

PXI/DAQ/DAQe-2200 Series

64-CH 12/16-Bit Up to 3 MS/s Multi-Function DAQ Cards



Introduction

ADLINK's PXI/DAQ/DAQe-2200 series are high-density and high-performance multi-function DAQ cards. These devices can sample up to 64 AI channels with different gain settings and scan sequences, making them ideal for dealing with high-density analog signals with various input ranges and sampling speeds. These devices also offer differential mode for 32 AI channels in order to achieve maximum noise elimination.

The PXI/DAQ/DAQe-2200 series also feature analog and digital triggering, 2-CH 12-bit analog outputs with waveform generation capability, 24-CH programmable digital I/O lines, and 2-CH 16-bit general-purpose timer/counter. Like all the other members in the PXI/DAQ/DAQe-2200 family, the PXI/DAQ/DAQe-2200 is able to perform the analog input and output functions at full speed simultaneously and multiple cards can be synchronized through the SSI (System Synchronization Interface) bus. The auto-calibration functions adjust the gain and offset to within specified accuracies such that you do not have to adjust trim pots to calibrate the cards.

Features

- Supports a 32-bit 3.3 V or 5 V PCI bus (DAQ-2200 series)
- x1 lane PCI Express® Interface (DAQe-2200 series)
- PXI specification Rev 2.2 compliant (PXI-2200 series)
- 64-CH single-ended or 32-CH differential analog inputs
- Onboard 1 k-sample A/D FIFO
- Bipolar or unipolar analog input ranges
- Programmable gains:
 - x1, x2, x4, x5, x8, x10, x20, x40, x50, x200 (DAQ/DAQe-2204)
 - x1, x2, x4, x8 (DAQ/DAQe-2205 & DAQ/DAQe-2206)
- 512-configuration channel gain queue
- Scatter-gather DMA for both analog inputs and outputs
- 2-CH 12-bit multiplying analog outputs with waveform generation
- Onboard 1 k-sample D/A FIFO
- 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 or PXI trigger bus
- Operating Systems
 - Windows 7/Vista/XP/2000/2003 Server
 - Linux
- Recommended Software
 - AD-Logger
 - VB.NET/VC.NET/VB/VC++/BCB/Delphi
 - DAQBench
- Driver Support
 - DAQPilot for LabVIEW™
 - DAQ-MTLB for MATLAB®
 - D2K-DASK for Windows
 - D2K-DASK/X for Linux

