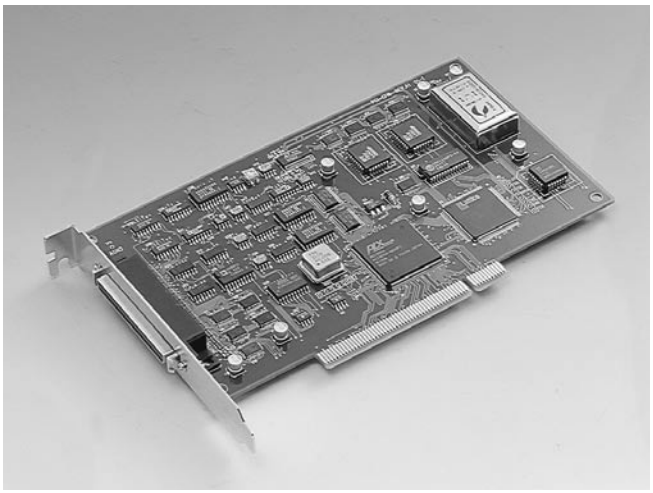
PCI-1716
PCI-1716L

250 kS/s, 16-bit, 16-ch PCI Multifunction Cards



Features

- 16 single-ended or 8 differential or a combination of analog inputs
- 16-bit A/D converter, with up to 250 kHz sampling rate
- Onboard FIFO memory (1024 samples)
- Auto-calibration
- PCI-Bus mastering data transfer
- 2 analog output channels (PCI-1716 only)
- 16 digital inputs and 16 digital outputs
- Onboard programmable counter
- BoardID™ switch

Introduction

PCI-1716 and PCI-1716L are powerful high-resolution multifunction cards for the PCI bus. They feature a 250 kS/s 16-bit A/D converter, and an onboard 1K sample FIFO buffer for A/D. The cards can also have up to sixteen single-ended or eight differential A/D input channels or a combination of these; two 16-bit D/A output channels, 16 digital input/output channels, and one 10 MHz 16-bit counter channel. PCI-1716 and PCI-1716L provide specific functions for different user requirements.

Specifications

Analog Input

- **Channels** 16 single-ended/ 8 differential (SW programmable)
- **Resolution** 16 bits
- **Max. Sampling Rate*** 250 kS/s max.
- **FIFO Size** 1024 samples
- **Overvoltage Protection** 30 Vp-p
- **Input Impedance** Off: 100 MΩ/10 pF, On: 100 MΩ/100 pF
- **Sampling Modes** Software, onboard programmable pacer, or external
- **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)	0.05	0.03	0.03	0.05	0.1

***Note**:
The sampling rate and throughput depends on the computer hardware architecture and software environment. The rates may vary due to programming language, code efficiency, CPU utilization and other factors.

Analog Output (PCI-1716 only)

- **Channels** 2
- **Resolution** 16 bits
- **Output Rate** Static update
- **Output Range** **(V, software programmable)**

Internal Reference	**Unipolar**	0 ~ 5 , 0 ~ 10
	Bipolar	±5 V, ±10 V
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** ±20 mA
- **Output Impedance** 0.1 Ω max.
- **Operation Mode** Software polling
- **Accuracy** INLE: ±1 LSB

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: 0.4 V max.
Logic 1: 2.4 V min.
- **Output Capability** Sink: 0.8 mA @ 0.8 V
Source: -2.4 mA @ 2.0 V

Pacer/Counter

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

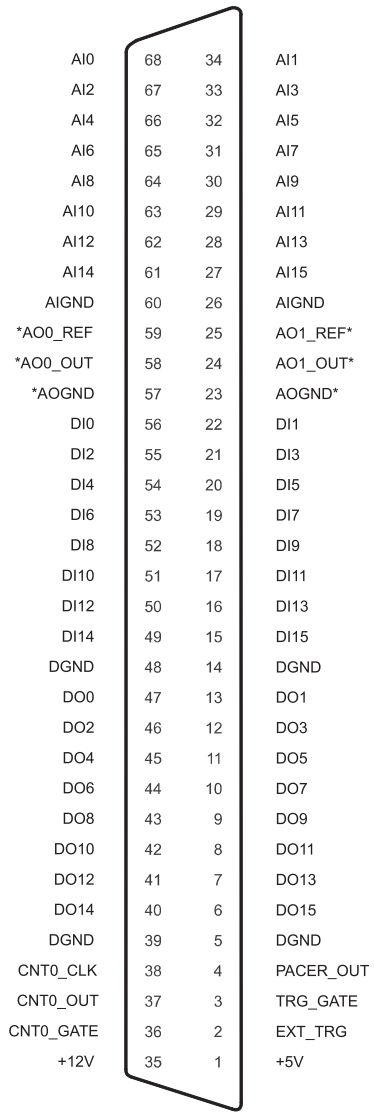
General

- **Bus Type** PCI V2.2
- **I/O Connector** SCSI-68P female x 1
- **Dimensions** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** Typical: +5 V @ 850 mA, +12 V @ 600 mA
Max.: +5 V @ 1 A, +12 V @ 700 mA
- **Operating Temperature** 0 ~ 60° C (32 ~ 158° F) (refer to IEC 68-2-1, 2)
- **Storing Temperature** -20 ~ 85° C (-4 ~ 158° F)
- **Operating Humidity** 5 ~ 85% RH non-condensing(refer to IEC 68-1, -2, -3)
- **Storage Humidity** 5 ~ 95% RH non-condensing (refer to IEC 68-1, -2, -3)

Ordering Information

- **PCI-1716** 250 kS/s, 16-bit high-resolution multifunction card
- **PCI-1716L** 250 kS/s, 16-bit high-resolution multifunction card without AO
- **PCLD-8710** SCSI-68 wiring terminal w/CJC, DIN-rail mount
- **PCL-10168-1** SCSI-68 Shielded Cable, 1 m
- **PCL-10168-2** SCSI-68 Shielded Cable, 2 m
- **ADAM-3968** SCSI-68 wiring terminal, DIN-rail mount

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	AIGND
*AO0_REF	59	25	AO1_REF*
*AO0_OUT	58	24	AO1_OUT*
*AOGND	57	23	AOGND*
DI0	56	22	DI1
DI2	55	21	DI3
DI4	54	20	DI5
DI6	53	19	DI7
DI8	52	18	DI9
DI10	51	17	DI11
DI12	50	16	DI13
DI14	49	15	DI15
DGND	48	14	DGND
DO0	47	13	DO1
DO2	46	12	DO3
DO4	45	11	DO5
DO6	44	10	DO7
DO8	43	9	DO9
DO10	42	8	DO11
DO12	41	7	DO13
DO14	40	6	DO15
DGND	39	5	DGND
CNT0_CLK	38	4	PACER_OUT
CNT0_OUT	37	3	TRG_GATE
CNT0_GATE	36	2	EXT_TRG
+12V	35	1	+5V

*: Pins 23~25 and pins 57~59 are not defined for the PCI-1716L