



PCI-1602U

Universal PCI, 100 kS/s, 32-ch, 16-bit AI
Multifunction Board (8 K word FIFO)

PCI-1602FU

Universal PCI, 200 kS/s, 32-ch, 16-bit AI
Multifunction Board (8 K word FIFO)

Features

- Universal PCI (3.3 V/5 V) Interface
- Supports Card ID (SMD Switch)
- 2-channel, 12-bit Analog Output
- 16-channel 5 V/TTL Digital Output
- 16-channel 5 V/TTL Digital Input
 - ☐ Pull-high and Pull-low Resistors for DI Channels
- 32 Single-ended/16 Differential Analog Input Channels
 - ☐ 12-bit, 100 kS/s or 200 kS/s AD Converter
 - ☐ Built-in MagicScan Controller
 - ☐ Internal Trigger: Software-trigger, Pacer-trigger
 - ☐ External Trigger: Post-trigger, Pre-trigger, Middle-trigger
- High-speed data transfer rate up to 2.1 M words/sec.



Introduction

The PCI-1602U/FU is a high-performance multifunction card providing high-speed Analog and Digital I/O functions. The PCI-1602U/FU is based on the Universal PCI interface, supporting both the 3.3 V and the 5 V PCI bus, and features a continuous 100 kS/s (200 kS/s for the F version) 16-bit resolution AD converter, an 8 K-sample hardware FIFO, a MagicScan controller (for multi-channel scanning), a 2-channel 16-bit DA converter, and 16-channel Digital Input and 16-channel Digital Output.

The PCI-1602U/FU provides either 32-channel single-ended or 16-channel differential Analog Inputs that are jumper selectable, and a programmable high-speed PGA that is equipped for gain controls (1, 2, 4 and 8). The PCI-1602U/FU is fully compatible with the PCI-1602/F, and is designed as a direct replacement without requiring any modification to the software or the driver.

The PCI-1602U/FU also includes an onboard Card ID switch that enables the board to be recognized via software if two or more PCI-1602U/FU cards are installed in the same computer. The pull-high/low resistors allow the DI status to be predefined instead of remaining floating if the DI channels are disconnected or interrupted.

Pin Assignments

Pin Assignment	Terminal No.	Pin Assignment	Pin Assignment	Terminal No.	Pin Assignment
AI_0	01	20 AI_16	DO 0	01	02 DO 1
AI_1	02	21 AI_17	DO 2	03	04 DO 3
AI_2	03	22 AI_18	DO 4	05	06 DO 5
AI_3	04	23 AI_19	DO 6	07	08 DO 7
AI_4	05	24 AI_20	DO 8	09	10 DO 9
AI_5	06	25 AI_21	DO 10	10	12 DO 11
AI_6	07	26 AI_22	DO 12	12	14 DO 13
AI_7	08	27 AI_23	DO 14	14	16 DO 15
AI_8	09	28 AI_24	DO 16	16	18 GND
AI_9	10	29 AI_25	+5 V	18	20 +12 V
AI_10	11	30 AI_26	CON1		
AI_11	12	31 AI_27	DI 0	01	02 DI 1
AI_12	13	32 AI_28	DI 2	03	04 DI 3
AI_13	14	33 AI_29	DI 4	05	06 DI 5
AI_14	15	34 AI_30	DI 6	07	08 DI 7
AI_15	16	35 AI_31	DI 8	09	10 DI 9
A.GND	17	36 Da2 out	DI 10	11	12 DI 11
Da1 out	18	37 D.GND	DI 12	13	14 DI 13
Ext_Trg	19		DI 14	15	16 DI 15
			GND	17	18 GND
			+5 V	19	20 +12 V
			CON2		

Software

Drivers

- ☒ 32/64-bit Windows 10/11
- ☒ Linux ☒ DASYLab

Sample Programs

- ☒ DOS Lib and TC/BC/MSC Demo
- ☒ VB/VC/Delphi/VB.NET/C#.NET/VC.NET/LabVIEW/Python/MATLAB

Applications

- High speed data acquisition system.
- Process monitor and control.
- Vibration analysis.
- Digital pattern generator from digital I/O port.

