

DAQ-2000 Series

4-CH 14/16-Bit Up to 2 MS/s Simultaneous-Sampling Multi-Function DAQ Cards

Features

- Supports a 32-bit 3.3 V or 5 V PCI bus
- 4-CH differential analog inputs
- Up to 2 MS/s simultaneous-sampling rate (DAQ-2010)
- 14-bit A/D resolution (DAQ-2010)
- 16-bit A/D resolution (DAQ-2016/2005/2006)
- Up to 8 k-sample A/D FIFO (DAQ-2010)
- Bipolar or unipolar analog input ranges
- Programmable gains of x1, x2, x4, x8
- Scatter-gather DMA for both analog inputs and outputs
- 2-CH 12-bit multiplying analog outputs with waveform generation
- 24-CH TTL digital input/output
- 2-CH 16-bit general purpose timer/counter
- Analog and digital triggering
- Fully auto calibration
- Multiple cards synchronization through SSI (System Synchronization Interface) bus

Operating Systems

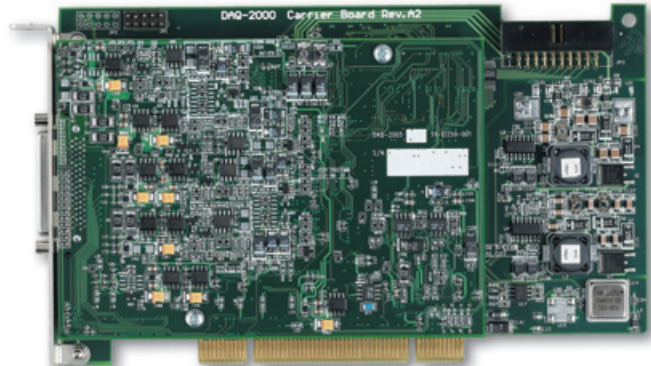
- Windows 98/NT/2000/XP/2003
- Linux

Recommended Software

- VB/V/C++/BCB/Delphi
- DAQBench

Driver Support

- DAQ-LVIEW PnP for LabVIEW
- DAQ-MTLB for MATLAB
- DAQBOY for Windows
- D2K-DASK for Windows
- D2K-DASK/X for Linux



Introduction

ADLINK DAQ-2000 series products are simultaneous-sampling multifunction DAQ cards to meet a wide range of application requirements. The devices can simultaneously sample 4 AI channels with differential input configuration in order to achieve maximum noise elimination. They also provide 2-CH 12-bit analog outputs with waveform generation capability, which can be performed together with analog input functions. If more analog input or output channels are required, multiple cards can be synchronized through the SSI (system synchronization interface) bus. This makes the DAQ-2000 series ideal for the stimulus/response test.

The DAQ-2000 series also feature analog and digital triggering, 24-CH programmable digital I/O lines, and 2-CH 16-bit general-purpose timer/counters. The auto-calibration functions adjust the gain and offset to within specified accuracies such that you do not have to adjust trimpots to calibrate the cards.

Termination Boards

DIN-68S/1M

Termination Board with a 68-pin SCSI-II Connector and DIN-Rail Mounting (Including One 1-meter ACL-10568 Cable)



SSI bus cable for multiple cards synchronization

SSI Bus Cables (for multiple cards synchronization)

