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PXIe-9848/9848H

8-CH 14-Bit 100 MS/s High-Speed PXI Express Digitizer

PXIe-9848

NEW

PXIe-9848H

Introduction

The ADLINK PXIe-9848/9848H is an 8-channel, 14-bit, 100 MS/s digitizer delivering both high-accuracy measurement results and high-dynamic performance. With a PXI Express bus interface and ample onboard acquisition memory up to 512 MB, the PXIe-9848/9848H can easily manage simultaneous 8-CH data streaming. High density and high speed digitizer features ideally position the PXIe-9848/9848H for applications such as LIDAR, radar signal acquisition, and PSU (Power Supply Unit) testing applications.

The PXIe-9848 provides a flexible set of input ranges from ±0.2V to ±2V, software selectable 50Ω or 1MΩ input impedance, a wide variety of triggering options and tight synchronization capability, all maximizing convenience of use. In addition, ADLINK provides the PXIe-9848H, features a x15/x50 signal conditioning module providing both high input voltage range of ±100V and high dynamic performance, delivering the optimum solution to measurement range expansion in a PXI system.

Highlights

Flexible Use Options

The PXIe-9848 provides a flexible input range from ±0.2V to ±2V, software selectable 50Ω or 1MΩ input impedance, a wide variety of triggering options, and tight synchronization capability, all maximizing convenience of use.

High Density Simultaneous 8-CH Data Streaming

Benefiting from PXIe architecture, the PXIe-9848 easily manages simultaneous 8-CH data streaming. Users can synchronize multiple PXIe-9848 digitizers to mount a test system providing up to 64 channels in a single 9-slot PXI Express chassis.

Extra Buffering

The PXIe-9848 provides built-in memory up to 512 MB for massive data storage, enabling users to extend acquisition for preset durations.

x15/x50 Signal Conditioning Module of PXIe-9848H

The PXIe-9848H's signal conditioning module provides 8 simultaneous analog inputs and 15:1 or 50:1 attenuation ratio, implemented with solid product design and strict verification testing to ensure maximum performance, thereby enabling the high dynamic performance of 63.5 dB SFDR and 55.5 dB SINAD while supporting high input voltage range of ±100V.

Equipped with ADLINK PXES-2590 PXIe chassis and PXIe-9848 modules, high density testing system with up to 64 channels can be implemented.
Note: For PXES-2590 details, please refer to pages 1-13.

PXIe-9848H

Features

- **PXI Express specification Rev. 1.0 compliant**
- **Up to 100 MS/s sampling rate**
- **8 simultaneously analog inputs**
- **High resolution 14-bit ADC**
- **Up to 100 MHz bandwidth for analog input**
- **512 MB onboard storage memory**
- **Programmable input voltage range of ±0.2 V or ±2 V, or ±100 V Max (PXIe-9848H)**
- **Scatter-Gather DMA data transfer for high speed data streaming**
- **One external digital trigger input**
- **Full auto-calibration**

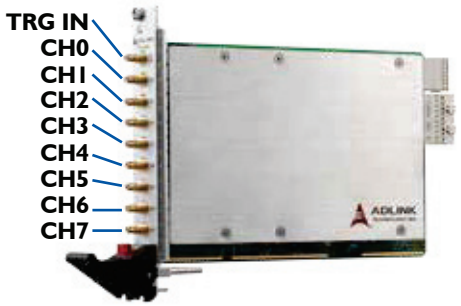
Supported Operating System

• Windows 7/8 x64/x86, Linux

Driver and SDK

• LabVIEW, MATLAB, C/C++, Visual Basic, Visual Studio.NET

IO connector definition



Specifications

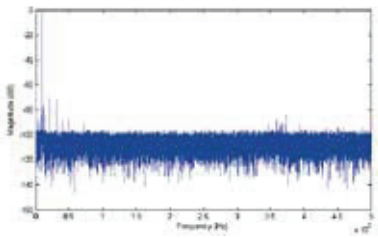
Analog Input

- Number of channels: 8 single-ended
- Input impedance: 50Ω or 1MΩ, software selectable
- Input Coupling: AC or DC, software selectable
- Input signal range: ±0.2 V or ±2 V, or ±100 V Max (PXIe-9848H)
- Overvoltage protection: ±5 V
- ADC resolution: 14 bits, 1 in 16384
- Crosstalk: from DC to 1 MHz, for all input ranges

PXIe-9848	PXIe-9848H
<-80dB	<-60dB

- -3 dB bandwidth:

PXIe-9848	PXIe-9848H (15:1)	PXIe-9848H (50:1)
100MHz	45 MHz	35 MHz



Typical values are measured using 1 MHz sine wave input with amplitude at -1dB of full scale on a ± 2V range. Acquired data lengths are in 64k points at 100 MS/s sampling rate, calculated with Hanning window FFT.

