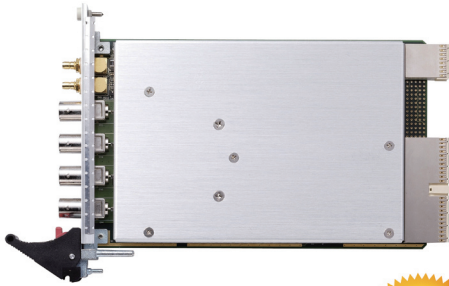


PXI-9816/9826/9846

4-CH 16-Bit 10/20/40 MS/s Digitizers with 512 MB SDRAM



Features

- 3U Eurocard form factor
- Supports 5 V and 3.3 V PCI signals
- Supports the 32-bit /66 MHz PCI interface
- 4 channels of simultaneous single-ended analog input
- 16-bit high resolution A/D converter
- Up to 10 MS/s, 20 MS/s and 40 MS/s per channel
- 512 MB on-board memory for data storage
- Software selectable 50 Ω or 1 M Ω input impedance
- Programmable input voltage range: ± 0.2 V, ± 1 V
- 5 MHz, 10 MHz and 20 MHz analog input bandwidth for PXI-9816, PXI-9826 and PXI-9846, respectively
- Multiple module synchronization via the PXI trigger bus
- Supports scatter-gather DMA transfer
- Fully automated calibration

Operating Systems

- Windows Vista/XP/2000
- Linux

Recommended Software

- AD-Logger
- VB.NET/VC.NET/VB/VC/BCB/Delphi
- DAQBench

Driver Support

- DAQPilot for Windows
- DAQPilot for LabVIEW™
- DAQ-MTLB for MATLAB
- WD-DASK for Linux
- WD-DASK/X for Windows

Introduction

The ADLINK PXI-9816/9826/9846 are 10 MS/s, 20 MS/s, 40 MS/s sampling 16-bit 4-CH digitizers designed for digitizing high frequency and wide dynamic range signals with an input frequency up to 20 MHz. The analog input range can be programmed via software to ± 1 V or ± 0.2 V. With a deep onboard acquisition memory up to 512 MB, the PXI-9816/PXI-9826/PXI-9846 are not limited by the data transfer rate of the PCI bus to enable the recording of waveforms for extended periods of time.

The PXI-9816/PXI-9826/PXI-9846 are equipped with four high linearity 16-bit A/D converters ideal for demanding applications with a high dynamic range such as radar, ultrasound, and software-defined radio.

Analog Input

The PXI-9816/PXI-9826/PXI-9846 each feature four analog input channels. The bandwidth of each channel can be up to 5 MHz, 10 MHz, and 20 MHz for PXI-9816, PXI-9826, and PXI-9846, respectively. The input ranges are software programmable as either ± 1 V or ± 0.2 V. Software selectable 50 Ω input impedance makes it easy to interface to high speed high frequency signals.

Acquisition System and On-board Memory

The PXI-9816/PXI-9826/PXI-9846 include four 16-bit A/D converters to digitize the input signals. These four channels sample signals simultaneously at a maximum sampling rate of 10 MS/s, 20 MS/s, and 40 MS/s, respectively. The PXI-9816/PXI-9826/PXI-9846 supports a total of 512 MB on-board memory. The digitized data is stored in the on-board memory before being transferred to the host memory. The data transfer is performed using scatter-gather DMA, which provides a high data throughput rate and uses system memory more effectively. If the data throughput from digitizer is less than the available PCI bus bandwidth, the PXI-9816/PXI-9826/PXI-9846 also features an on-board 2 K-sample FIFO to achieve real-time transfer, directly to the host memory by bypassing the on-board memory.

Multiple-Module Synchronization

The versatile trigger options provided by the PXI backplane allow the PXI-9816/PXI-9826/PXI-9846 to achieve multi-module synchronization in a simplified way. Utilizing the PXI Trigger bus, the PXI-9816/PXI-9826/PXI-9846 can output trigger signals and the timebase to the PXI trigger bus when configured as a master, or receive trigger signals and the timebase from the PXI trigger bus when configured as a slave. Moreover, when the PXI-9816/PXI-9826/PXI-9846 is plugged into a peripheral slot of a PXI system, they can also receive triggers or the timebase from the PXI star trigger controller slot. The precision 10 MHz clock that comes from the PXI backplane can also be used as one of the timebase sources. Combining these PXI trigger features with the interface of the PXI-9816/PXI-9826/PXI-9846 makes it very easy to synchronize multiple modules.

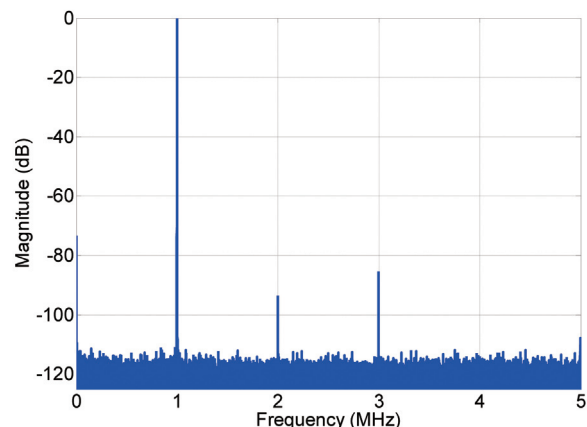
Specifications

Analog Input

- Number of channels: 4 single-ended channels
- Input impedance: 50 Ω or 1 M Ω , software selectable
- Input coupling: DC
- Input range: ± 0.2 V, ± 1 V
- ADC resolution: 16 bits, 1 in 65536
- Spectral Characteristics

Typical values are measured using 1 MHz sine wave input at 10MS/s with amplitude of -1dB of full scale on the ± 1 V range of PXI-9816. Acquired data length in 64K point, calculated with Hanning window FFT.

