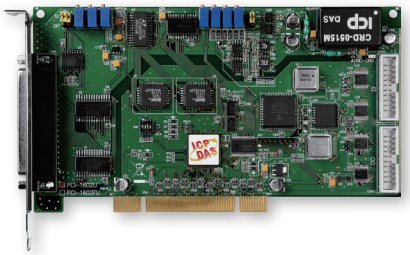
PCI-1602U/PCI-1602FU

Universal PCI, 32-channel, 16-bit, 100 or 200 kS/s
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		
AI_1	02		
AI_2	03		
AI_3	04		
AI_4	05		
AI_5	06		
AI_6	07		
AI_7	08		
AI_8	09		
AI_9	10		
AI_10	11		
AI_11	12		
AI_12	13		
AI_13	14		
AI_14	15		
AI_15	16		
A.GND	17		
Da1 out	18		
Ext_Trg	19		
		20	AI_16
		21	AI_17
		22	AI_18
		23	AI_19
		24	AI_20
		25	AI_21
		26	AI_22
		27	AI_23
		28	AI_24
		29	AI_25
		30	AI_26
		31	AI_27
		32	AI_28
		33	AI_29
		34	AI_30
		35	AI_31
		36	Da2 out
		37	D.GND

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 XP/2003/2008/Vista/7/8
- Linux
- DASYLab

Sample Programs

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

Hardware Specifications

Model		PCI-1602U	PCI-1602FU
Analog Input			
Channels		32 Single-ended/16 Differential	
AD Conversion		16-bit, 2 μs Conversion Time	
Accuracy		0.01% of FSR ±1 LSB @ 25 °C, ±10 V	
FIFO Size		8192 Samples	
Sampling Rate		100 kS/s	200 kS/s
Analog Output			
Channels		2	
Resolution		12-bit	
Accuracy		0.06% of FSR ±1 LSB @ 25°C, ±10 V	
Output Driving		±5 mA	
Output Range		Bipolar: ±5 V, ±10 V	
Digital I/O			
Channels	DI	16, 5 V/TTL	
	DO	16, 5 V/TTL	
Input Voltage		Logic 0: 0.8 V Max.; Logic 1: 2.0 V Min.	
Output Voltage		Logic 0: 0.4 V Max.; Logic 1: 2.4 V Min.	
Output Capability		Sink: 2.4 mA @ 0.8 V; Source: 0.8 mA @ 2.0 V	
Timer/Counter			
Channels		3	
Resolution		16-bit	
Input Frequency		10 MHz Max.	
Reference Clock		Internal: 8 MHz	
General			
Bus Type		3.3 V/5 V Universal PCI, 32-bit, 33 MHz	
Card ID		Yes (4-bit)	
Connectors		Female DB37 x 1, 20-pin Box Header x 2	
Power Consumption		300 mA @ +5 V	
Operating Temperature		0°C to +60°C	
Humidity		5 to 85% RH, Non-condensing	

Ordering Information

PCI-1602U CR	Universal PCI, 32-channel 16-bit, 100 kS/s Low Gain, Multifunction DAQ Board (RoHS). Includes one CA-4002 D-sub connector
PCI-1602FU CR	Universal PCI, 32-channel 16-bit, 200 kS/s Low Gain, Multifunction DAQ Board (RoHS). Includes one CA-4002 D-sub connector