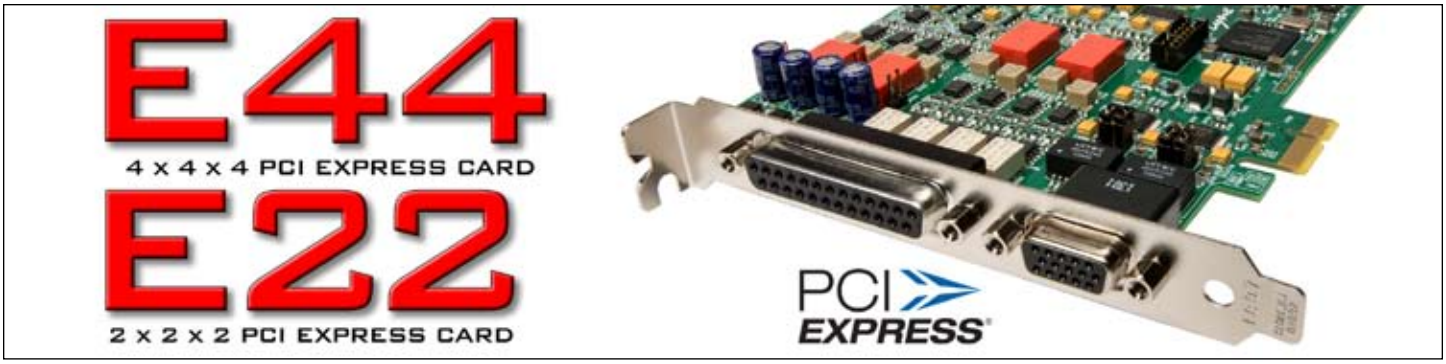

E44 & E22 PCI Express Audio Cards
PRODUCT INTRODUCTION

The E44/E22 PCI Express cards are designed to satisfy the most demanding professional recording and broadcast studio requirements. Built upon the legacy of the industry-leading LynxONE and LynxTWO cards, the E series takes a leap forward to offer the highest performance A/D and D/A conversion system ever incorporated into a PCI Express card. In fact the E44 and E22 performance even eclipses that of the Lynx Aurora converters. Since 1998, Lynx has provided high-reliability add-in cards engineered for 24/7 operation. The E series improves upon this tradition with upgraded enhancements for I/O protection and shielding.

The E44/E22 cards utilize sophisticated design methodologies to achieve high performance levels. Components are meticulously chosen to support low noise and distortion. Circuit topologies are compact and cancel external noise pickup. Capacitors with solid dielectrics provide high reliability and long life. Considerable effort is applied to PCB layout which focuses on component placement and routing of traces, as well as copious use of copper planes for shielding and power distribution.

The power available from the PCI Express bus offers a particular challenge due to the lack of a negative supply rail which is required to power analog amplifier stages. The E series utilizes a unique scheme to generate supply rails that are extremely low noise while being very tolerant of poorly designed computer power supplies.

The use of field-programmable-gate-arrays (FPGA) is another core technology pioneered for use in audio devices by Lynx. The E series uses the latest devices with a wealth of resources for parallel processing in our 16 X 8 mixer and V2 DMA engine which maximizes through-put on the PCIe bus while minimizing CPU workload. The E44's FPGA firmware can be upgraded in the field in order to add features and enhancements in the future.

Ideal for:
Capturing and archiving historic and classic material with extreme accuracy and transparency.
Broadcast applications requiring 24/7 flawless operation
Audio measurement
Audio production
Medical, military and industrial applications that require full audio spectrum capabilities and extreme reliability

Key Specifications and Features

E44
- Four channels A/D and D/A conversion
- Four channels of AES3 or S/PDIF I/O

E22
- Two channels A/D and D/A conversion
- Two channels of AES3 or S/PDIF I/O

E44 and E22
- Fixed or adjustable trim level on all analog I/O's, relay controlled
- Extremely low-jitter SynchroLock sample clock generator
- Automatic output muting on power on/off (de-thump)
- FPGA-based on-board hardware mixing
- V2 DMA Engine promotes extremely low-latency operation
- Drivers for Macintosh OS X, Windows 7 & 8. Thunderbolt compatible.
- Lynx Mixer application
- RoHS compliant
- Designed and built in the USA

