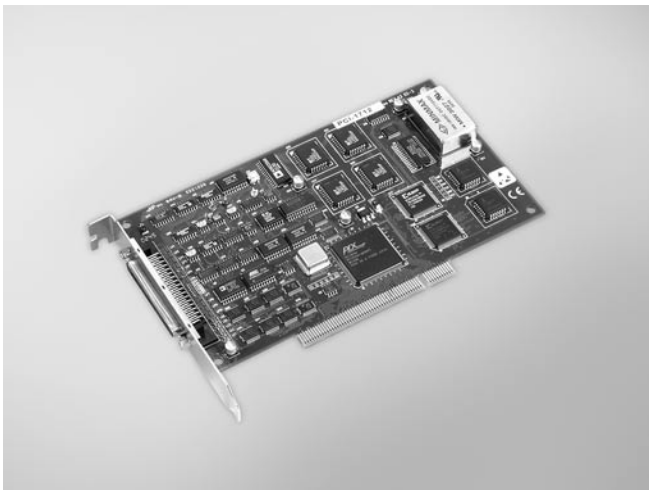
PCI-1712/L

1 MS/s, 12-bit, 16-ch PCI Multifunction Card



Features

- 16 single-ended or 8 differential or a combination of analog inputs
- 12-bit A/D converter, with up to 1 MHz sampling rate
- Programmable gain
- Automatic channel/gain scanning
- Onboard FIFO memory (AI: 1,024 samples AO: 32,768 samples)
- Two 12-bit analog output channels with continuous waveform output function (PCI-1712 only)
- 16-ch digital input and 16-ch digital output
- Three 16-bit programmable multifunction counter/timers on 10 MHz
- Auto-calibration (AI/AO)
- PCI-Bus mastering data transfer
- Pre-, post-, about- and delay-trigger data acquisition modes for analog input channels
- Flexible triggering and clocking capabilities

Introduction

PCI-1712 and PCI-1712L are powerful high-speed multifunction cards for the PCI bus. They feature a 1 MHz 12-bit A/D converter, an onboard FIFO buffer (storing up to 1024 samples for A/D, and up to 32,768 samples for D/A conversion). The PCI-1712 cards provide a total of up to 16 single-ended or 8 differential A/D input channels or a mixed combination, two 12-bit D/A output channels, 16 digital input/output channels, and three 10 MHz 16-bit multifunction counter channels. PCI-1712L is a low-cost version without analog output.

Specifications

Analog Input

- **Channels** 16 single-ended/ 8 differential (software programmable)
- **Resolution** 12 bits
- **Max. Sampling Rate** Multi-channel, single gain: 1 MS/s
  Multi-channel, multi gain: 600 kS/s
  Multi-channel, multi gain, unipolar/bipolar: 400 kS/s
- **FIFO Size** 1,024 samples
- **Overvoltage Protection** 30 Vp-p
- **Input Impedance** 100 MΩ/10 pF (Off), 100 MΩ/100 pF (On)
- **Sampling Modes** Software, onboard programmable pacer and external
- **Trigger Modes** Pre-trigger, post-trigger, delay-trigger and about-trigger
- **Input Range** (V, software programmable)

Unipolar	N/A	0 ~ 10	0 ~ 5	0 ~ 2.5	0 ~ 1.25
Bipolar	±10	±5	±2.5	±1.25	±0.625
Accuracy (% of FSR ±1LSB)	0.1	0.1	0.2	0.2	0.4

Analog Output (PCI-1712 only)

- **Channels** 2
- **Resolution** 12 bits
- **Output Rate** 1 MS/s
- **FIFO Size** 32,768 samples
- **Output Range** (V, software programmable)

Internal Reference	**Bipolar**	±5, ±10
	Unipolar	0 ~ 5, 0 ~ 10
External Reference		0 ~ +x V @ +x V (-10 ≤ x ≤ 10) -x ~ +x V @ +x V (-10 ≤ x ≤ 10)

- **Slew Rate** 20 V/μs
- **Driving Capability** 10 mA
- **Output Impedance** 0.1 Ω max.
- **Operation Mode** Software polling, continuous output and waveform output
- **Accuracy** INLE: ±1 LSB
  DNLE: ±1 LSB (monotonic)

Digital Input

- **Channels** 16
- **Compatibility** 5 V/TTL
- **Input Voltage** Logic 0: 0.8 V max.
  Logic 1: 2.0 V min.

