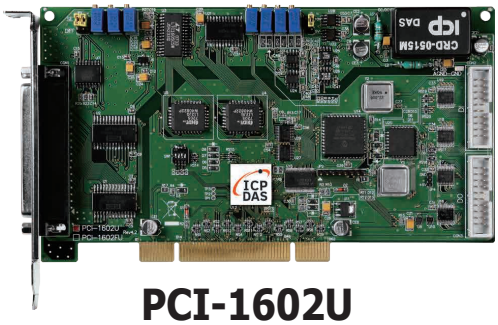


PCI-1602U

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
AI_0	01	20	AI_16
AI_1	02	21	AI_17
AI_2	03	22	AI_18
AI_3	04	23	AI_19
AI_4	05	24	AI_20
AI_5	06	25	AI_21
AI_6	07	26	AI_22
AI_7	08	27	AI_23
AI_8	09	28	AI_24
AI_9	10	29	AI_25
AI_10	11	30	AI_26
AI_11	12	31	AI_27
AI_12	13	32	AI_28
AI_13	14	33	AI_29
AI_14	15	34	AI_30
AI_15	16	35	AI_31
A.GND	17	36	Da2 out
Da1 out	18	37	D.GND
Ext_Trg	19		

CON3

Pin Assignment	Terminal No.		Pin Assignment
DO 0	01	02	DO 1
DO 2	03	04	DO 3
DO 4	05	06	DO 5
DO 6	07	08	DO 7
DO 8	09	10	DO 9
DO 10	10	12	DO 11
DO 12	12	14	DO 13
DO 14	14	16	DO 15
GND	16	18	GND
+5 V	18	20	+12 V

CON1

Pin Assignment	Terminal No.		Pin Assignment
DI 0	01	02	DI 1
DI 2	03	04	DI 3
DI 4	05	06	DI 5
DI 6	07	08	DI 7
DI 8	09	10	DI 9
DI 10	11	12	DI 11
DI 12	13	14	DI 13
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-1602U/S CR	Universal PCI, 100 kS/s, 32-ch, 16-bit AI Multifunction Board (8 K word FIFO) (RoHS) Includes one CA-3710 D-Sub cable
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
PCI-1602FU/S CR	Universal PCI, 200 kS/s, 32-ch, 16-bit AI Multifunction Board (8 K word FIFO) (RoHS) Includes one CA-3710 D-Sub cable

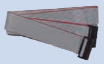
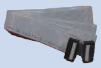
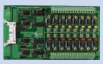
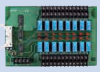
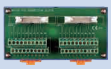
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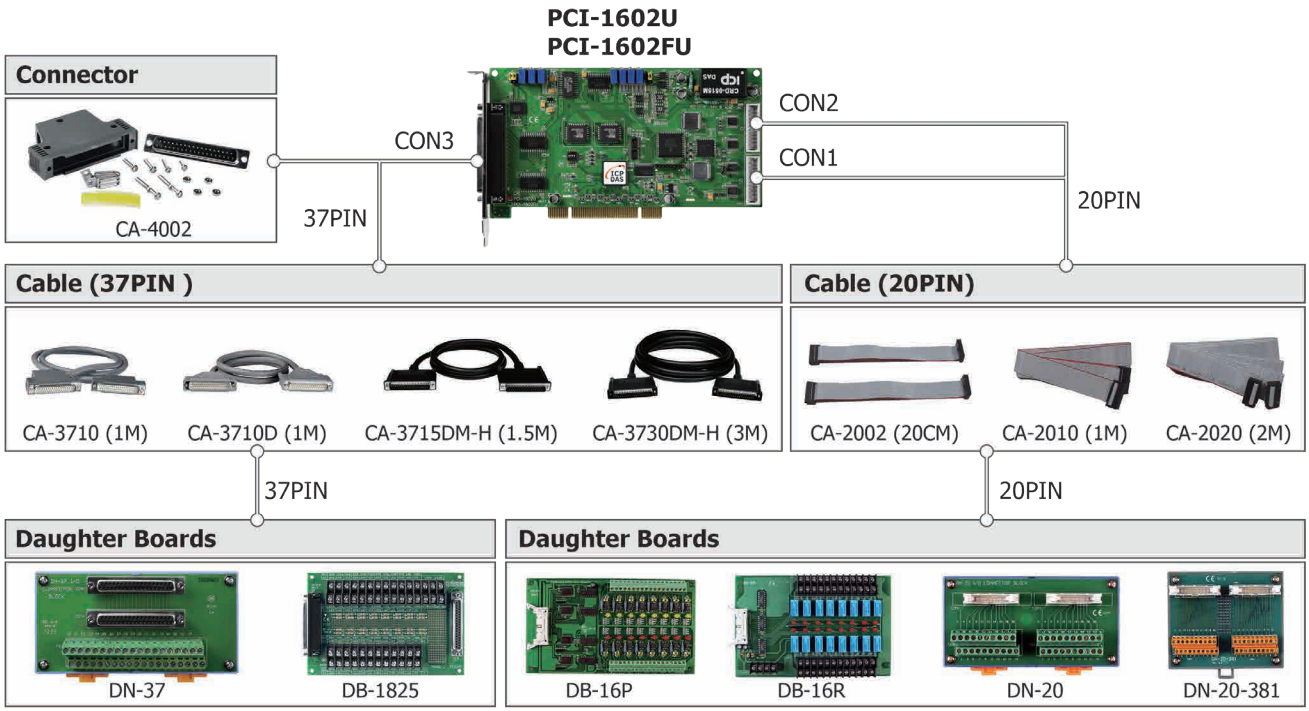
Hardware Specifications

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 MΩ/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/μs	
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	

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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-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)



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