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



SSI bus cable for multiple card synchronization for DAQ/DAQe-2000 series



Terminal board DIN-68S-01 & 68-Pin SCSI-VHDCI cable ACL-10568-1

Pin Assignment

Connector CN1 Pin Assignment

| | | | |
|--------------|----|----|--------------|
| AI0 (AIH0) | 1 | 35 | (AI0L) AI32 |
| AI1 (AIH1) | 2 | 36 | (AI1L) AI33 |
| AI2 (AIH2) | 3 | 37 | (AI2L) AI34 |
| AI3 (AIH3) | 4 | 38 | (AI3L) AI35 |
| AI4 (AIH4) | 5 | 39 | (AI4L) AI36 |
| AI5 (AIH5) | 6 | 40 | (AI5L) AI37 |
| AI6 (AIH6) | 7 | 41 | (AI6L) AI38 |
| AI7 (AIH7) | 8 | 42 | (AI7L) AI39 |
| AI8 (AIH8) | 9 | 43 | (AI8L) AI40 |
| AI9 (AIH9) | 10 | 44 | (AI9L) AI41 |
| AI10 (AIH10) | 11 | 45 | (AI10L) AI42 |
| AI11 (AIH11) | 12 | 46 | (AI11L) AI43 |
| AI12 (AIH12) | 13 | 47 | (AI12L) AI44 |
| AI13 (AIH13) | 14 | 48 | (AI13L) AI45 |
| AI14 (AIH14) | 15 | 49 | (AI14L) AI46 |
| AI15 (AIH15) | 16 | 50 | (AI15L) AI47 |
| AISENSE | 17 | 51 | AI GND |
| AI16 (AIH16) | 18 | 52 | (AI16L) AI48 |
| AI17 (AIH17) | 19 | 53 | (AI17L) AI49 |
| AI18 (AIH18) | 20 | 54 | (AI18L) AI50 |
| AI19 (AIH19) | 21 | 55 | (AI19L) AI51 |
| AI20 (AIH20) | 22 | 56 | (AI20L) AI52 |
| AI21 (AIH21) | 23 | 57 | (AI21L) AI53 |
| AI22 (AIH22) | 24 | 58 | (AI22L) AI54 |
| AI23 (AIH23) | 25 | 59 | (AI23L) AI55 |
| AI24 (AIH24) | 26 | 60 | (AI24L) AI56 |
| AI25 (AIH25) | 27 | 61 | (AI25L) AI57 |
| AI26 (AIH26) | 28 | 62 | (AI26L) AI58 |
| AI27 (AIH27) | 29 | 63 | (AI27L) AI59 |
| AI28 (AIH28) | 30 | 64 | (AI28L) AI60 |
| AI29 (AIH29) | 31 | 65 | (AI29L) AI61 |
| AI30 (AIH30) | 32 | 66 | (AI30L) AI62 |
| AI31 (AIH31) | 33 | 67 | (AI31L) AI63 |
| EXTATRIG | 34 | 68 | AI GND |

Pin Assignment

Connector CN2 Pin Assignment

| | | | |
|--------------|----|----|--------------|
| DA0OUT | 1 | 35 | AOGND |
| DA1OUT | 2 | 36 | AOGND |
| AOEXTREF | 3 | 37 | AOGND |
| N/C | 4 | 38 | N/C |
| DGND | 5 | 39 | DGND |
| EXTWFTRIG | 6 | 40 | DGND |
| EXTDTRIG | 7 | 41 | DGND |
| SSHOUT | 8 | 42 | SDI0 / DGND* |
| RESERVED | 9 | 43 | SDI1 / DGND* |
| RESERVED | 10 | 44 | SDI2 / DGND* |
| AF11 | 11 | 45 | SDI3 / DGND* |
| AF10 | 12 | 46 | DGND |
| GPTC0_SRC | 13 | 47 | DGND |
| GPTC0_GATE | 14 | 48 | DGND |
| GPTC0_UPDOWN | 15 | 49 | DGND |
| GPTC0_OUT | 16 | 50 | DGND |
| GPTC1_SRC | 17 | 51 | DGND |
| GPTC1_GATE | 18 | 52 | DGND |
| GPTC1_UPDOWN | 19 | 53 | DGND |
| GPTC1_OUT | 20 | 54 | DGND |
| EXTTIMEBASE | 21 | 55 | DGND |
| 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 42-45 are SDI<0..3> for 2204; DGND for 2205 and 2206

Terminal Boards & Cables

- DIN-68S-01
 - Terminal Board with One 68-pin SCSI-II Connector and DIN-Rail Mounting (Cables are not included.)
- ACL-10568-1
 - 68-pin SCSI-VHDCI cable (mating with AMP-787082-7), 1 M

* For more information on mating cables, please refer to P2-61/62.

- 1 Software & Utilities
- 2 DAQ
- 3 PXI/PXIe
- 4 Modular Instruments
- 5 GPIB & Bus Expansion
- 6 Motion Control
- 7 Real-time Distributed I/O
- 8 PAC
- 9 Remote I/O
- 10 Communications
- 11 Vision
- 12 Fanless Embedded Computers
- 13 cPCI & Industrial Computers

