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IXI1688s Mezzanine

8 Channel 16-bit A/D & D/A Converter

View Photo of IXI1688s

Board Photo

IXI1688sArchitectural Diagram

Architectural Diagram

Features

- 4 Dual 16-bit έΠ ADC & DAC8 channels of input and output
  - 80 dB dynamic rangeAutocalibration of converters
  - Programmable conversion rate up to 48 kHz
- Programmable gain/attenuationIntegral anti-aliasing filtersPCM, ˝-law, and A-law data

General Description

The IXI1688S is a standard IXI interface mezzanine designed for use with compatible IXZ baseboards for digital signal processing. The board has four AD1847 codecs from
Analog Devices that provide eight channels of analog-to-digital and eight channels of digital-to-analog conversions. The conversions sample with a resolution of 16 bits to 48kHz. The codecs provide autocalibration and can generate and accept PCM, ˝-law and A-law data formats.

Each AD1847 codec uses an έΠ architecture to provide simultaneous ADC and DAC functions with high-performance specifications. Each channel is independently programmable for gain and attenuation. The sample rate is programmable and the board can accept an external clock. While programmable, the sample rate is the same for all four codecs. Each converter may run an autocalibration sequence under software control from the baseboard; this calibration makes high precision measurements possible. With programmability of gain and sampling rate, autocalibration, digital anti-aliasing filters, and multiple input and output sources, the IXI1688S is a very powerful front-end data acquisition and preprocessing module.

The codecs are chained together on a serial bus that connects directly to the serial ports of the SHARC processors. This provides a simple and clean interface for transferring data. Because the codecs are chained, they can not sample simultaneously; synchronicity of samples has a maximum deviation in time between any two codecs, at any sample rate, of 380 ns.
The IXI family of interface mezzanines complies with the *IXI Design Specifications* published by Ixthos. The electrical interface to an IXI mezzanine consists of 73 signals: 32 data lines, 24 address lines, 11 control lines, digital power & ground, 3 analog powers (+5, +12, -12) & analog ground. These connections to the baseboard are made via an elastomeric connector that provides a high density, low resistance, zero insertion force connection. Standard board separations of 0.125" to 0.375" are low enough to ensure a single-slot solution for most applications while providing enough room for double-sided population.

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