



## PCI-TMC12AU

Universal PCI, 12-ch Timer/Counter Board

### Introduction

The PCI-TMC12AU card is designed as a direct replacement for the PCI-TMC12A without requiring any modification to the software or the driver.

The PCI-TMC12AU Universal PCI cards support the 3.3 V/5 V PCI bus, and provide 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-width-modulated) output, and pulse (square wave) and rate generation, etc.

### Pin Assignments

Pin Assignment	Terminal No.	Pin Assignment	Pin Assignment	Terminal No.	Pin Assignment
ECLK1	01	20	EXTG1	01	DI 1
COUT1	02	21	ECLK2	02	DI 3
EXTG2	03	22	COUT2	03	DI 5
ECLK3	04	23	EXTG3	04	DI 7
COUT3	05	24	ECLK4	05	DI 9
EXTG4	06	25	COUT4	06	DI 11
ECLK5	07	26	EXTG5	07	DI 13
COUT5	08	27	ECLK6	08	DI 15
EXTG6	09	28	COUT6	09	DI 17
ECLK7	10	29	EXTG7	10	DI 19
COUT7	11	30	ECLK8	11	+12 V
EXTG8	12	31	COUT8	12	CON2
ECLK9	13	32	EXTG9	13	
COUT9	14	33	ECLK10	14	
EXTG10	15	34	COUT10	15	
ECLK11	16	35	EXTG11	16	
COUT11	17	36	ECLK12	17	
EXTG12	18	37	COUT12	18	
GND	19			19	
				20	+12 V
				21	CON3
				22	
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### Features

- Universal PCI (3.3 V/5 V) Interface
- 4 Onboard 8254 Timer/Counter Chips
- 12 Independent 16-bit Timers/Counters
- 12 External Clock Input Channels
- 12 Timer/Counter Output Channels
- 4 Interrupt Sources and More Flexible Interrupt Mechanism
- 2 Internal Clock Sources
- 16-bit Timer/Counter can be cascaded to create a 32/48-bit Timer/Counter
- 16-channel, 5 V/TTL Digital Input
- 16-channel, 5 V/TTL Digital Output
- Gate Input can be sourced from External or Previous Timer/Counter Output
- Supports Card ID (SMD Switch)
- Supports DO Status Readback
- Hardware Mechanism to generate two Starting Clocks



### Software

#### Drivers

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

#### Sample Programs

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



### 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	1.0 MHz (Typical)
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	1.0 MHz (Typical)
Timer/Counter	
Channels	12 (Independent x 12)
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	500 mA @ +5 V
Operating Temperature	0°C to +60°C
Humidity	5 to 85% RH, Non-condensing

### Ordering Information

<b>PCI-TMC12AU CR</b>	Universal PCI, 12-ch Timer/Counter Board (RoHS) Includes one CA-4002 D-Sub connector
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## Accessories

	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)
	CA-3750DM CR	DB-37 Male-Male Cable, 5.0 M, 180° (RoHS)
	CA-3750DM-H CR	DB-37 Male-Male Cable, 5.0 M, 180° (RoHS)
	CA-4002 CR	37-pin Male D-sub connector with plastic cover (RoHS)
	DB-37 CR	Directly connect signal to D-sub 37-pin connector (RoHS)
	DN-37 CR	DIN Rail Mounting 37-pin Connector (RoHS)
	DN-20 CR	Two 20-pin header DIN-rail terminal board (RoHS)
	DN-20/N CR	DN-20 without DIN-Rail mount (RoHS)
	DB-16P CR	Isolated Digital Input Daughter Board (RoHS)
	DB-16R CR	Relay Output Daughter Board (RoHS)
	ADP-20/PCI CR	20-pin extender (RoHS)

