

PCI-9112/LPCI-9112

16-CH 12-Bit 110 kS/s Multi-Function DAQ Card / Low-Profile DAQ Card

Features

- Support a 32-bit 5 V PCI bus (PCI-9112)
- Supports a 3.3V or 5V PCI bus (LPCI-9112)
- 12-bit A/D resolution
- Up to 110 kS/s sampling rate
- 16-CH single-ended or 8-CH differential inputs
- Bipolar or unipolar analog input ranges
- Programmable gains of x0.5, x1, x2, x4, x8
- Automatic analog inputs scanning
- Bus-mastering DMA for analog inputs
- 2-CH 12-bit multiplying analog outputs
- 16-CH TTL digital inputs and 16-CH TTL digital outputs
- 1-CH 16-bit general purpose timer/counter
- Compact, half size PCB (PCI-9112)
- Compact, low-profile PCI size PCB (LPCI-9112)

Operating Systems

- Windows 2000/NT/XP/98
- DOS
- RedHat Linux
- Windows CE

Recommended Software

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

Driver Support

- PCIS-DASK for Windows 2000/NT/XP/98
- PCIS-DASK/X for RedHat Linux
- PCIS-OCX ActiveX controls
- DAQ-LVIEW PnP for LabVIEW



Introduction

ADLINK PCI-9112/LPCI-9112 is a 16-CH, 12-bit, 110kS/s multi-function DAQ Card. The PCI-9112/LPCI-9112 device features flexible configurations on analog inputs. It provides analog inputs with 4 programmable input ranges for both bipolar and unipolar inputs. The A/D on the PCI-9112/LPCI-9112 features a sampling rate up to 110kS/s with resolution at 12 bits. The device supports automatic analog input scanning, and offers a differential mode for 8-CH analog inputs and maximum noise elimination, as well as single-ended modes for 16-CH analog inputs.

The PCI-9112/LPCI-9112 also features 2-CH 12-bit analog outputs, 1-CH 16-bit general purpose timer/counter, 16-CH TTL digital inputs and 16-CH TTL digital outputs. LPCI-9112 is the MD1 size, low-profile version of PCI-9112. The low-profile PCI card is especially suitable for the applications which have the space-restriction on the size of peripheral cards. Based on the technology of PCI-9112, LPCI-9112 enhances the supporting of PCI bus from 5V only to 3.3V or 5V universal PCI bus.

Specifications

Analog Input

- Number of channels: 16 single-ended or 8 differential
- Resolution: 12 bits
- Conversion time: 8 μ s
- Maximum sampling rate: 110 kS/s
- Input signal ranges

Gain	Input Range	
	Bipolar	Unipolar
0.5	± 10 V	--
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
0.5, 1	0.01 % of FSR \pm 1 LSB
2, 4	0.02 % of FSR \pm 1 LSB
8	0.04 % of FSR \pm 1 LSB

- Input coupling: DC
- Overvoltage protection: continuous ± 35 V
- Input impedance: 1 G Ω
- Trigger modes: software, pacer
- Data transfers: programmed I/O, interrupt, bus mastering DMA

Analog Output

- Number of channels: 2 voltage outputs
- Resolution: 12 bits
- Output ranges (software programmable)

Output Range	
Unipolar	0 to 10 V, 0 to 5 V, 0 to EXTREF

- Output driving capacity: ± 5 mA max
- Settling time: 30 μ s to 0.5 LSB
- Data transfers: programmed I/O

Digital I/O

- Number of channels: 16 inputs and 16 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: 2 MHz, external clock to 10 MHz

General Specifications

- I/O connector: 37-pin D-sub female
- Operating temperature: 0 to 60 $^{\circ}$ C
- Storage temperature: -20 to 80 $^{\circ}$ C
- Relative humidity: 5 to 95 %, noncondensing
- Power requirements

	+5 V	+12 V
	460 mA typical	110 mA typical

- Dimensions (not including connectors)
 - 175 mm x 107 mm (PCI-9112)
 - 120 mm x 65 mm (LPCI-9112)

Termination Boards

For PCI-9112:

