PCIe/PXIe-9852

2-CH 14-Bit 200 MS/s High-Speed PCI Express/PXI Express Digitizers

Introduction

The ADLINK PCIe/PXIe-9852 is a 2-CH 14-bit 200 MS/s digitizer for high frequency and wide dynamic range signals with an input frequency up to 90 MHz. The 90 MHz bandwidth analog input with 50Ω impedance is designed to receive ±0.2 V, ±2 V, or ±10 V high speed signals. With a PCI Express bus interface and ample onboard acquisition memory up to 1 GB, the PCIe/PXIe-9852 easily manages simultaneous 2-CH data streaming. With high speed and high linearity 14-bit A/D converters and high stable onboard reference, the PCIe/PXIe-9852 provides both high accuracy and high dynamic performance, making it ideal for applications requiring high-speed data acquisition, such as optical fiber and LIDAR testing, and video signal analysis.

Features

- **PCI Express specification Rev. 2.0 compliant (PCIe-9852)**
- **PXI Express specification Rev. 1.0 compliant (PXIe-9852)**
- **Up to 200 MS/s sampling rate**
- **2 simultaneous analog inputs**
- **High resolution 14-bit ADC**
- **Up to 90 MHz bandwidth for analog input**
- **1 GB onboard storage memory**
- **Programmable input voltage range of ±0.2 V, ±2 V, or ±10 V**
- **Scatter-gather DMA data transfer for high speed data streaming**
- **One external digital trigger input and one external trigger output**
- **One external clock input**
- **Full auto-calibration**
- **Supports signal averaging**

Supported Operating System

- Windows 7/8 x64/x86, Linux

Driver and SDK

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

Highlights

Data Streaming Up to 800MB/s

Based on PCI Express Gen2 technology, the PCIe/PXIe-9852 can stream data on both channels at its maximum data rate (200 MS/s), and continuously stream data to the host PC at rates up to 800 MB/s. An 8 x 500 GB driver RAID system (4TB) extends capture sessions to more than one hour.

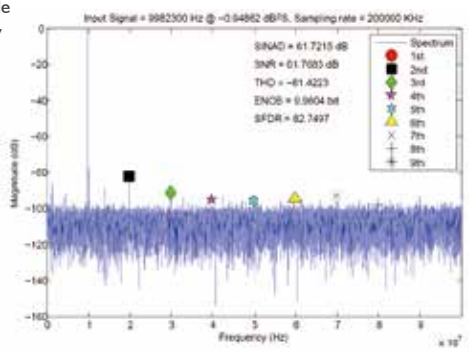
Onboard Signal Averaging Technology

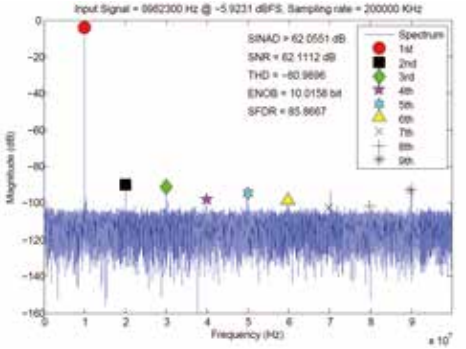
Every PCIe/PXIe-9852 provides onboard Signal Averaging, allowing detection of small repetitive signals in noisy environments with no CPU loading, suitable for applications requiring extraction of small signals from background noise such as optical fiber testing.

