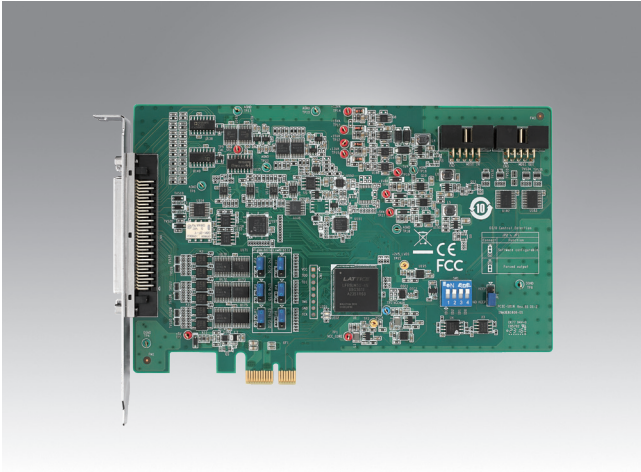


# PCIE-1816

# PCIE-1816H

500 KS/s, 16-Bit, 16-Ch PCI Express  
Multifunction DAQ Card

1 MS/s, 16-Bit, 16-Ch PCI Express  
Multifunction DAQ Card



## Features

### PCIE-1816

- 16 analog inputs, up to 1 MS/s, 16-bit resolution

### PCIE-1816H

- 16 analog inputs, up to 5 MS/s, 16-bit resolution

### PCIE-1816/1816H

- 2 analog outputs, up to 3 MS/s, 16-bit resolution
- Supports analog and digital triggers for analog I/O
- Supports waveform generation for analog output
- 24 programmable digital I/O lines
- Two 32-bit programmable counter/timers
- Onboard FIFO memory (8,192 samples)

## Introduction

PCIE-1816/1816H is a 16-ch (up to 5 MS/s) multifunction DAQ card with integrated digital I/O, analog I/O, and counter functions. PCIE-1816/1816H also features analog and digital triggering support, 2-ch 16-bit analog outputs with waveform generation capability, 24-ch programmable digital I/O lines, and two 32-bit general purpose timer/counters.

## Specifications

### Analog Input

|             |              |   |
|-------------|--------------|---|
| Channels    | Single end   | 16  |
|             | Differential | 8   |
| Resolution  | 16 bits      |   |
| Sample Rate | PCIE-1816    | Single channel 1 MS/s max.<br>Multiple channels 500 kS/s max. |
|             | PCIE-1816H   | Single channel 5 MS/s max.<br>Multiple channels 1 MS/s max.   |

Note: The sampling rate of each channel is influenced by the number of used channels.  
For example, if 4 channels are used, the sampling rate will be  $1M/4 = 250$  kS/s per channel.

- Trigger Reference: Digital and analog triggers
- FIFO Size: 8,192 samples
- Overvoltage Protection:  $\pm 15$  V
- Input Impedance: 1 G $\Omega$
- Sampling Mode: Software and external clock
- Input Range: Software programmable

| Accuracy (Within Calibration Temperature* $\pm 5^{\circ}\text{C}$ ) |              |              |              |              |               |
|---|--------------|--------------|--------------|--------------|---------------|
| Range   | $\pm 10$ V   | $\pm 5$ V    | $\pm 2.5$ V  | $\pm 1.25$ V | $\pm 0.625$ V |
| Accuracy  | $\pm 0.01$ % | $\pm 0.01$ % | $\pm 0.01$ % | $\pm 0.02$ % | $\pm 0.025$ % |
| Range   |              | 0 ~ 10 V     | 0 ~ 5 V      | 0 ~ 2.5 V    | 0 ~ 1.25 V    |
| Accuracy  |              | $\pm 0.01$ % | $\pm 0.01$ % | $\pm 0.01$ % | $\pm 0.01$ %  |

\* Factory calibration temperature is  $25^{\circ}\text{C}$

### Analog Output

- Channels: 2
- Resolution: 16 bits
- Output Rate: 3 MS/s max.
- Output Range: Software programmable

| Internal Reference | Unipolar | 0 ~ 5 V<br>0 ~ 10 V                      |
|--------------------|----------|--|
|                    | Bipolar  | -5 V ~ 5 V<br>-10 V ~ 10 V               |
| External Reference |          | 0 ~ +x V @ -x V ( $-10 \leq x \leq 10$ ) |

- Slew Rate: 20 V/ $\mu\text{s}$
- Driving Capability: 20 mA
- Operation Mode: Static update, waveform generation
- Accuracy: INLE:  $\pm 1$  LSB, DNLE:  $\pm 1$  LSB

### Digital I/O

- Channels: 24
- Compatibility: 5 V/TTL
- Input Voltage: Logic 0: 0.8 V max.  
Logic 1: 2.0 V min.
- Output Voltage: Logic 0: 0.4 V max.  
Logic 1: 4.0 V min.
- Output Capability: Sink: 2 mA @ 0.4 V  
Source: 2 mA @ 4.0 V

### Counter

- Channels: 2
- Resolution: 32 bits
- Compatibility: 5 V/TTL
- Max. Input Frequency: 10 MHz
- Pulse Generation: Yes
- Timebase Stability: 50 ppm

### General

- Form Factor: PCI Express x1
- Triggering: 2 x Analog/2 x digital (16 bits)
- I/O Connector: 68-pin SCSI, female
- Dimensions (L x W): 175 x 100 mm (6.9 x 3.9)
- Power Consumption: Max.: 3.3 V @ 350 mA  
12 V @ 250 mA
- Operating Temperature: 0 ~  $60^{\circ}\text{C}$  (32 ~  $140^{\circ}\text{F}$ )
- Storage Temperature:  $-20^{\circ}\text{C}$  to  $70^{\circ}\text{C}$  ( $-4^{\circ}\text{F}$  to  $158^{\circ}\text{F}$ )
- Storage Humidity: 5 ~ 95% RH non-condensing

## Ordering Information

- PCIE-1816-B: 1 MS/s, 16-bit multifunction card
- PCIE-1816H-B: 5 MS/s, 16-bit multifunction card

### Accessories

- PCL-10168H-1E: 68-pin SCSI shielded cable with noise rejection, 1 m
- PCL-10168H-2E: 68-pin SCSI shielded cable with noise rejection, 2 m
- PCL-10168-1E: 68-pin SCSI shielded cable, 1 m
- PCL-10168-2E: 68-pin SCSI shielded cable, 2 m
- ADAM-3968-AE: 68-pin DIN rail SCSI wiring board
- 1700030423-01: 10-pin flat cable for MDSI synchronization, 10 cm