

# DAQ-2208

## 96-CH 12-Bit 3 MS/s Ultra High Density Analog Input Card

### Features

- Supports a 32-bit 3.3 V or 5 V PCI bus
- 96-CH single-ended or 48-CH differential analog inputs
- Up to 3 MS/s sampling rate
- 12-bit A/D resolution
- On-board 1 k-sample A/D FIFO
- Bipolar or unipolar analog input ranges
- Programmable gains of x1, x2, x4, x5, x8, x10, x20, x40, x50, x200
- 1024-configuration channel-gain queue
- Scatter-gather DMA for analog inputs
- 24-CH TTL digital input/output
- Analog and digital triggering
- Fully auto calibration
- Multiple cards synchronization through SSI (System Synchronization Interface) bus
- Compact, half size PCB

### Operating Systems

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

### Recommended Software

- VB/VC++/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-2208 is an ultra-high-density and high-performance analog input card. The device can sample up to 96 AI channels with different gain settings and scan sequences. It makes them ideal for dealing with ultra-high-density analog signals with various input ranges and sampling speeds. These devices also offer differential mode for 48 AI channels in order to achieve maximum noise elimination.

The DAQ-2208 also features analog and digital triggering and 24-CH programmable digital I/O lines. Like all the other members in DAQ-2000 family, the DAQ-2208 is able to perform the analog input at full speed while 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 so 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 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

### Ordering Information

#### ■ DAQ-2208

96-CH 12-bit 3 MS/s Ultra High Density Analog Input Card

### Pin Assignment Connector CN1 Pin Assignment

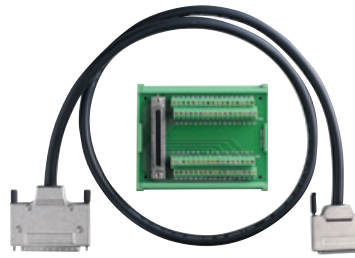
AI0 (AIH0)	1	35	(AIL0)	AI48
AI1 (AIH1)	2	36	(AIL1)	AI49
AI2 (AIH2)	3	37	(AIL2)	AI50
AI3 (AIH3)	4	38	(AIL3)	AI51
AI4 (AIH4)	5	39	(AIL4)	AI52
AI5 (AIH5)	6	40	(AIL5)	AI53
AI6 (AIH6)	7	41	(AIL6)	AI54
AI7 (AIH7)	8	42	(AIL7)	AI55
AISENSE	9	43	AIIGND	
AI8 (AIH8)	10	44	(AIL8)	AI56
AI9 (AIH9)	11	45	(AIL9)	AI57
AI10 (AIH10)	12	46	(AIL10)	AI58
AI11 (AIH11)	13	47	(AIL11)	AI59
AI12 (AIH12)	14	48	(AIL12)	AI60
AI13 (AIH13)	15	49	(AIL13)	AI61
AI14 (AIH14)	16	50	(AIL14)	AI62
AI15 (AIH15)	17	51	(AIL15)	AI63
AI16 (AIH16)	18	52	(AIL16)	AI64
AI17 (AIH17)	19	53	(AIL17)	AI65
AI18 (AIH18)	20	54	(AIL18)	AI66
AI19 (AIH19)	21	55	(AIL19)	AI67
AI20 (AIH20)	22	56	(AIL20)	AI68
AI21 (AIH21)	23	57	(AIL21)	AI69
AI22 (AIH22)	24	58	(AIL22)	AI70
AI23 (AIH23)	25	59	(AIL23)	AI71
AIIGND	26	60	AIIGND	
AI24 (AIH24)	27	61	(AIL24)	AI72
AI25 (AIH25)	28	62	(AIL25)	AI73
AI26 (AIH26)	29	63	(AIL26)	AI74
AI27 (AIH27)	30	64	(AIL27)	AI75
AI28 (AIH28)	31	65	(AIL28)	AI76
AI29 (AIH29)	32	66	(AIL29)	AI77
AI30 (AIH30)	33	67	(AIL30)	AI78
AI31 (AIH31)	34	68	(AIL31)	AI79