Digital Output

- **Channels** 16
- **Compatibility** 5 V/TTL
- **Output Voltage** Logic 0: 0.8 V max.
  Logic 1: 2.0 V min.
- **Output Capability** Sink: 8.0 mA @ 0.8 V
  Source: -0.4 mA @ 2.0 V

Pacer/Counter

- **Channels** 3
- **Resolution** 16 bits
- **Compatibility** 5 V/TTL
- **Max. Input Frequency** 10 MHz
- **Reference Clock** Internal: 10 MHz, 1 MHz, 100 kHz, 10 kHz
  External Frequency: 10 MHz max.

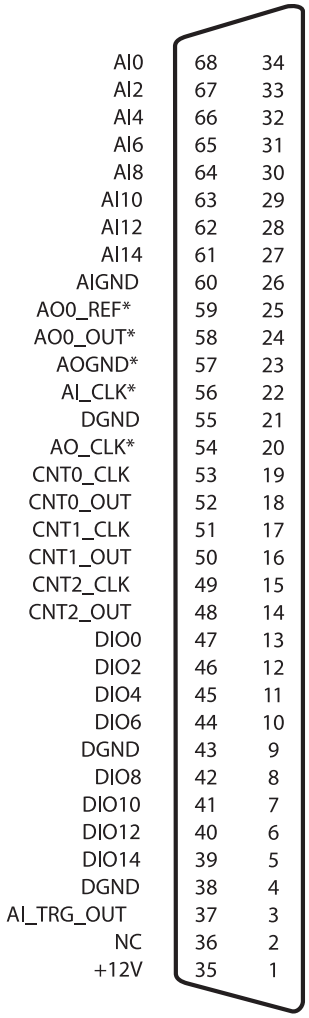
General

- **Bus Type** PCI V 2.2
- **I/O Connector** 1 x 68-pin SCSI female connector
- **Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** Typical: +5 V @ 850 mA, +12 V @ 600 mA
  Max: +5 V @ 1.0 A, +12 V @ 700 mA
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F) (refer to IEC 68-2-1, 2)
- **Storage Temperature** -20 ~ 85° C (-4 ~ 185° F)
- **Storage Humidity** 5 ~ 95% RH non-condensing (refer to IEC 68-2-3)

Ordering Information

- **PCI-1712** 1 MS/s, 12-bit High-speed Multifunction PCI Card
- **PCI-1712L** 1 MS/s, 12-bit High-speed Multi. PCI Card w/o AO
- **PCLD-8712** DIN-rail Wiring Board for PCI-1712/L
- **PCL-10168-1** 68-pin SCSI Shielded Cable, 1 m
- **PCL-10168-2** 68-pin SCSI Shielded Cable, 2 m
- **ADAM-3968** 68-pin DIN-rail SCSI Wiring Board

Pin Assignments



AI0	68	34	AI1
AI2	67	33	AI3
AI4	66	32	AI5
AI6	65	31	AI7
AI8	64	30	AI9
AI10	63	29	AI11
AI12	62	28	AI13
AI14	61	27	AI15
AIGND	60	26	ANA_TRG
AO0_REF*	59	25	AO1_REF*
AO0_OUT*	58	24	AO1_OUT*
AOGND*	57	23	AOGND*
AI_CLK*	56	22	AI_TRG*
DGND	55	21	DGND
AO_CLK*	54	20	AO_TRG*
CNT0_CLK	53	19	CNT0_GA TE
CNT0_OUT	52	18	DGND
CNT1_CLK	51	17	CNT1_GA TE
CNT1_OUT	50	16	DGND
CNT2_CLK	49	15	CNT2_GA TE
CNT2_OUT	48	14	DGND
DIO0	47	13	DIO1
DIO2	46	12	DIO3
DIO4	45	11	DIO5
DIO6	44	10	DIO7
DGND	43	9	DGND
DIO8	42	8	DIO9
DIO10	41	7	DIO11
DIO12	40	6	DIO13
DIO14	39	5	DIO15
DGND	38	4	DGND
AI_TRG_OUT	37	3	AI_CLK_OUT
NC	36	2	NC
+12V	35	1	+5V

*: Pin 20, 22~25, 54, 56~59 are not defined on PCI-1712L