ACL-SSI-2

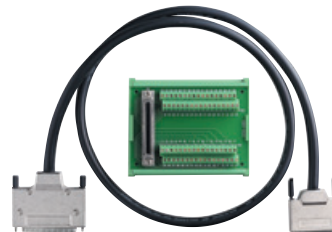
SSI Bus cable for 2 devices

ACL-SSI-3

SSI Bus cable for 3 devices

ACL-SSI-4

SSI Bus cable for 4 devices



Termination board DIN-68S/1M

Ordering Information

DAQ-2010

4-CH 14-Bit 2 MS/s Simultaneous-Sampling Multi-Function DAQ Card

DAQ-2016

4-CH 16-Bit 800 kS/s Simultaneous-Sampling Multi-Function DAQ Card

DAQ-2005

4-CH 16-Bit 500 kS/s Simultaneous-Sampling Multi-Function DAQ Card

DAQ-2006

4-CH 16-Bit 250 kS/s Simultaneous-Sampling Multi-Function DAQ Card

Pin Assignment

Connector Pin Assignment

| | | | |
|--------------|----|----|--------------|
| CH0+ | 1 | 35 | CH0- |
| CH1+ | 2 | 36 | CH1- |
| CH2+ | 3 | 37 | CH2- |
| CH3+ | 4 | 38 | CH3- |
| EXTATRIG | 5 | 39 | AIGND |
| DA1OUT | 6 | 40 | AOGND |
| DA0OUT | 7 | 41 | AOGND |
| AOEXTREF | 8 | 42 | AOGND |
| SDI3_1 / NC* | 9 | 43 | SDI3_0 / NC* |
| SDI2_1 / NC* | 10 | 44 | SDI2_0 / NC* |
| SDI1_1 / NC* | 11 | 45 | SDI1_0 / NC* |
| SDI0_1 / NC* | 12 | 46 | SDI0_0 / NC* |
| AO_TRIG_OUT | 13 | 47 | EXTWFTRG |
| AI_TRIG_OUT | 14 | 48 | EXTDTRIG |
| GPTC1_SRC | 15 | 49 | DGND |
| GPTC0_SRC | 16 | 50 | DGND |
| GPTC0_GATE | 17 | 51 | GPTC1_GATE |
| GPTC0_OUT | 18 | 52 | GPTC1_OUT |
| GPTC0_UPDOWN | 19 | 53 | GPTC1_UPDOWN |
| EXTTIMEBASE | 20 | 54 | DGND |
| AFI1 | 21 | 55 | AFI0 |
| PB7 | 22 | 56 | PB6 |
| PB5 | 23 | 57 | PB4 |
| PB3 | 24 | 58 | PB2 |
| PB1 | 25 | 59 | PB0 |
| PC7 | 26 | 60 | PC6 |
| PC5 | 27 | 61 | PC4 |
| DGND | 28 | 62 | DGND |
| PC3 | 29 | 63 | PC2 |
| PC1 | 30 | 64 | PC0 |
| PA7 | 31 | 65 | PA6 |
| PA5 | 32 | 66 | PA4 |
| PA3 | 33 | 67 | PA2 |
| PA1 | 34 | 68 | PA0 |

*Pin 9~12 and pin 43~46 are SDI<0..3>_n for DAQ-2010; NC for DAQ-2016, DAQ-2005, and DAQ-2006

Quick Selection Guide

| Model number | Analog Input | | | | Analog Output | | | DIO | Timer/Counter |
|---------------------|-----------------|------------|---------------|------------------|-----------------|------------|-------------|-----------------|-----------------|
| | No. of channels | Resolution | Sampling rate | Input range | No. of channels | Resolution | Update rate | No. of channels | No. of channels |
| DAQ-2010 | 4-CH DI | 14 bits | 2 MS/s | ±1.25 V to ±10 V | 2 | 12 bits | 1 MS/s | 24-CH 8255 PIO | 2-CH, 16-bit |
| NEW DAQ-2016 | 4-CH DI | 16 bits | 800 kS/s | ±1.25 V to ±10 V | 2 | 12 bits | 1 MS/s | 24-CH 8255 PIO | 2-CH, 16-bit |
| DAQ-2005 | 4-CH DI | 16 bits | 500 kS/s | ±1.25 V to ±10 V | 2 | 12 bits | 1 MS/s | 24-CH 8255 PIO | 2-CH, 16-bit |
| DAQ-2006 | 4-CH DI | 16 bits | 250 kS/s | ±1.25 V to ±10 V | 2 | 12 bits | 1 MS/s | 24-CH 8255 PIO | 2-CH, 16-bit |

