

DESCRIPTION

The ASI6122 is a professional PCI audio adapter designed for use in the broadcast and entertainment markets.

It is based on the TMS320C6711 VLIW floating point DSP, which runs at 150MHz and offers a peak of 900MFLOPs.

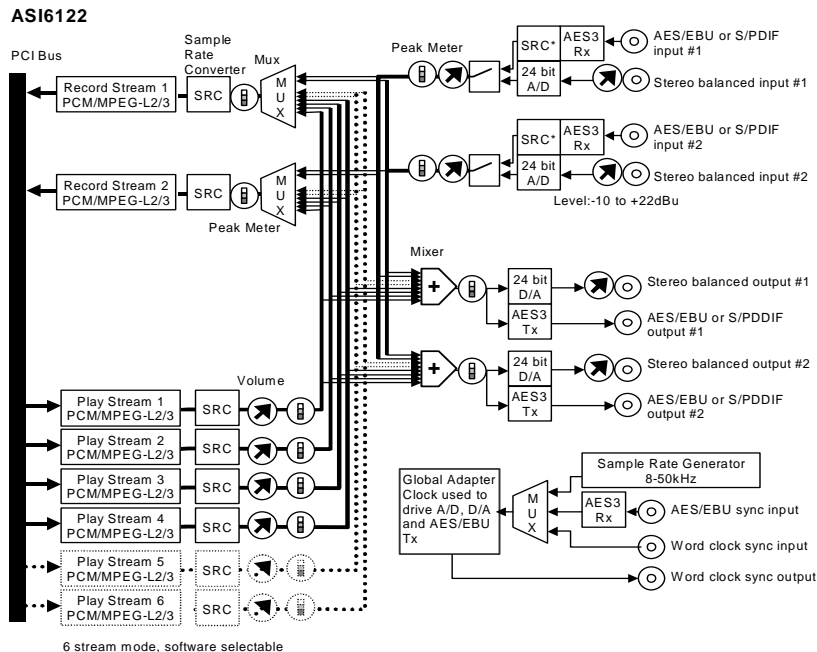
A choice of 16bit PCM, MP3 or MPEG layer 2 compression is available on all streams. A multi-rate digital mixer allows streams of different sample-rates and formats to be mixed together and sent to both analog and digital AES/EBU outputs

Synchronization capabilities include an AES/EBU sync input and Word clock input and output.



FEATURES

- Four/Six stereo streams of MP3, MPEG Layer2 or PCM playback into two stereo outputs
- Two stereo streams of MP3, MPEG Layer2 or PCM record.
- MRX™ technology supports digital mixing of multiple stream formats and sample rates.
- TSX™ timescaling allows compression/expansion of play streams by up to +/-20% with no pitch shift.
- Two stereo balanced analog and digital play outputs. Two balanced stereo analog and digital inputs.
- 24bit analog-to-digital and digital-to-analog converters - 100dB SNR and 0.002% THD+N
- AES/EBU and S/PDIF digital audio input and output (software selectable) with sample rate converters on all inputs.
- AESEBU and Word clock Sync input allows adapter clock and AES/EBU outputs to be synchronized to external references
- SoundGuard™ transient voltage suppression protects against lightning and other high voltage surges on all I/O
- Up to 8 cards in one system.
- Windows 2000/XP and Linux software drivers available.



1. SPECIFICATIONS

ANALOG INPUT/OUTPUT

Type	Balanced
Connector	Mini50(SCSI-II type)
Input Level	-10 to +22dBu in 0.5dBu steps
Input Impedance	20K ohms
A/D converter	24bit Oversampling
Output Level	-10 to +22dBu in 0.5dBu steps
D/A converter	24bit Oversampling
Load Impedance	600ohms or greater
S/N Ratio[1]	100dB (record or play)
THD+N[2]	0.002% (record or play)
Sample Rates	8 to 48kHz with 100Hz resolution
Frequency Response	20Hz to 20kHz +/-0.2dB

DIGITAL INPUT/OUTPUT

Type	AES/EBU (EIAJ CP-340 Type I / IEC-958 Professional) S/PDIF (EIAJ CP-340 Type II / IEC-958 Consumer) (software selectable)
Connector	Mini26(SCSI-II type)
Sample Rates	32, 44.1 and 48kHz with sample rate converter on inputs

SAMPLE RATE CLOCK

Internal	8 to 48kHz with 100Hz resolution
AES/EBU In	Dedicated AES/EBU clock input
Word In	External and Internal board-to-board link
Word Out	External and Internal board-to-board link

SIGNAL PROCESSING

DSP	Texas Instruments TMS320C6711@150MHz
Memory	8MB
Audio Formats	8 bit unsigned PCM 16bit signed PCM MPEG-1 Layer 2 MPEG-1 Layer 3(MP3) (MPEG Layer-3 audio coding technology licensed from Fraunhofer IIS and THOMSON multimedia)

BREAKOUT CABLES (NOT INCLUDED)

Analog	CBL1022 : Mini DB50 to 4 XLR in and 4 XLR out.
Digital	CBL1122: Mini DB26 to 2 in, 2 out XLR, 1 BNC in, 1 BNC out (Word Clock).

