



PEX-TMC12A

PCI Express, 12-ch Timer/Counter Board

Introduction

The PEX-TMC12A utilizes the PCI Express bus and is designed as an easy replacement for the PCI-TMC12A series without requiring any modification to either the software or the driver.

The PEX-TMC12A provides twelve 16-bit timers/counters (four 82C54 chips x 3 timers/counters), 16 TTL digital input channels and 16 TTL digital output channels. The two onboard clocks (8 M/1.6 M and 0.8 M/80 K) are jumper selectable and provide a high-resolution clock source for timers/counters. Counters/timers can be used for industrial and laboratory applications such as pulse/ event/switch-toggle counting, frequency readings, elapsed time measurement, pulse-width measurement, PWM (pulse-widthmodulated) output, and pulse (square wave) and rate generation, etc.

The PEX-TMC12A includes a Card ID switch that enables the board to be easily recognized via software if two or more cards are installed in the same computer.

Pin Assignments

Pin Assignment	Terminal No.	Pin Assignment	Pin Assignment	Terminal No.	Pin Assignment
ECLK1	01	20	EXTG1	DI 0	01
COUT1	02	21	ECLK2	DI 2	03
EXTG2	03	22	COUT2	DI 4	05
ECLK3	04	23	EXTG3	DI 6	07
COUT3	05	24	ECLK4	DI 8	09
EXTG4	06	25	COUT4	DI 10	11
ECLK5	07	26	EXTG5	DI 12	13
COUT5	08	27	ECLK6	DI 14	15
EXTG6	09	28	COUT6	DI 16	17
ECLK7	10	29	EXTG7	GND	18
COUT7	11	30	ECLK8	+5 V	19
EXTG8	12	31	COUT8		
ECLK9	13	32	EXTG9		
COUT9	14	33	ECLK10		
EXTG10	15	34	COUT10		
ECLK11	16	35	EXTG11		
COUT11	17	36	ECLK12		
EXTG12	18	37	COUT12		
GND	19				

Features

- Supports PCI Express x 1
- 4 onboard 8254 timer/counter chips
- 12 independent 16-bit timers/counters
- 12 external clock inputs
- 12 external gate control inputs
- 12 timer/counter output channels
- 16-bit timer/counter can be cascaded to create 32/48-bit timer/counter
- Gate input can be either an external signal or the output of a previous timer/counter channel
- Four interrupt sources
- Two internal clock sources
- 16 TTL D/I channels and 16 TTL D/O channels
- Supports Card ID (SMD Switch)
- Supports DO Status Readback
- More flexible interrupt mechanism
- Hardware mechanism for the generation of two starting-clocks



Software

Drivers

- 32/64-bit Windows XP/2003/2008/7/8/10
- Linux

Sample Programs

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

Hardware Specifications

Digital Input	
Channels	16
Compatibility	5 V/TTL
Input Voltage	Logic 0: 0.8 V Max. Logic 1: 2.0 V Min.
Response Speed	500 kHz
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: 24 mA @ 0.8 V Source: 15 mA @ 2.0 V
Response Speed	500 kHz
Timer/Counter	
Channels	12 (Independent x 12)
Resolution	16-bit
Input Frequency	10 MHz Max.
Reference Clock	Internal: 8 MHz
General	
Bus Type	PCI Express x 1
Card ID	Yes (4-bit)
Connectors	Female DB37 x 1 20-pin Box Header x 2
Power Consumption	500 mA @ +5 V
Operating Temperature	0°C to +60°C
Humidity	5 to 85% RH, Non-condensing

Ordering Information

PEX-TMC12A CR	PCI Express, 12-ch Timer/Counter Board (RoHS) Includes one CA-4002 D-Sub connector.
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Accessories

	CA-2002	20-pin flat cable, 20 cm x 2		CA-4002	37-pin Male D-sub connector with plastic cover.
	CA-2010	20-pin flat cable, 1 M		DB-37	Directly connect signal to D-sub 37-pin connector
	CA-2020	20-pin flat cable, 2 M.		DN-37	DIN Rail Mounting 37-pin Connector
	CA-3710	DB-37 Male-Male D-sub cable 1 M (Cable for Daughter Board (45°))		DN-20	Two 20-pin header DIN-rail terminal board
	CA-3710D	DB-37 Male-Male D-sub cable 1 M (Cable for Daughter Board (180°))		DN-20/N	DN-20 without DIN-Rail mount.
	CA-3715DM-H	DB-37 Male-Male Cable, 1.5 M, 180°. (RoHS)		DB-16P	Isolated Digital Input Daughter Board
	CA-3730DM-H	DB-37 Male-Male Cable, 3.0 M, 180°. (RoHS)		DB-16R	Relay Output Daughter Board
	CA-3750DM	DB-37 Male-Male Cable, 5.0 M, 180°. (RoHS)		ADP-20/PCI	20-pin extender
	CA-3750DM-H	DB-37 Male-Male Cable, 5.0 M, 180°. (RoHS)			

