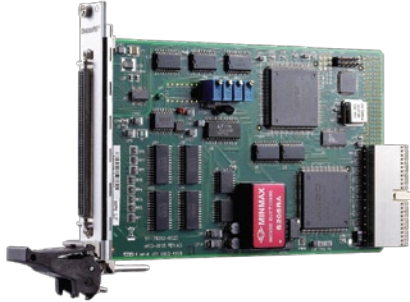# cPCI-9116 Series
64-CH 16-Bit 250 kS/s Multi-Function DAQ Cards

CompactPCI

Introduction

ADLINK's cPCI-9116 series are high-density and high-resolution multi-function DAQ cards for PXI/CompactPCI form factors. The 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. The cPCI-9116 devices feature flexible configurations on analog inputs. They provide analog inputs with 4 programmable input ranges for both bipolar and unipolar inputs. The A/D on the cPCI-9116 devices features a sampling rate of up to 250 kS/s with resolution at 16 bits. These devices also offer differential mode for 32 AI channels in order to achieve maximum noise elimination.

The cPCI-9116 series also feature 1-CH 16-bit general purpose timer/counter, 8-CH TTL digital inputs, and 8-CH TTL digital outputs. The cPCI-9116R allows I/O connectivity to be routed through the backplane via J2/P2 allowing a rear I/O transition module to be inserted, which is capable of efficient trouble-shooting and maintenance. ADLINK cPCI-9116 devices deliver cost-effective and reliable data acquisition capabilities, and are ideal for a broad variety of applications.

Features

- 3U/6U Eurocard form factor, CompactPCI compliant (PICMG 2.0 R2.1)
- 16-bit A/D resolution, up to 250 kS/s sampling rate
- Up to 250 kS/s sampling rate
- 64-CH single-ended or 32-CH differential inputs
- Onboard 1 k-sample A/D FIFO
- Bipolar or unipolar analog input ranges
- Programmable gains of x1, x2, x4, x8
- 512-configuration channel-gain queue
- Bus-mastering DMA for analog inputs
- 8-CH TTL digital inputs and 8-CH TTL digital outputs
- 1-CH 16-bit general purpose timer/counter
- Rear I/O available on cPCI-9116R

Operating Systems
- Windows 7/Vista/XP/2000/2003 Server
- Linux
- Windows CE (call for availability)

Recommended Software
- AD-Logger
- VB.NET/VC.NET/VB/VC++/BCB/Delphi
- DAQBench

Driver Support
- DAQPilot for Windows
- DAQPilot for LabVIEW™
- DAQ-MTLB for MATLAB®
- PCIS-DASK for Windows
- PCIS-DASK/X for Linux

Specifications

Analog Input

- Number of channels: 64 single-ended or 32 differential (software selectable per channel)
- Resolution: 16 bits
- Maximum sampling rate: 250 kS/s
- Input signal ranges (software programmable)

Gain	Input Range	
	Bipolar	Unipolar
1	±5 V	0 to 10 V
2	±2.5 V	0 to 5 V
4	±1.25 V	0 to 2.5 V
8	±0.625 V	0 to 1.25 V

- Accuracy

Gain	Accuracy
1	0.01% of FSR ± 1 LSB
2, 4	0.02% of FSR ± 1 LSB
8	0.04% of FSR ± 1 LSB

- Input coupling: DC
- Overvoltage protection: Continuous ±35 V
- Input impedance: 1 GΩ
- Trigger modes: Software, pre-trigger, post-trigger, middle trigger, delay trigger, and repeated trigger
- Channel-gain queue size: 512 configurations
- FIFO buffer size: 1 k samples
- Data transfers: polling, interrupt, bus-mastering DMA

Digital I/O

- Number of channels: 8 inputs and 8 outputs
- Compatibility: 5 V/TTL
- Data transfers: programmed I/O

General-Purpose timer/counter

- Number of channels: 1
- Resolution: 16 bits
- Compatibility: 5 V/TTL
- Base clock available: 24 MHz, external clock up to 24 MHz

General Specifications

- I/O connector: 100-pin SCSI-II female
- Operating temperature: 0°C to 55°C
- Storage temperature: -20°C to 80°C
- Relative humidity: 5% to 95%, non-condensing
- Power requirements

+5 V	+12 V
560 mA typical	100 mA typical

- Dimensions (not including connectors)
  - 160 mm x 100 mm (3U)

Terminal Boards & Cables

- **DIN-100S-01**
  Terminal Board with One 100-pin SCSI-II Connector and DIN-Rail Mounting (cables are not included.)

- **ACL-102100-1**
  100-pin SCSI-II cable (mating with AMP-787082-9), 1 M

* For more information on mating cables, please refer to P2-59/60.

Ordering Information

- **cPCI-9116**
  64-CH 16-Bit 250 kS/s Multi-Function DAQ Card

- **cPCI-9116R**
  64-CH 16-Bit 250 kS/s Multi-Function DAQ Card with Rear I/O

Pin Assignment

Signal	Pin	Pin	Signal
U_CMMD	1	51	AGND
AI0 (AIH0)	2	52	(AIL0) AI32
AI1 (AIH1)	3	53	(AIL1) AI33
AI2 (AIH2)	4	54	(AIL2) AI34
AI3 (AIH3)	5	55	(AIL3) AI35
AI4 (AIH4)	6	56	(AIL4) AI36
AI5 (AIH5)	7	57	(AIL5) AI37
AI6 (AIH6)	8	58	(AIL6) AI38
AI7 (AIH7)	9	59	(AIL7) AI39
AI8 (AIH8)	10	60	(AIL8) AI40
AI9 (AIH9)	11	61	(AIL9) AI41
AI10 (AIH10)	12	62	(AIL10) AI42
AI11 (AIH11)	13	63	(AIL11) AI43
AI12 (AIH12)	14	64	(AIL12) AI44
AI13 (AIH13)	15	65	(AIL13) AI45
AI14 (AIH14)	16	66	(AIL14) AI46
AI15 (AIH15)	17	67	(AIL15) AI47
AI16 (AIH16)	18	68	(AIL16) AI48
AI17 (AIH17)	19	69	(AIL17) AI49
AI18 (AIH18)	20	70	(AIL18) AI50
AI19 (AIH19)	21	71	(AIL19) AI51
AI20 (AIH20)	22	72	(AIL20) AI52
AI21 (AIH21)	23	73	(AIL21) AI53
AI22 (AIH22)	24	74	(AIL22) AI54
AI23 (AIH23)	25	75	(AIL23) AI55
AI24 (AIH24)	26	76	(AIL24) AI56
AI25 (AIH25)	27	77	(AIL25) AI57
AI26 (AIH26)	28	78	(AIL26) AI58
AI27 (AIH27)	29	79	(AIL27) AI59
AI28 (AIH28)	30	80	(AIL28) AI60
AI29 (AIH29)	31	81	(AIL29) AI61
AI30 (AIH30)	32	82	(AIL30) AI62
AI31 (AIH31)	33	83	(AIL31) AI63
AGND	34	84	AGND
+15Vout	35	85	-15Vout
N/C	36	86	N/C
DI0	37	87	DO0
DI1	38	88	DO1
DI2	39	89	DO2
DI3	40	90	DO3
DI4	41	91	DO4
DI5	42	92	DO5
DI6	43	93	DO6
DI7	44	94	DO7
ExtTimeBase	45	95	N/C
ExtTrg	46	96	GP_TC_CLK
SSH_OUT	47	97	GP_TC_GATE
GP_TC_GATE	48	98	GP_TC_UPDN
+5Vout	49	99	+5Vout
DGND	50	100	DGND