

PCIe/PXIe-9529

8-CH 24-Bit High-Resolution Dynamic Signal Acquisition Module



Introduction

The ADLINK PCIe/PXIe-9529 are high-performance, high density dynamic signal acquisition modules, featuring up to eight 24-bit analog input channels simultaneously sampling at 192 kS/s, and a 108 dB dynamic range, providing ample power for high-density high channel count signal measurement. The PCIe/PXIe-9529 feature a vibration-optimized lower AC cutoff frequency of 0.5 Hz, and all input channels incorporate 4 mA bias current for integrated electronic piezoelectric (IEPE) signal conditioning for accelerometers and microphones, ideally positioning the module for machine condition monitoring, NVH, and phased array data acquisition applications.

Specifications

Analog Input

- Number of simultaneously sampled channels: 8
- Input configuration: Differential or pseudo-differential
- Input impedance:

Input Impedance	Differential Configuration	Pseudodifferential Configuration
Between positive input and system ground	1 M Ω	1 M Ω
Between negative input and system ground	1 M Ω	50 Ω

- Input coupling: AC or DC, software selectable
- AC coupling cutoff frequency: 0.5 Hz
- ADC resolution: 24-bit
- ADC type: Sigma-Delta
- Sampling rate: 192 kS/s maximum, 8 kS/s to 54 kS/s in 192 μ S/s increments, 54 kS/s to 108 kS/s in 576 μ S/s increments, 108 kS/s to 192 kS/s in 768 μ S/s increments
- Input signal range: \pm 10V, or \pm 1V
- Integrated Electronic Piezoelectric (IEPE):
 - Current: 4 mA for each channel
 - IEPE compliance: 24 V
- Overvoltage protection
 - Differential : \pm 42.4V
 - Pseudo-differential :
 - Positive terminal : \pm 42.4V
 - Negative terminal : Not protected, rated at \pm 2.5V
- Offset error: \pm 1 mV max
- Gain error: \pm 0.5% of FSR
- Crosstalk: < -100 dB
- THD: < -104 dB

Trigger

- Trigger Sources
 - Software trigger
 - Analog trigger
 - External digital trigger
 - PXI STAR trigger (PXIe-9529)
 - SSI (PCIe-9529)
 - PXI trigger bus [0..7] (PXIe-9529)
- Trigger Modes
 - Post-trigger
 - Delay trigger

- External Digital Trigger Input:
 - 5 V TTL compatibility
 - Trigger polarity: rising or falling edge
 - Pulse width: 20 ns minimum

Timebase

- Delay trigger timebase
 - PCIe clock (125 MHz)
- Sample clock timebase
 - Internal: onboard synthesizer (10 MHz)
 - External: SSI (PCIe-9529)
 - External: PXIe backplane 10 MHz and 100 MHz (PXIe-9529)

Data Storage and Transfer

- Scatter-Gather DMA data transfer
- 2048 samples for each channel

Onboard Reference

- +5.000 V onboard reference voltage
- < 5.0 ppm/ $^{\circ}$ C reference temperature drift
- 15 minutes recommended warmup

General Specifications

- I/O Connector:
 - SMB x 8 for analog inputs
 - SMB x 1 for external digital input
- Dimensions (not including connectors)
 - PXIe-9529: 160 (W) x 100 (H) mm (6.24" x 3.9")
 - PCIe-9529: 167.64 (W) x 106.68 (H) mm (6.53" x 4.16")
- Bus Interface:
 - PCI Express Gen 1 x4
- Ambient Temperature (Operational):
 - 0 $^{\circ}$ C to 55 $^{\circ}$ C (32 $^{\circ}$ F to 131 $^{\circ}$ F)
- Ambient Temperature (Storage):
 - 20 $^{\circ}$ C to 80 $^{\circ}$ C (-4 $^{\circ}$ F to 176 $^{\circ}$ F)
- Relative Humidity:
 - 10% to 90%, non-condensing

Certifications

- EMC/EMI: CE, FCC Class A

Features

- 24-Bit Sigma-Delta ADC
- 8 simultaneous analog inputs
- 192 kS/s maximum sampling rate
- \pm 1V, and 10V input ranges
- 110 dB dynamic range
- Antialiasing filters
- AC (0.5Hz), or DC coupling, software selectable
- IEPE - 4mA, software configurable
- Supported Operating System
 - Windows 7/8 x64/x86, Linux
- Driver and SDK
 - LabVIEW, MATLAB, C/C++, Visual Basic, Visual Studio.NET

Ordering Information

- PXIe-9529**
8-CH 24-Bit High-Resolution Dynamic Signal Acquisition Module for PXIe bus
- PCIe-9529**
8-CH 24-Bit High-Resolution Dynamic Signal Acquisition Module for PCIe bus