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PXI Express™

- Offset error:

PXIe-9848	PXIe-9848H
<±1 mV	<±2mV

- Gain error:

PXIe-9848	PXIe-9848H
<±0.5%	<±1%

- System noise: Standard Deviation

Impedance	PXIe-9848	PXIe-9848H (15:1)	PXIe-9848H (50:1)
1MΩ	<18LSB	<38 LSB	< 25 LSB
50Ω	<15LSB	Not supported	Not supported

- Spectral Characteristics
  - Sampling rate: 100MS/s, 1MHz -1dBFS input signal

	PXIe-9848	PXIe-9848H (15:1)	PXIe-9848H (50:1)
SINAD	65 dB	55 dB	58 dB
SNR	66 dB	55 dB	58 dB
THD	-72 dB	-75 dB	-78 dB
ENOB	10.58 bits	9.0 bits	9.5 bits
SFDR	74 dB	59 dB	68 dB

  - Passband flatness: DC to 10MHz (without 20MHz digital filter)

Impedance	PXIe-9848	PXIe-9848H (15:1)	PXIe-9848H (50:1)
1MΩ	< ±1 dB	< ±0.4 dB	< ±0.4 dB
50Ω	< ±0.2 dB	Not supported	Not supported

  - Additional Characteristics for Attenuator

Impedance	15:1	50:1
1MΩ	1MΩ	920kΩ
50Ω	13.75pF	15pF

Trigger

- Trigger Source
  - Software
  - External digital trigger
  - Analog trigger from CH0 ~ CH7
  - PXI_STAR
  - PXI trigger bus [0..7]
  - PXIe_DSTARB
- Trigger Modes
  - Post-trigger
  - Pre-trigger
  - Middle trigger
  - Delay trigger
- External Digital Trigger Input
  - Source: Front panel SMB connector
  - Configurable threshold: 0.8 mV to 3.3 V, default 1.67 V
  - Maximum input overload: -0.5 V to +5.5 V
  - Trigger polarity: rising or falling edge
  - Pulse width: 20 ns minimum

Timebase

- Sample clock source
  - Internal: on-board clock (oscillator)
  - External: PXI_CLK10 or PXIe_CLK100
  - Timebase frequency: 100 MHz
  - Sampling rate: 100 MS/s to 1025.9 S/s
  - Internal timebase accuracy: < ±25 ppm

Data Storage and Transfer

- 512 MB onboard memory, shared among the eight analog inputs (64 MB/per channel)
- Scatter-Gather DMA data transfer

Onboard Reference

- +2.5 V onboard reference voltage
- < 3.0 ppm/°C reference temperature drift
- 15 minutes recommended warm-up

General Specifications

- I/O Connector:
  - SMB x 8 for analog inputs
  - SMB x 1 for external digital input
- Dimensions (not including connectors):
  - 160 (W) x 100 (H) mm (6.24" x 3.9") (PXIe-9848)
  - 271.24 (W) x 100 (H) mm (10.57" x 3.9") (PXIe-9848H)
- Bus Interface:
  - PCI Express gen 1 x4
- Ambient Temperature (Operational):
  - 0°C to 55°C (32°F to 131°F)
- Ambient Temperature (Storage):
  - -20°C to 80°C (-4°F to 176°F)
- Relative Humidity:
  - 10% to 90%, non-condensing
- Power consumption:

Power Rail	Standby current (mA)	Full load (mA)
+3.3 V	5350	5900
+12 V	470	500

Certifications

- EMC/EMI: CE, FCC Class A

Ordering Information

PXIe-9848
8-CH 14-Bit 100 MS/s High-Speed PXI Express Digitizer

PXIe-9848H
8-CH 14-Bit 100 MS/s High Speed PXI Express Digitizer with x15/x50 attenuator

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