

# Lynx

## LSTREAM EXPANSION CARDS

**The LS-AES and LS-ADAT expansion cards integrate seamlessly with the LynxTWO and L22 digital audio cards to provide high-performance multi-channel AES/EBU and ADAT connectivity for any Windows or Macintosh based audio or video workstation at sample rates up to 192kHz. Both devices offer a straightforward interface to digital recording and broadcast consoles, multi-channel A/D and D/A converters, and digital tape and hard disk recorders.**

### PRODUCT DATA

The LS-AES provides four inputs and outputs that support professional AES/EBU and consumer S/PDIF digital I/O formats. Connections are transformer coupled with pro-quality sample rate conversion (SRC) available on all inputs. The LS-AES is also compatible with Dolby Digital and DTS encoded formats.

Running at a sample rates up to 96 kHz, the LS-AES provides eight I/O channels in single-wire mode and four channels in dual-wire mode. At 192 kHz, four channels of I/O are available in dual-wire mode and two channels in quad-wire mode. For additional channel capacity, two LS-AES cards can be used simultaneously with one LynxTWO or L22.

The LS-AES can handle both asynchronous and synchronous studio configurations. SRC can be enabled independently on each digital input to accommodate asynchronous signals from multiple digital devices. Alternatively, all inputs can be run synchronously and any input can be selected as the system clock source. The card can also be synchronized to a word clock or composite video received by the host LynxTWO.



**LS-AES**

## LS-ADAT



### PRODUCT DATA

The LS-ADAT is a full-function ADAT interface that provides two ADAT lightpipe inputs and outputs and an ADAT Sync In Port. Operating at a sample rate of 48 kHz, the LS-ADAT I/O channel capacity is 16. Higher sample rates are supported using S/MUX technology: 8 channels at 96 kHz and 4 channels at 192kHz.

The ADAT Sync In port feeds on-board time code control logic that provides two methods of sample-accurate synchronization. In systems using ASIO compatible audio applications, the LS-ADAT utilizes Steinberg's ASIO Positioning Protocol for synchronization to ADAT time code. Alternatively, synchronization using the LS-ADAT's cue point capability initiates recording or playback with sample period resolution.

The LS-ADAT offers a wide variety of sample clock synchronization options. Its sample clock source can be derived from a word clock or composite video received by the LynxTWO. In addition, either lightpipe input or the Sync In port can also be selected as the clock source.

**LYNX STUDIO TECHNOLOGY, INC.**

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## LS-AES Specifications

DIGITAL I/O	
<b>Number</b>	Four inputs and four outputs, transformer coupled
<b>Format</b>	24-bit AES/EBU or S/PDIF supported, on-board impedance and level switching
<b>Wiring Modes / Sample Rates</b>	Single-wire @ 32 kHz, 44.1 kHz, 48 kHz, 88.2 kHz, and 96 kHz sampling rates Dual-wire @ 88.2 kHz, 96 kHz, 176.4 kHz, and 192 kHz sampling rates Quad-wire @ 176.4 kHz, 192 kHz sampling rates
<b>Channels</b>	8 in/out in single-wire mode 4 in/out in dual-wire mode 2 in/out in quad-wire mode
<b>Sample Rate Conversion</b>	Support for conversion ratios up to 3:1, independently available on any input or output
<b>Channel Expansion</b>	Support for two LS-AES cards per LynxTWO or L22 for doubling of channel capacity
CLOCK SYNCHRONIZATION	
<b>Clock Sources</b>	Host card (LynxTWO or L22) or any LS-AES digital input
<b>Modes</b>	Master mode: utilizes LynxTWO or L22 low-jitter sample clock to drive external AES devices Slave mode: utilizes word clock from any digital input
ARCHITECTURE	
<b>Core</b>	FPGA-based core. Support for field upgrades of firmware.
<b>Audio Devices</b>	Via host card, the LS-AES's four digital inputs and outputs are visible to applications as four stereo record devices and four stereo play devices
<b>Routing/Mixing</b>	Integrates with host card's digital mixer to allow independent routing of AES I/O with host card analog and digital I/O
CONNECTIONS	
<b>Digital I/O Ports</b>	Bracket-mounted 25-pin female D-sub connector
<b>LStream</b>	Board-mounted header for connection to host audio card via ribbon cable
CABLES (INCLUDED)	
<b>Digital I/O Cable</b>	25-pin male D-sub to (4) male and (4) female XLR connectors on six-foot shielded twisted pair cabling
<b>LStream</b>	16-pin ribbon cable for host card connection
GENERAL	
<b>Host Interface</b>	Lynx proprietary LStream Interface: 24.5 Mbps bi-directional
<b>Requirements</b>	One available bracket position (PCI slot not required), Host card: LynxTWO or L22
<b>Size / Weight</b>	2.990" H X 5.000" W / 2.5 pounds



## LS-ADAT Specifications

ADAT OPTICAL I/O	
<b>Number / Type</b>	Two inputs and two outputs, compatible with Alesis ADAT Type I and Type II Optical Digital Interface Protocol, up to 24-bit data
<b>Channels</b>	16 @ 44.1kHz / 48 kHz sample rates 8 @ 88.2 kHz / 96 kHz sample rates, S/MUX 4 @ 176.4 kHz / 192 kHz sample rates, SMUX
<b>Input Receiver</b>	Fast-locking phase-locked loop
ADAT SYNCHRONIZATION I/O	
<b>Number / Type</b>	One 9-pin Sync In port compatible with Alesis Synchronization Protocol
<b>Signals</b>	Time code (sample count), word clock, and MIDI control data
<b>Sample Accurate Sync</b>	ASIO Positioning Protocol or hardware-based SMPTE frame address matching logic (Cue Point)
<b>MTC</b>	Time code to MTC conversion
<b>MIDI</b>	MIDI port transfers serial input control data
CLOCK SYNCHRONIZATION	
<b>Clock Sources</b>	Host card (LynxTWO or L22), Optical In 1, Optical In 2, ADAT Sync In
<b>Modes</b>	Master mode: utilizes LynxTWO or L22 low-jitter sample clock to drive external ADAT devices Slave mode: utilizes word clock derived from either ADAT optical input or Sync In port
ARCHITECTURE	
<b>Core</b>	FPGA-based core. Support for field upgrades of firmware.
<b>Audio Devices</b>	Via host card - visible to applications as eight stereo record devices corresponding to ADAT optical inputs 1 – 16 and eight stereo play devices corresponding to ADAT optical outputs 1 – 16
<b>Routing/Mixing</b>	Integrates with host card's digital mixer to allow independent routing of ADAT I/O with host card analog and digital I/O
CONNECTIONS	
<b>I/O Ports</b>	(4) Bracket-mounted TOSLINK connectors. (1) 9-pin female D-sub connector.
<b>Other</b>	LStream interface headers
CABLE (INCLUDED)	
<b>LSTREAM</b>	14-pin ribbon cable for host card connection
GENERAL	
<b>Host Interface</b>	Lynx proprietary LStream Interface: 24.5 Mbps bi-directional
<b>Requirements</b>	One available bracket position (PCI slot not required), Host card: LynxTWO or L22
<b>Size / Weight</b>	3.0" H X 5.0" W / 2.0 pounds

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