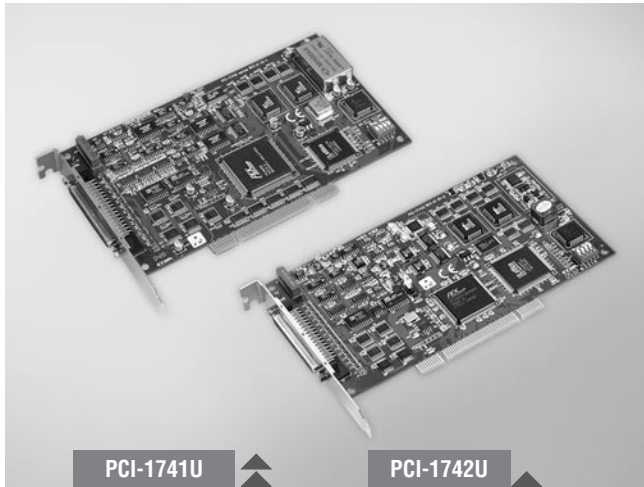


# PCI-1741U PCI-1742U

**200 kS/s, 16-bit, 16-ch Universal PCI  
Multifunction Card**

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



## Features

- 16-ch single-ended or 8-ch differential analog input
- PCI-1741U: 16-bit A/D converter, with up to 200 kHz sampling rate  
PCI-1742U: 16-bit A/D converter, with up to 1 MHz sampling rate
- Onboard FIFO memory (1,024 samples)
- Auto calibration
- PCI-1741U: 1 x 16-bit analog output channel  
PCI-1742U: 2 x 16-bit analog output channels
- 16-ch digital input and 16-ch digital output
- Universal PCI bus (support 3.3 V or 5 V PCI bus signal)
- Onboard programmable counter
- BoardID™ switch

## Introduction

PCI-1741U and PCI-1742U are powerful high-resolution multifunction data acquisition cards supporting universal PCI bus. The sampling rate is up to 1 MS/s (PCI-1742U) or 200 kS/s (PCI-1741U). Coupled with the 16-bit A/D converter, they are suitable for most data acquisition applications. PCI-1741U and PCI-1742U provides 16 single-ended or 8 differential analog input channels and 16 digital input/output channels. PCI-1741U provides one 16-bit D/A output channel, while PCI-1742U provides two 16-bit D/A output channels.

## Specifications

### Analog Input

- **Channels** 16 single-ended/8 differential (software programmable)
- **Resolution** 16 bits
- **Max. Sampling Rate** PCI-1741U: 200 kS/s  
PCI-1742U: single-channel - 1 MS/s  
multi-channel - 800 kS/s  
unipolar bipolar mixed - 250 kS/s
- **FIFO Size** 1,024 samples
- **Overvoltage Protection** 20 Vp-p
- **Input Impedance** 100 M $\Omega$ /10pF (Off); 100 M $\Omega$ /100pF (On)
- **Sampling Mode** Software, onboard programmable pacer and external
- **Input Range\*** (V, software programmable)

<b>Unipolar</b>	N/A	0 ~ 10	0 ~ 5	0 ~ 2.5	0 ~ 1.25
<b>Bipolar</b>	$\pm 10$	$\pm 5$	$\pm 2.5$	$\pm 1.25$	$\pm 0.625$
<b>Accuracy (% of FSR <math>\pm 1</math>LSB)</b>	0.02	0.02	0.02	0.03	0.04

\* **Note:** All channels should be set to the same range

### Analog Output

- **Channels** PCI-1741U: 1  
PCI-1742U: 2
- **Resolution** 16 bits
- **Output Rate** Static update
- **Output Range** (V, software programmable)

<b>Internal Reference</b>	<b>Bipolar</b>	$\pm 5, \pm 10$
	<b>Unipolar</b>	0 ~ 5, 0 ~ 10
<b>External Reference</b>		0 ~ +xV @ +xV (-10 $\leq$ x $\leq$ 10) -x ~ +xV @ +xV (-10 $\leq$ x $\leq$ 10)

- **Slew Rate** PCI-1741U: 20 V/us  
PCI-1742U: 40 V/us
- **Driving Capability**  $\pm 20$  mA
- **Output Impedance** 0.1  $\Omega$  max.
- **Operation Mode** Software polling

- **Accuracy** INLE:  $\pm 2$ 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: 0.8 V max.  
Logic 1: 2.0 V min.
- **Output Capability** Sink: 24 mA @ 0.8 V  
Source: -15 mA @ 2.0 V

### Counter/Timer

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

### General

- **Bus Type** Universal PCI 2.2
- **I/O Connector Type** 1 x 68-pin SCSI female connector
- **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 ~ 140° F) (refer to IEC 68-2-1, 2)
- **Storage Temperature** -20 ~ 70° C (-4 ~ 158° F)
- **Storage Humidity** 5 ~ 95% RH, non-condensing (refer to IEC 68-2-3)
- **Certifications** CE

## Ordering Information

- **PCI-1741U**                    200 kS/s, 16-bit, 16-ch Univ. PCI Multi. Card
- **PCI-1742U**                    1 MS/s, 16-bit, 16-ch Univ. PCI Multi. Card
- **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
- **PCLD-8710**                 DIN-rail Wiring Board w/ CJC

## Pin Assignments

### PCI-1741U

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	N/A
AO0_OUT	58	24	N/A
AOGND	57	23	N/A
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

### PCI-1742U

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
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+12V	35	1	+5V