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-2005 & DAQ-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 2000/NT/XP/98
- Red Hat Linux
- Windows CE (call for availability)

Recommended Software

- VB/VC++/BCB/Delphi
- DAQBench

Driver Support

- D2K-DASK: Windows 2000/NT/XP/98 driver
- D2K-DASK/X: Red Hat Linux driver
- D2K-LVIEW: LabVIEW driver
- D2K-MTLB: MATLAB driver
- D2K-OCX: 32-bit ActiveX controls

Introduction

ADLINK DAQ-2010, DAQ-2005, and DAQ-2006 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 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 cards synchronization

Termination board DIN-68S/1M

Ordering Information

DAQ-2010
4-CH 14-Bit 2 MS/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-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
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	DAQ-2005	DAQ-2006
Analog Input			
Resolution	14 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	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
Gain error	±0.03% 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	700 kHz	400 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
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		
Stabililty	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		
Stabililty	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 80 °C		
Humidity	5 to 95%, noncondensing		
Power requirement	+5 V 1.82 A typical	+5 V 2.04 A typical	+5 V 1.82 A typical

* All specifications are subject to change without further notice.