Specifications

Analog Input

- Number of Channels: 2 single-ended
- Input Coupling: AC or DC, software selectable
- AC coupling cutoff frequency: 11 Hz
- -3 dB Bandwidth: 90MHz
- Input Impedance: 50Ω or 1MΩ, software selectable
- Input Signal Range: Range: ±0.2 V, ±2 V, or ±10 V
- Overvoltage Protection:
  - with 50Ω : ±10V sine wave, 7Vrms
  - with 1MΩ : ±10V
- ADC Resolution: 14 bits, 1 in 16384
- Gain Error: ±0.65% of input
- Offset error: ±1 mV
- Crosstalk: < -80 dB
- Spectral Characteristics
  - Input Range: ±0.2 V
  - Sampling Rate: 200 MS/s
  - SINAD: 61.72 dBc
  - SNR: 61.77 dBc
  - THD: -81.42 dBc
  - ENOB: 9.96 bit
  - SFDR: 82.75 dBc
- Spectral Characteristics
  - Input Range: ±2 V
  - Sampling Rate: 200 MS/s
  - SINAD: 62.06 dBc
  - SNR: 62.11 dBc
  - THD: -80.97 dBc
  - ENOB: 10.02 bit
  - SFDR: 85.87 dBc





PCI EXPRESS®

Trigger

- Trigger Source
  - Software
  - External digital
  - Analog inputs
  - SSI (PCIe-9852)
  - PXI_STAR (PXIe-9852)
  - PXI_trigger bus [0..7] (PXIe-9852)
  - PXIe_DSTARB (PXIe-9852)
- Trigger Modes
  - Post-trigger
  - Pre-trigger
  - Middle trigger
  - Delay trigger
- External Digital Trigger Input
  - Source: Front panel SMA connector
  - Compatibility: 3.3V TTL, 5V tolerance
  - Input high threshold: 2.0 V
  - Input low threshold: 0.8V
  - Maximum input overload: -0.5V ~ +5.5V
  - Trigger polarity: Rising or falling edge, software programmable
  - Pulse width: 20 ns minimum
- External Digital Trigger Output
  - Compatibility: 5V TTL
  - Output high threshold: 2.4V
  - Output low threshold: 0.2V
  - Trigger polarity: Positive or negative
  - Pulse width: 50 ns, 100 ns, 150 ns, 200 ns, 500 ns, 1 μs, 2 μs, 7.5 μs, and 10 μs
  - Driving capacity: Capable of driving 50Ω load

Timebase

- Timebase options
  - Internal: onboard synthesizer
  - External: CLK IN (front panel)
- Sampling clock frequency
  - Internal: 200M Hz
  - External: 40M Hz ~ 200M Hz (CLK IN)
  - Timebase accuracy: < ±25 ppm
- External reference clock source: Front panel, SSI (PCIe-9852), PXI_CLK10 or PXIe_CLK100 (PXIe-9852)
- External reference clock: 10M Hz or 100M Hz
- External reference clock input range: 500mVpp ~ 5Vpp (AC/DC compliant)
- External sampling clock input range: 1Vpp ~ 5Vpp (AC/DC compliant)

Data Storage and Transfer

- 1 GB onboard memory, shared among the two analog inputs
- Scatter-Gather DMA data transfer

Onboard Reference

- +5V and +2.5V onboard reference voltage
- < 3.0 ppm/°C reference temperature drift
- 15 minutes recommended warmup

General Specifications

- I/O Connector
  - SMA x 2 for analog inputs
  - SMA x 1 for external trigger input
  - SMA x 1 for external trigger output
  - SMA x 1 for external clock input
- Dimensions (not including connectors):
  - PCIe-9852 : 167.64 (W) x 106.68 (H) mm (6.53" x 4.16")
  - PXIe-9852 : 160 (W) x 100 (H) mm (6.24" x 3.9")
- Bus Interface: PCI Express Gen 2 x4
- Ambient Temperature (Operating):
  - PCIe-9852 : 0°C to 50°C (32°F to 122°F)
  - PXIe-9852 : 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	102	102.2
+12 V	20	20
+5 V	1920	2010

Certifications

- EMC/EMI: CE, FCC Class A

IO connector definition

SSI Bus Cables (for multiple card synchronization)

■ ACL-eSSI-2/3/4

SSI bus cable for two, three, and four devices

Ordering Information

■ **PCIe-9852**
2-CH 14-Bit 200 MS/s High-Speed PCI Express Digitizer

■ **PXIe-9852**
2-CH 14-Bit 200 MS/s High-Speed PXI Express Digitizer