GENERAL

Bus	Universal 32bit PCI (3.3V or 5V signaling)
Dimensions	PCI form factor - 10" x 3.9" x 0.6" (255mm x 100mm x 15mm)
Weight	8 oz (227g) max
Operating Temperature	0C to 70C
Power Requirements	+3V@1A, +5V @ 1A, +12V @ 500mA, -12V @ 150mA (if no 3V is available then the board may be powered from a +5V only PCI bus)

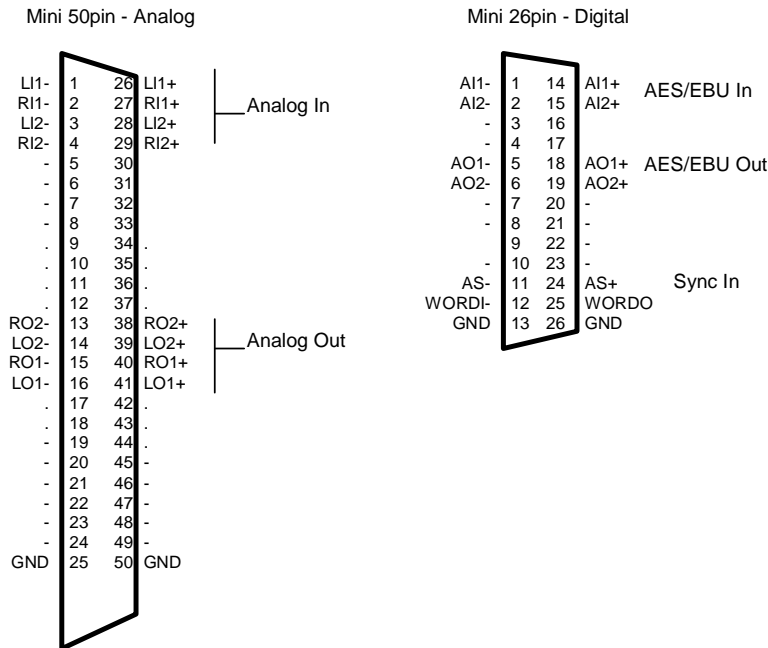
[2] - THD+N measured using a +14dBu 1kHz sinewave sampled at 48kHz and A weighting filter

[1] - S/N Ratio is the difference between a 1kHz +14dBu sinewave and digital zero using an A weighting filter

INSTALLATION

ASI6000 series adapters need a PCI slot that supplies 3.3V. Most PCs manufactured in 2000 or after will have this. If 3.3V is not supplied, then connect jumper J9. 3.3V will then be generated from an on-board regulator from the PCI's +5V.

2. CONNECTORS



DSP UTILISATION

The ASI6000 series of adapters have world-class audio signal processing capabilities. The ASI6000 algorithm complexity has increased at a faster rate than DSP processing power, resulting in a situation where not all available algorithms on an ASI6000 can run simultaneously.

The following tabulates processing “budgets” so that problem configurations can be identified before system design is completed. The following tables assign a utilization percentage for various operations. By summing up the utilizations for the target (worst case) configuration, one can determine whether audio processing will run without causing dropouts or breakup.

ASI6122 revF , Driver: 2.77

Adapter sample rate 32 kHz, Idle utilization 4%.

Operation	Record (utilization/ device)	Play (utilization/ device)
PCM16/24/32 @ 32 kHz	2%	2%
TimeScale (90%)	NA	9%
SampleRateConversion (110%)	NA	8%
SampleRate Conversion to/from 44.1kHz	9%	10%
SampleRate Conversion to/from 48kHz	9%	10%
MPEG layer-2, 256 kbps @ 32 kHz	16%	7%
MPEG layer-3, 256 kbps @ 32 kHz	38%	17%

Adapter sample rate 44.1 kHz, Idle utilization 6%.

Operation	Record (utilization/ device)	Play (utilization/ device)
PCM16/24/32 @ 44.1 kHz	3%	3%
TimeScale (90%)	NA	10%
SamleRateConversion (110%)	NA	11%
SampleRate Conversion to/from 32kHz	10%	9%
SampleRate Conversion to/from 48kHz	11%	11%
MPEG layer-2, 256 kbps @ 44.1 kHz	22%	10%
MPEG layer-3, 256 kbps @ 44.1 kHz	51%	22%

Adapter sample rate 48 kHz, Idle utilization 7%.

Operation	Record (utilization/ device)	Play (utilization/ device)
PCM16/24/32 @ 48 kHz	3%	3%
TimeScale (90%)	NA	11%
SamleRateConversion (110%)	NA	11%
SampleRate Conversion to/from 32kHz	9%	8%
SampleRate Conversion to/from 44.1kHz	11%	11%
MPEG layer-2, 256 kbps @ 48 kHz	25%	12%
MPEG layer-3, 256 kbps @ 48 kHz	56%	24%

[end]