

PXI-2022 16-bit, 250KS/s, 16 Channels Simultaneous Sampling Card

Features

- Supports 3.3V and 5V PCI bus
- PXI specification Rev 2.2 compliant
- 16-CH differential analog inputs
- Bipolar analog input
- Programmable gains of x1, x4
- Scatter gather DMA transfer for AI continuously data acquisition
- 4-CH TTL digital input/output
- 2-CH 32-bit general purpose timer/counters
- Analog and digital triggering
- Fully auto calibration
- Multiple cards synchronization through PXI trigger bus
- Onboard 4k sample memory for data storage

Introduction

ADLINK's PXI-2022 is a simultaneous-sampling multi-function DAQ card to meet a wide range of application requirements. The device can simultaneously sample 16 AI channels with differential input configurations in order to achieve maximum noise elimination. If more analog input or output channels are required, multiple cards can be synchronized through the PXI Trigger bus. The PXI-2022 also features analog and digital triggering, 4-CH programmable digital I/O lines, and 2-CH 32-bit general-purpose timer/counter. 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.

Operating System

Windows Vista/XP/2000/2003

Specifications

Analog Input

Model Name	PXI-2022
Resolution	16 bits
Number of Channels	16 differential channels
Input Impedance	1 GΩ
Input Coupling	DC
Bipolar Input Signal Range	±10 V, ±2.5 V
Programmable gain	1, 4
Overvoltage Protection	Power on: ±30 V continuous Power off: ±30 V continuous
Max Sampling Rate	250 KS/s
ADC Resolution	16 bits, 1 in 65535
Data FIFO Size	4K sample
DNL	± 0.8 LSB
INL	± 1.5 LSB (typical), ± 3.0 LSB (MAX)
Offset Error	0.6mV (typical)
Gain Error	0.05% of input
Offset Temperature Drift	0.1 mV/°C
-3dB Bandwidth	1 MHz (typical)
Data Transfer	Scatter-gather DMA, Programmed IO

Triggers

Model Name	PXI-2022
Trigger Sources	(1)Software (2)AFI [7..0] (3)PXI STAR Trigger (4)PXI Trigger Bus[5] (Only Software Trigger provided on phase 1 sample)
Trigger Mode	Pre-Trigger, Post-Trigger, Middle-Trigger, Delay-Trigger (Only Post-Trigger provided on phase 1 sample)
External Digital Trigger	
Compatibility	Input 3.3V or 5V TTL Output 3.3V TTL
Input High Threshold (V _{IH})	2.0 V
Input Low Threshold (V _{IL})	0.8 V

Maximum Input Overload	-0.5 V ~ +5.5 V
Trigger Condition	Rising or Falling, software selectable
Minimum Pulse Width	10 ns
PXI STAR Trigger	
Receive Trigger from	PXI STAR Trigger
Compatibility	Input 3.3V or 5V TTL Output 3.3V TTL
Pulse Duration	10 ns
Pulse Logic	Rising or Falling edge, software selectable
PXI Trigger Bus[0..7]	
Receive Trigger from	PXI Trigger Bus line 5
Compatibility	Input 3.3V or 5V TTL Output 3.3V TTL
Pulse Duration	10 ns
Pulse Logic	Rising or Falling edge, software selectable

Digital I/O

Model Name	PXI-2022
Number of Channel	4 input/output
Compatibility	Input 3.3V or 5V TTL Output 3.3V TTL
Data Transfer	Polling mode

Timer/Counter

Model Name	PXI-2022
Number of Channels	2 up/down counter/timers
Resolution	32-bit
Compatibility	Input 3.3V or 5V TTL Output 3.3V TTL
Base clock available	20MHz

Timebase System

Model Name	PXI-2022
Timebase Source	Internal: onboard 80MHz oscillator External from hardware IO (Only Internal mode provided on

	phase 1 sample)
Sampling Rate Range	Timebase divided by 24-bit counter
Internal Timebase Accuracy	<±25ppm (typical)
External Timebase Clock	
Sources (External from hardware IO)	(1) PXI_10M, (2) AFI [7..0] (3) PXI Trigger BUS[0] (4) PXI Star_Trigger
Dedicate External Clock Input From IO Connector	
Clock Type	Digital TTL
Input Frequency Range	1MHz ~ 20MHz
Input Coupling	DC
Input Compatibility	Input 3.3V or 5V TTL Output 3.3V TTL

Auto Calibration

Model Name	PXI-2022
Onboard reference	+5 V
Temperature drift	3 ppm/°C
Stability	50 ppm/1000hrs

General

Model Name	PXI-2022
Dimensions	Single 3U PXI module, 100mm by 160mm (not including connector)
Connector	68-pin VHDCI-type female
Operating temperature	0 to 55°C
Storage temperature	-20 to 70°C

Power Requirements

Model Name	PXI-2022
+3.3V	1.5 A (typical)
+5V	1.3 A (typical)
+12V	0.35 A (typical)

Pin Assignment : Connector Pin Assignment

	Pin #	Pin #	
DGND	34	68	DGND
DIO1	33	67	DIO0
DIO3	32	66	DIO2
DGND	31	65	AFI0/START TRIG
AFI1/AI SAMPLE CLK	30	64	AFI2/ GPTC_CLK0
DGND	29	63	AFI3/GPTC_GATE0
AFI4/GPTC_CLK1	28	62	AFI5/GPTC_GATE1
AFI6/GPTC_Out1	27	61	AFI7/GPTC_Out0
NC	26	60	NC
NC	25	59	NC
AIL0	24	58	AIH0
AIL8	23	57	AIH8
AGND	22	56	AGND
AIL1	21	55	AIH1
AIL9	20	54	AIH9
AGND	19	53	AGND
AIL2	18	52	AIH2
AIL10	17	51	AIH10
AGND	16	50	AGND
AIL3	15	49	AIH3
AIL11	14	48	AIH11
AGND	13	47	AGND
AIL4	12	46	AIH4
AIL12	11	45	AIH12
AGND	10	44	AGND
AIL5	9	43	AIH5
AIL13	8	42	AIH13
AGND	7	41	AGND
AIL6	6	40	AIH6
AIL14	5	39	AIH14
AGND	4	38	AGND
AIL7	3	37	AIH7
AIL15	2	36	AIH15
AGND	1	35	AGND

SMB Connector

- SMB Connector 1 : TRG IO
- SMB Connector 2 : Sync CLK_OUT1
- SMB Connector 3 : Sync CLK_OUT0
- SMB Connector 4 : CLK IN

Accessories

- **SMB-SMB-1M**
1 meter SMB to SMB cable
- **SMB-BNC-1M**
1 meter SMB to BNC cable

Terminal Boards

- **DIN-68S-01**
Terminal Board with One 68-pin SCSI-II Connector and DIN-Rail Mounting (cables are not included; for information on mating cables, refer to Section 12, Accessories.)



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

Ordering Information

- PXI-2022 16-bit, 250KS/s, 16 Channels Simultaneous Sampling Card