### Pin Assignment Connector CN2 Pin Assignment

AI32 (AIH32)	1	35	(AIL32)	AI80
AI33 (AIH33)	2	36	(AIL33)	AI81
AI34 (AIH34)	3	37	(AIL34)	AI82
AI35 (AIH35)	4	38	(AIL35)	AI83
AI36 (AIH36)	5	39	(AIL36)	AI84
AI37 (AIH37)	6	40	(AIL37)	AI85
AI38 (AIH38)	7	41	(AIL38)	AI86
AI39 (AIH39)	8	42	(AIL39)	AI87
EXTATRIG	9	43	AIIGND	
AI40 (AIH40)	10	44	(AIL40)	AI88
AI41 (AIH41)	11	45	(AIL41)	AI89
AI42 (AIH42)	12	46	(AIL42)	AI90
AI43 (AIH43)	13	47	(AIL43)	AI91
AI44 (AIH44)	14	48	(AIL44)	AI92
AI45 (AIH45)	15	49	(AIL45)	AI93
AI46 (AIH46)	16	50	(AIL46)	AI94
AI47 (AIH47)	17	51	(AIL47)	AI95
AIIGND	18	52	AIIGND	
N/C	19	53	N/C	
EXTDTRIG	20	54	AFI0	
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	



SSi bus cable for multiple cards synchronization



Termination board DIN-68S/1M

**Specifications**

Model Number	DAQ-2208
<b>Analog Input</b>	
Resolution	12 bits, no missing codes
Number of channels	96 single-ended or 48 differential (software selectable per channel)
Channel gain queue size	1024
Maximum sampling rate	3 MS/s
Programmable gain	1,2,4,5,8,10,20,40,50,200
Bipolar input ranges	$\pm 10\text{ V}$ , $\pm 5\text{ V}$ , $\pm 2.5\text{ V}$ , $\pm 2\text{ V}$ , $\pm 1.25\text{ V}$ , $\pm 1\text{ V}$ , $\pm 0.5\text{ V}$ , $\pm 0.25\text{ V}$ , $\pm 0.2\text{ V}$ , $\pm 0.05\text{ V}$
Unipolar input ranges	0-10 V, 0-5 V, 0-4 V, 0-2.5 V, 0-1 V, 0-0.5 V, 0-0.4 V, 0-0.1 V
Offset error	$\pm 1\text{ mV}$
Gain error	$\pm 0.03\%$ of FSR
Input Coupling	DC
Overvoltage protection	Power on: Continuous $\pm 30\text{ V}$ , Power off: Continuous $\pm 15\text{ V}$
Input Impedance	1 G $\Omega$ /100 pF
CMRR (gain = 1)	90 dB
Settling time	1 $\mu\text{s}$ to 0.1 % error *
-3dB small signal bandwidth (gain = 1)	2 MHz
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
<b>Digital I/O</b>	
Number of channels	24-CH 8255 programmable input/output
Compatibility	5 V/TTL
Data transfers	Programmed I/O
<b>Auto Calibration</b>	
On-board reference	+5 V
Temperature drift	$\pm 2\text{ ppm}/^\circ\text{C}$
Stability	$\pm 6\text{ ppm}/1000\text{ Hrs}$
<b>General Specifications</b>	
Dimensions	175 mm x 107 mm (not including connectors)
Connector	68-pin VHDCI female x 2
Operating temperature	0 to 55 $^\circ\text{C}$
Storage temperature	-20 to 70 $^\circ\text{C}$
Humidity	5 to 95 %, noncondensing
Power requirements	+5 V 950mA typical

\*Gain = 1, 2, 4, 8

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- 11 Remote I/O Modules
- 12 Industrial Computers