Specifications

| Model Number | DAQ-2010 | NEW DAQ-2016 | DAQ-2005 | DAQ-2006 |
|--|--|---------------------------|---------------------------|---------------------------|
| Analog Input | | | | |
| Resolution | 14 bits, no missing codes | 16 bits, no missing codes | 16 bits, no missing codes | 16 bits, no missing codes |
| Number of channels | 4 simultaneous-sampling channels with differential input | | | |
| Maximum sampling rate | 2 MS/s | 800 kS/s | 500 kS/s | 250 kS/s |
| Programmable gain | 1,2,4,8 | | | |
| Bipolar input ranges | ±10 V, ±5 V, ±2.5 V, ±1.25 V | | | |
| Unipolar input ranges | 0-10 V, 0-5 V, 0-2.5 V, 0-1.25 V, | | | |
| Offset error | ±3 mV | ±1 mV | ±1 mV | ±1 mV |
| Gain error | ±0.03% of FSR | ±0.01% of FSR | ±0.01% of FSR | ±0.01% of FSR |
| Input Coupling | DC | | | |
| Overvoltage protection | Power on: Continuous ±35 V, Power off: Continuous ±15 V | | | |
| Input Impedance | 1 GΩ/100 pF | | | |
| CMRR (gain = 1) | 85 dB | | | |
| -3dB small signal bandwidth (gain = 1) | 1 MHz | 1 MHz | 1 MHz | 600 kHz |
| Trigger sources | Software, external digital/analog trigger, SSI bus | | | |
| Trigger modes | Pre-trigger, post-trigger, middle-trigger, delay-trigger, and repeated trigger | | | |
| FIFO buffer size | 8K samples | 512 samples | 512 samples | 512 samples |
| Data Transfers | Polling, scatter-gather DMA | | | |
| Analog Output | | | | |
| Number of channels | 2 voltage outputs | | | |
| Resolution | 12 bits | | | |
| Output ranges | 0-10 V, ±10 V, 0-AOEXTREF, ±AOEXTREF | | | |
| Maximum update rate | 1 μs | | | |
| Slew rate | 20 V/μs | | | |
| Settling time | 3 μs to ±0.5 LSB accuracy | | | |
| Offset error | ±1 mV | | | |
| Gain error | ±0.02% of max. output | | | |
| Driving capacity | 5 mA | | | |
| Stability | Any passive load, up to 1500 pF | | | |
| Trigger sources | Software, external digital/analog trigger, SSI bus | | | |
| Trigger modes | Post-trigger, delay-trigger, and repeated trigger | | | |
| FIFO buffer size | 2 k samples | | | |
| Data transfers | Programmed I/O, scatter-gather DMA | | | |
| Digital I/O | | | | |
| Number of channels | 8255 24-bit programmable input/output | | | |
| Compatibility | 5 V/TTL | | | |
| Data transfers | Programmed I/O | | | |
| Timer/Counter | | | | |
| Number of channels | 2 | | | |
| Resolution | 16 bits | | | |
| Compatibility | 5 V/TTL | | | |
| Base clock available | 40 MHz, external clock up to 10 MHz | | | |
| Auto Calibration | | | | |
| On-board reference | +5 V | | | |
| Temperature drift | ±2 ppm/°C | | | |
| Stability | 6 ppm/1000 Hrs | | | |
| General | | | | |
| Dimension | 175 mm x 107 mm (not including connectors) | | | |
| Connector | 68-pin VHDCI-type female | | | |
| Operating temperature | 0 to 55°C | | | |
| Storage temperature | -20 to 70°C | | | |
| Humidity | 5 to 95%, noncondensing | | | |
| Power requirement | +5 V 1.82 A typical | +5 V 2.26 A typical | +5 V 2.04 A typical | +5 V 1.82 A typical |

1 Software Solutions

2 PXI/ CompactPCI Platforms

3 PXI-Based Instruments

4 PXI/ CompactPCI Modules

5 PCI DAQ Cards

6 PCI DIO Cards

7 PC/104-Plus Products

8 ISA DAS/ DIO Cards

9 Wiring Termination Boards

10 Motion Vision & COM

11 Remote I/O Modules

12 Industrial Computers