PCIe-9814P

4-ch 12-bit 80 MS/s PCI Express Digitizer

Features

- Up to 80 MS/s sampling rate
- 4 simultaneous analog inputs
- High resolution 12-bit ADC
- Up to 40 MHz bandwidth for analog input
- 1 GB onboard storage memory
- Programmable input voltage range of ±0.5V, ±1V, ±5V, or ±10V
- Scatter-Gather DMA data transfer for high speed data streaming
- PLL module for precise synchronization
- Full auto-calibration

Introduction

The ADLINK PCIe-9814P is a PCI Express digitizer providing speedy, high quality data acquisition. Each of the four input channels supports up to an 80MS/s sampling rate, with a 12-bit resolution A/D converter. This allows simultaneous recording of signals on all channels with no interchannel phase delay. The extremely large onboard memory enables long recording times even at the highest sampling rate.

Unlike parallel PCI buses, PCI Express slots utilize serial point-to-point connection. Each connection pair (lane) can achieve burst connection speeds of 250MB/s. The PCIe-9814P, based on x4 lane slot PCI Express technology, provides a clear advantage in that direct connection of each slot allows full transfer bandwidth for each individual card. The ADLINK PCIe-9814P digitizer can be used in any standard PCI Express slot, x4, x8, or x16.

Ordering Information

PN	Description
PCIe-9814P	4-ch 12-bit 80 MS/s PCI Express Digitizer with PLL module

SSI Bus Cables (for multiple card synchronization)

PN	Description
ACL-eSSI-2/3/4	SSI bus cable for two, three, and four devices

Supported Operating Systems

- Windows 10/11, Linux

Driver and SDK

- C/C++, C#, LabVIEW

Specifications

Model Name	PCIe-9814P	
Analog Input		
Number of Channels	4 single-ended	
Input Impedance	50Ω or 1MΩ, software selectable	
Input Coupling	DC	
Input Signal Range	±0.5V, ±1V, ±5V, ±10V (±10V only supports input impedance of 1MΩ)	
ADC Resolution	12 bits	
Bandwidth	40MHz	
Offset Error	±0.5V	±0.5 mV
	±1V	±0.5 mV
	±5V	±4 mV
	±10V	±10 mV
Gain Error	±1% of reading	
System Noise	±0.5V	0.15 mVrms
	±1V	0.3 mVrms
	±5V	1.5 mVrms
	±10V	2.5 mVrms
Spectral Characteristics	SNR	64 dB
	THD	-73 dB
	SFDR	74 dB
Triggering		
Trigger Sources	Software External digital trigger Analog trigger from CH0 ~ CH3 SSI	
Trigger Modes	Post-trigger Pre-trigger Middle trigger Delay trigger	
Timebase		
Sample Clock Source	Internal clock (onboard oscillator) External clock (front panel CLK IN)	
Sample Clock Frequency	Internal clock: 1.22K Hz ~ 80M Hz (accuracy: < ±25 ppm) External clock: 20M Hz ~ 80M Hz	
External Sample Clock Input Range	1Vpp ~ 5Vpp	
External Reference Clock Source	SDI0 (Front panel)	
External Reference Clock Frequency	10M Hz	
External Reference Clock Input Range	3.3V ~ 5V TTL	

Specifications

General Specifications	
I/O Connector	SMB x 4 for analog input (CH0, CH1, CH2, CH3) SMB x 1 for external trigger input SMB x 1 for external sample clock input SMB x 3 for synchronous digital input and external reference clock source input
Dimensions (not including connectors)	167.64 (W) x 106.68 (H) mm (6.53” x 4.16”)
Bus Interface	PCI Express x4
Ambient Temperature (Operational)	0°C to 50°C (32°F to 122°F)
Ambient Temperature (Storage)	-20°C to 80°C (-4°F to 176°F)
Relative Humidity	10% to 90%, non-condensing Certifications
Power Consumption	5.7 Wmax
Certifications	
EMC/EMI	CE, FCC Class A