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SPECIFICATIONS

Analog I/O

Lynx E44	Four input channels / four outputs channels
Lynx E22	Two input channels / two output channels
Type	Electronically balanced or unbalanced, XLR connectors
Level	+20dBu full-scale or variable +8.23dBu to +24dBu full-scale; jumper selectable
Input Impedance	Balanced mode: 24 kohm Unbalanced mode: 12 kohm
Output Impedance	Balanced mode: 100 ohm Unbalanced mode: 50 ohm
Output Drive Capability	600 impedance, 0.2 µF capacitance
A/D and D/A Type	24-bit, multi-level, delta-sigma
Sample Rates	All standard sample rates up to 192kHz

Analog In Performance

(Analog performance specs measured at 44.1 kHz sample rate, 24-bit, card installed in computer)

Frequency Response	20 - 20 kHz, ± 0.05 dB
Dynamic Range	117 dB, A-wtd.
Channel Crosstalk	<-128 dB, 1kHz signal@-1dBFS
THD+N	-111 dB (0.0003%) @ -1 dBFS 1 kHz signal, 22Hz - 22kHz BW

Analog Out Performance

(Analog performance specs measured at 44.1 kHz sample rate, 24-bit, card installed in computer)

Frequency Response	20 - 20 kHz, ± 0.05 dB
Dynamic Range	120 dB, A-wtd.
Channel Crosstalk	<-130 dB, 1kHz signal @ -1dBFS
THD+N	-108 dB (0.0004%) @ -1 dBFS 1kHz signal, 22Hz - 22kHz BW

Digital I/O

Number / Type	
Lynx E44	Four input channels / four outputs channels
Lynx E22	Two input channels / two output channels 24 bit AES/EBU or S/PDIF format jumper selectable, transformer coupled, XLR connectors
Sample Rates	44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz, 177.4 kHz, 192 kHz

Clock I/O

Number	External: one input and output, BNC connectors on Sync Cable Internal: one input and output on board-mounted headers
Level / Impedance	TTL / 75 ohms
Type	Word clock

On-board Digital Mixer

Channel Capacity	16 input channels, 8 sub outputs
Monitor Mixing	16 x 8 with no limitations
Metering	Peak levels to -120 dB on all inputs and outputs

Connections

Audio Port	Bracket-mounted 25-pin female D-sub connector for analog audio I/O
Sync Port	Bracket-mounted 15-pin high-density female D-sub connector for digital input and output, word clock in and out

Cables (Optional)

E44 Audio Cable	25-pin male D-sub to 4 male and 4 female XLR connectors on six-foot shielded twisted pair cabling
E22 Audio Cable	25-pin male D-sub to 2 male and 2 female XLR connectors on six-foot shielded twisted pair cabling
E44 Sync	15-pin high-density male D-sub to (2) male and (2) female XLR on six-foot shielded twisted pair cabling and (2) female BNC connectors on six-foot 75 ohm coaxial cabling
E22 Sync	15-pin high-density male D-sub to (1) male and (1) female XLR on six-foot shielded twisted pair cabling and (2) female BNC connectors on six-foot 75 ohm coaxial cabling

Software

Windows Drivers	Windows 7 / 8: MME / DirectSound / WASAPI (WaveRT); ASIO 2.3
Macintosh Drivers	Core Audio for OS X 10.8 and higher.
Lynx Mixer Application	Provides complete control of digital mixer and all hardware settings.

General

PCI Express Bus	x1
Data Transfers	Highly efficient Lynx V2 DMA engine; bus mastering
Power	+3.3V @ 630 mA, +12V @ 500 mA
Size	5.0” H X 7.4” W X 0.75” D (half-size PCI Express card)
Shipping Weight	1 pound
Certifications	CE and FCC Class B RoHS Certified

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