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 98/NT/2000/XP/2003
- Linux
- DOS
- Windows CE (call for availability)

Recommended Software
- VB/VC++/BCB/Delphi
- DAQBench
- DAQCreator

Driver Support
- DAQ-LVIEW PnP for LabVIEW
- DAQ-MTLB for MATLAB
- DAQBOY for Windows
- PCIS-DASK for Windows
- PCIS-DASK/X for Linux

PCI-9112

LPCI-9112

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 µs
- 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 ± 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, 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 µs 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˚C
- Storage temperature: -20 to 80˚C
- Relative humidity: 5 to 95 %, noncondensing
- Power requirements

	+5 V	+12 V
PCI-9112	460 mA typical	110 mA typical
LPCI-9112	500 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

PCI-9112

CN3: Analog Input /Output & Counter/Timer

AI0 (AIH0)	1	20	(AIL0) AI8
AI1 (AIH1)	2	21	(AIL1) AI9
AI2 (AIH2)	3	22	(AIL2) AI10
AI3 (AIH3)	4	23	(AIL3) AI11
AI4 (AIH4)	5	24	(AIL4) AI12
AI5 (AIH5)	6	25	(AIL5) AI13
AI6 (AIH6)	7	26	(AIL6) AI14
AI7 (AIH7)	8	27	(AIL7) AI15
AGND	9	28	AGND
AGND	10	29	AGND
V.REF	11	30	AO1
ExtVref2	12	31	ExtVref1
+12Vout	13	32	AO2
AGND	14	33	GATE0
D.GND	15	34	GATE
Cout0	16	35	Cout1
ExtTrg	17	36	N/C
N/C	18	37	EXTCLK
+5Vout	19		

CN1: Digital Input

DI0	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

LPCI-9112

DOUT0	1	35	DIN0
DOUT1	2	36	DIN1
DOUT2	3	37	DIN2
DOUT3	4	38	DIN3
DOUT4	5	39	DIN4
DOUT5	6	40	DIN5
DOUT6	7	41	DIN6
DOUT7	8	42	DIN7
DOUT8	9	43	DIN8
DOUT9	10	44	DIN9
DOUT10	11	45	DIN10
DOUT11	12	46	DIN11
DOUT12	13	47	DIN12
DOUT13	14	48	DIN13
DOUT14	15	49	DIN14
DOUT15	16	50	DIN15
FCOUT0	17	51	EXTCLK
EXTTRG	18	52	GATE0
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

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