

# 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 $\Omega$               | 1 M $\Omega$                     |
| Between negative input and system ground | 1 M $\Omega$               | 50 $\Omega$                      |

- 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  $\mu$ S/s increments, 54 kS/s to 108 kS/s in 576  $\mu$ S/s increments, 108 kS/s to 192 kS/s in 768  $\mu$ 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

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