- SINAD: 77.6 dBc
- SNR: 78.5 dBc
- SFDR: 84.8 dBc
- THD: -84.2 dBc
- ENOB: 12.6-Bit



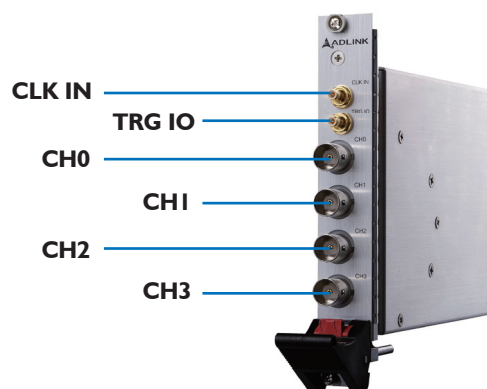
* Note that these dynamic parameters may vary from one unit to another, with input frequency and with the full scale input range selected.

- System Noise, unit in LSB_{RMS}:

Input Range	PXI-9816	PXI-9826	PXI-9846
±0.2V	9.0	12.0	17.0
±1V	3.0	4.0	7.0

- Offset Error: ±0.2mV, for all models in both input ranges
- Gain Error
 - ±0.2V input range: ±0.1%
 - ±1V input range: ±0.05%

Input Range	PXI-9816	PXI-9826	PXI-9846
±0.2V, ±1V	5.1 MHz	9.6 MHz	20 MHz



Timebase

- Sample clock sources
 - Internal: on-board oscillator
 - External: CLK IN (front panel SMB connector), PXI Trigger Bus[0..7], PXI 10 MHz, PXI Star
- Timebase frequency range
 - PXI-9816: 1 MHz - 10 MHz
 - PXI-9826: 1 MHz - 20 MHz
 - PXI-9846: 1 MHz - 40 MHz
- Sampling rate range (Internal Timebase divided by 24-bit divide counter)
 - PXI-9816: 10 MS/s - 0.596 S/s
 - PXI-9826: 20 MS/s - 1.192 S/s
 - PXI-9846: 40 MS/s - 2.384 S/s

Dedicate external clock input from panel

- Connector type: SMB
- Clock type: sine wave or square wave
- Input impedance: 50
- Input coupling: AC
- Input range: 1 V_{p-p} to 2 V_{p-p}
- Overvoltage protection: 2.5 V_{p-p}

Triggering

- Trigger sources: software, TRG IO (front panel SMB connector), analog trigger from CH0 - CH3, PXI Star, PXI Trigger Bus[0..7]
- Trigger modes: pre-trigger, post-trigger, middle-trigger, delay-trigger

TRG IO (front panel SMB connector, as input port)

- Connector type: SMB
- Compatibility: 3.3 V LVTTTL (5 V tolerant)
- Input high threshold (VIH): 2.0 V, minimum
- Input low threshold (VIL): 0.8 V, maximum
- Maximum input overload: -0.5 V to +5.5 V
- Trigger polarity: rising edge or falling edge, software programmable

TRG IO (front panel SMB connector, as output port)

- Connector type: SMB
- Compatibility: 3.3 V LVTTTL
- Output high threshold: 2.4 V, minimum
- Output low threshold: 0.2 V, maximum

Analog Trigger

- Sources: AI CH0 - CH3
- Trigger slope: rising/falling
- Trigger level range: full scale input range
- Trigger level resolution: 256 steps in full scale range

Data Storage and Transfer

- On-board memory: 512 MB, share for four AI channels
- Data transfer: scatter-gather DMA

On-board Reference

- On-board reference voltage: +5 V
- Temperature drift: ±2 ppm/°C
- Stability: 6 ppm/1000 Hrs
- Recommended warm-up time: 15 minutes

General Specifications

- I/O Connector
 - BNC X4 for analog inputs
 - SMB X2 for external digital trigger and external timebase input
- Dimensions (not including connectors)
 - Single 3U PXI module, 100 mm by 160 mm
- PCI Bus Interface
 - PCI signaling: support 3.3 V and 5 V signaling
 - PCI interface: 32-bit, 66 MHz
- Operating Environment
 - Ambient temperature: 0°C to 55°C
 - Relative humidity: 10% to 90%, non-condensing
- Storage Environment
 - Ambient temperature: -20°C to 80°C
 - Relative humidity: 10% to 90%, non-condensing

- Power Requirement, typical:

Power Rails	PXI-9816	PXI-9826	PXI-9846
3.3 V	0.8 A	0.8 A	0.8 A
5 V	0.7 A	0.8 A	1.3 A
12 V	0.3 A	0.3 A	0.3 A

Certification

- EMC/EMI: CE, FCC Class A

Accessories

- SMB-SMB-1M
1 meter SMB to SMB cable
- SMB-BNC-1M
1 meter SMB to BNC cable

Ordering Information

- PXI-9816D/512**
4-CH 10 MS/s 16-Bit Digitizer with 512 MB Memory
- PXI-9826D/512**
4-CH 20 MS/s 16-Bit Digitizer with 512 MB Memory
- PXI-9846D/512**
4-CH 40 MS/s 16-Bit Digitizer with 512 MB Memory