- **DIN-37D**
Termination Board with a 37-pin D-sub Connector and DIN-Rail Mounting (Including One 1-meter ACL-10137 Cable)
- **DIN-20P**
Termination Board with a 20-pin Ribbon Connector and DIN-Rail Mounting (Including One 1-meter ACL-10120 Cable)
- **ACLD-9137**
General-Purpose Termination Board with a 37-pin D-sub Male Connector
- **ACLD-9138**
General-Purpose Termination Board with a 37-pin D-sub Connector (Including One 1-meter ACL-10237 Cable)
- **ACLD-8125**
Termination Board with a 37-pin D-sub Connector and One Cold Junction Temperature Sensor (Including One 1-meter ACL-10137 Cable)
- **ACLD-9188**
General-Purpose Termination Board with Two 20-pin Ribbon Connectors and One 37-pin D-sub Connector (Including Two 1-meter ACL-10120 Cables)
- **ACLD-9182A**
Termination Board with 16-CH Isolated Digital Inputs (Including One 1-meter ACL-10120 Cable)
- **ACLD-9185**
Termination Board with 16-CH Relay Outputs (Including One 1-meter ACL-10120 Cable)

For LPCI-9112:

- **DIN-68S/1M**
Termination Board with a 68-pin SCSI-II Connector and DIN-Rail Mounting (Including One 1-meter ACL-10568 Cable)

Pin Assignment

CN3: Analog Input / Output & Counter/Timer

PCI-9112				LPCI-9112			
A10 (AIH0)	1	20	(AIO) AI8	DOUT0	1	35	DIN0
A11 (AIH1)	2	21	(AI1) AI9	DOUT1	2	36	DIN1
A12 (AIH2)	3	22	(AI2) AI10	DOUT2	3	37	DIN2
A13 (AIH3)	4	23	(AI3) AI11	DOUT3	4	38	DIN3
A14 (AIH4)	5	24	(AI4) AI12	DOUT4	5	39	DIN4
A15 (AIH5)	6	25	(AI5) AI13	DOUT5	6	40	DIN5
A16 (AIH6)	7	26	(AI6) AI14	DOUT6	7	41	DIN6
A17 (AIH7)	8	27	(AI7) AI15	DOUT7	8	42	DIN7
AGND	9	28	AGND	DOUT8	9	43	DIN8
AGND	10	29	AGND	DOUT9	10	44	DIN9
V.REF	11	30	AO1	DOUT10	11	45	DIN10
ExtVref2	12	31	ExtVref1	DOUT11	12	46	DIN11
+12Vout	13	32	AO2	DOUT12	13	47	DIN12
AGND	14	33	GATE0	DOUT13	14	48	DIN13
D.GND	15	34	GATE	DOUT14	15	49	DIN14
Count0	16	35	Count1	DOUT15	16	50	DIN15
ExtTrg	17	36	N/C	FCOUT0	17	51	EXTCLK
N/C	18	37	EXTCLK	EXTTRG	18	52	GATE0
+5Vout	19	38		FCOUT1	19	53	GATE
				+12V	20	54	SGND
				VCC	21	55	SGND
				AGND	22	56	AGND
				VREF	23	57	EXTVREF1
				EXTVREF2	24	58	DAOUT0
				AGND	25	59	DAOUT1
				AGND	26	60	AGND
				AIN0	27	61	AIN8
				AIN1	28	62	AIN9
				AIN2	29	63	AIN10
				AIN3	30	64	AIN11
				AIN4	31	65	AIN12
				AIN5	32	66	AIN13
				AIN6	33	67	AIN14
				AIN7	34	68	AIN15

CN1: Digital Input

DIO	1	2	DI1
DI2	3	4	DI3
DI4	5	6	DI5
DI6	7	8	DI7
DI8	9	10	DI9
DI10	11	12	DI11
DI12	13	14	DI13
DI14	15	16	DI15
GND	17	18	GND
+5Vout	19	20	+12Vout

CN2: Digital Output

DO0	1	2	DO1
DO2	3	4	DO3
DO4	5	6	DO5
DO6	7	8	DO7
DO8	9	10	DO9
DO10	11	12	DO11
DO12	13	14	DO13
DO14	15	16	DO15
GND	17	18	GND
+5Vout	19	20	+12Vout

Ordering Information

- **PCI-9112**
16-CH 12-Bit 110 kS/s Multi-Function DAQ Card
- **LPCI-9112**
16-CH, 12-Bit 110kS/s Multi-Function Low-Profile DAQ Card

- 1 Software Solutions
- 2 PXI/CompactPCI Platforms
- 3 PXI-Based Instruments
- 4 PXI/CompactPCI Modules
- 5 **PCI DAQ Cards**
- 6 PCI DIO Cards
- 7 PCI/104-Plus Products
- 8 ISA DAS/DIO Cards
- 9 Wiring Termination Boards
- 10 Motion Control Cards
- 11 Machine Vision Products
- 12 Remote I/O Modules