Ordering Information / Quick Selection Guide

| Model Name | 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 |
| PXI/DAQ/DAQe-2204 | 32 DI/64 SE | 12 bits | 3 MS/s | ±0.05 V to ±10 V | 2 | 12 bits | 1 MS/s | 24-CH 8255 PIO | 2-CH, 16-bit |
| PXI/DAQ/DAQe-2205 | 32 DI/64 SE | 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 |
| PXI/DAQ/DAQe-2206 | 32 DI/64 SE | 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 Name | PXI/DAQ/DAQe-2204 | PXI/DAQ/DAQe-2205 | PXI/DAQ/DAQe-2206 |
|---|---|---|--|
| Analog Input | | | |
| Resolution | 12 bits, no missing codes | 16 bits, no missing codes | 16 bits, no missing codes |
| Number of channels | 64 single-ended or 32 differential (software selectable per channel) | | |
| Channel gain queue size | 512 | | |
| Maximum sampling rate | 3 MS/s | 500 kS/s | 250 kS/s |
| Programmable gain | 1, 2, 4, 5, 8, 10, 20, 40, 50, 200 | 1, 2, 4, 8 | 1, 2, 4, 8 |
| Bipolar input ranges | Max. : ±10 V, Min. : ±0.05 V±10 V, ±5 V, ±2.5 V, ±1.25 V±10 V, ±5 V, ±2.5 V, ±1.25 V | | |
| Unipolar input ranges | Max. : 0-10 V, Min. : 0-0.1 V0-10 V, 0-5 V, 0-2.5 V, 0-1.25 V0-10 V, 0-5 V, 0-2.5 V, 0-1.25 V | | |
| Offset error | ±2 mV | ±1 mV | ±2 mV |
| Gain error | ±0.06% of FSR | ±0.08% of FSR | ±0.06% of FSR |
| Input coupling | DC | | |
| Overvoltage protection | Power on: Continuous ±30 V, Power off: Continuous ±15 V | | |
| Input impedance | 1 GΩ/100 pF | | |
| CMRR (gain = 1) | 90 dB | 83 dB | 83 dB |
| Settling time | 1 μs to 0.1% error * | 2 μs to 0.1% error | 4 μs to 0.01% error |
| -3 dB small signal bandwidth (@Bipolar +/-10V Gain=1) | 2 MHz | 850kHz | 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 | 1 k 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 | ±2 mV | ±1 mV |
| Gain error | ±0.02% of max. output | ±0.04% of max. output | ±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 | 1 k samples | | |
| Data transfers | Programmed I/O, scatter-gather DMA | | |
| Digital I/O | | | |
| Number of channels | 24-CH 8255 programmable input/output | | |
| Compatibility | 5 V/TTL | | |
| Data transfers | Programmed I/O | | |
| General-Purpose Timer/Counter | | | |
| Number of channels | 2 | | |
| Resolution | 16-bit | | |
| Base clock available | 40 MHz, external clock up to 10 MHz | | |
| Auto Calibration | | | |
| Onboard reference | +5 V | | |
| Temperature drift | ±2 ppm/°C | | |
| Stability | ±6 ppm/1000 Hrs | | |
| General Specifications | | | |
| Dimensions | 160 mm x 100 mm (not including connectors) (PXI-2200 series) 175 mm x 107 mm (not including connectors) (DAQ-2200 series) 168 mm x 107 mm (not including connectors) (DAQe-2200 series) | | |
| Connector | 68-pin VHDCI female x 2 | | |
| Operating temperature | 0 to 55°C | | |
| Storage temperature | -20 to 70°C | | |
| Humidity | 5 to 95%, non-condensing | | |
| Power requirements | +5 V 1.3 A typical (PXI/DAQ-2204) +3.3 V 0.9 A, +12 V 0.564 A typical (DAQe-2204) | +5 V 1.2 A typical (PXI/DAQ-2205) +3.3 V 0.81 A, +12 V 0.568 A typical (DAQe-2205) | +5 V 1.2 A typical (PXI/DAQ-2206) +3.3 V 0.756 A, +12 V 0.584 A typical (DAQe-2206) |



Стандарт Электрон Связь

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Наши контакты:

Телефон: +7 812 627 14 35

Электронная почта: sales@st-electron.ru

Адрес: 198099, Санкт-Петербург,
Промышленная ул, дом № 19, литера Н,
помещение 100-Н Офис 331