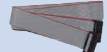
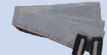
Ordering Information

PCI-1602U CR	Universal PCI, 100 kS/s, 32-ch, 16-bit AI Multifunction Board (8 K word FIFO) (RoHS) Includes one CA-4002 D-Sub connector
PCI-1602FU CR	Universal PCI, 200 kS/s, 32-ch, 16-bit AI Multifunction Board (8 K word FIFO) (RoHS) Includes one CA-4002 D-Sub connector

Hardware Specifications

Model	PCI-1602U	PCI-1602FU
Hardware		
Card ID	Yes (4-bit)	
Connector	Female DB37 x 1 , Male 20-bit ribbon x 2	
Analog Input		
Channels	32 single-ended/16 differential	
Range	Gain: 1, 2, 4, 8 Bipolar Range: ± 10 V, ± 5 V, ± 2.5 V, ± 1.25 V	
Resolution	16-bit	
Accuracy	0.01 % of FSR ± 1 LSB @ 25 °C, ± 10 V	
Sampling Rate	100 kS/s. Max.	200 kS/s. Max.
Input Impedance	10 M Ω /6 pF	
Overvoltage Protection	Continuous ± 35 Vp-p	
Zero Drift	± 4 ppm/°C of FSR	
FIFO Size	8192 samples	
Trigger Mode	Software, Internal programmable pacer, External (5 V/TTL)	
Data Transfer	Polling	
Analog Output		
Channels	2	
Range	Bipolar: ± 5 V, ± 10 V	
Resolution	12-bit	
Accuracy	0.06% of FSR ± 1 LSB @ 25 °C, ± 10 V	
Response Time	1.0 MHz (Typical)	
Voltage Output Capability	± 5 mA	
Slew Rate	8.33 V/ μ s	
Operation Mode	Static Update	
Digital Input		
Channels	16	
Type	5 V/TTL	
ON Voltage Level	2.0 V Min.	
OFF Voltage Level	0.8 V Max.	
Response Speed	1.0 MHz (Typical)	
Trigger Mode	Static Update	
Digital Output		
Channels	16	
Type	5 V/TTL	
Operation Mode	Static Update	
Load Voltage	Logic 0: 0.4 V Max. , Logic 1: 2.4 V Min.	
Load Current	Sink: 2.4 mA @ 0.8 V , Source: 0.8 mA @ 2.0 V	
Response Speed	1.0 MHz (Typical)	
Timer/Counter/Frequency		
Channels	3 (Independent x 1/Internal pacer x 1/External pacer x 1)	
Type	5 V/TTL	
Resolution	16-bit	
Input Frequency	10 MHz Max.	
Reference Clock	Internal: 8 MHz	
PC Bus		
Type	3.3 V/5 V Universal PCI, 32-bit, 33 MHz	
Data Bus	16-bit	
Power		
Consumption	300 mA @ +5 V	
Mechanical		
Dimensions (mm)	105 x 188 x 22 (W x L x D)	
Environment		
Operating Temperature	0 ~ +60°C	
Storage Temperature	-20 ~ +70°C	
Humidity	5 ~ 85% RH, Non-condensing	

Accessories

	ADP-20/PCI CR	Extender, Extended dual 20-pin flat-cable connector to PC slot window (RoHS)
	CA-2002 CR	20-pin flat cable, 20 cm x 2 (RoHS)
	CA-2010 CR	20-pin flat cable, 1 M (RoHS)
	CA-2020 CR	20-pin flat cable, 2 M (RoHS)
	CA-3710 CR	DB-37 Male-Male D-sub cable 1 M (Cable for Daughter Board (45°)) (RoHS)
	CA-3710D CR	DB-37 Male-Male D-sub cable 1 M (Cable for Daughter Board (180°)) (RoHS)
	CA-3715DM-H CR	DB-37 Male-Male Cable, 1.5 M, 180° (RoHS)
	CA-3730DM-H CR	DB-37 Male-Male Cable, 3.0 M, 180° (RoHS)
	DB-1825 CR	Analog Input Screw terminal Board (RoHS)
	DB-16P CR	Isolated Digital Input Daughter Board (RoHS)
	DB-16R CR	Relay Output Daughter Board (RoHS)
	DN-20/DN-20-381 CR	20-pin DIN-RAIL mounting I/O connector board (RoHS)
	DN-37 CR	DIN Rail Mounting 37-pin Connector (RoHS)
	2AB125R CR	Resistor DIP 125R 0.1% 1/4W MF 50PPM (1PCS) (RoHS)

