

## PIO-D48U/PIO-D48SU

Universal PCI, 48-ch Digital I/O Board

### Introduction

The PIO-D48U/D48SU card is designed to be fully compatible with the PIO-D48, meaning that a PIO-D48 card can be directly replaced with a PIO-D48U/D48SU without requiring any modification to the software or the driver.

The PIO-D48U provides two connectors for I/O wiring, while the PIO-D48SU provides a single high-density connector that reduces the amount of installation space required for the card in the computer.

The PIO-D48U/D48SU supports the 3.3 V/5 V PCI bus, and provides 48 TTL Digital I/O lines that are grouped into six 8-bit bi-directional ports. Each group of three 8-bit ports is arranged on the connector as Port A (PA), Port B (PB) and Port C (PC), and Port C can be split into two nibble-wide (4-bit) parts. All ports are configured as inputs on power-up or after a reset.

The PIO-D48U/D48SU card also includes an onboard Card ID switch and pull-high/low resistors for the Digital Input. The Card ID switch can be set so that the board is able to be recognized via software if two or more boards are installed in the same computer. The pull-high/pull-low resistors allow the DI status to be predefined as either high or low instead of remaining floating if the DI channels are disconnected or interrupted.

### Hardware Specifications

Model	PIO-D48U	PIO-D48SU
<b>Programmable DIO</b>		
Channels	48	
<b>Digital Input</b>		
Compatibility	5 V/TTL	
Input Voltage	Logic 0: 0.8 V Max.; Logic 1: 2.0 V Min.	
Response Speed	1 MHz	
<b>Digital Output</b>		
Compatibility	5 V/TTL	
Output Voltage	Logic 0: 0.4 V Max.; Logic 1: 2.4 V Min.	
Output Capability	Sink: 64 mA @ 0.8 V; Source: 32 mA @ 2.0 V	
Response Speed	1 MHz	
<b>Timer/Counter</b>		
Channels	2 (Event timer x1/ 32-bit Timer x1)	
Resolution	16-bit	
Reference Clock	Internal: 4 MHz	
<b>General</b>		
Bus Type	3.3 V/5 V Universal PCI, 32-bit, 33 MHz	
Card ID	Yes (4-bit)	
Connectors	Female DB37 x 1 50-pin Box Header x 1	Female SCSI II 100-pin x 1
Power Consumption	900 mA @ +5 V	
Operating Temperature	0°C to +60°C	
Humidity	5 to 85% RH, Non-condensing	

### Ordering Information

<b>PIO-D48U CR</b>	Universal PCI, 48-ch Digital I/O Board (RoHS)
<b>PIO-D48SU CR</b>	Universal PCI, 48-ch Digital I/O Board (RoHS)

### Features

- Universal PCI (3.3 V/5 V) Interface
- 48 Buffered TTL Digital I/O Lines
- Six 8-bit Bi-directional Programmable I/O Ports
- Emulates two Industrial-standard 8255 PPI Ports (Mode 0)
- All I/O Lines Buffered on the Board
- 4-channel Interrupt Source
- Supports Card ID (SMD Switch)
- Supports DO Status Readback (Register Level)
- Buffer Output for Higher Driving Capability
- DI/O Response Time approximately 1  $\mu$ s (1 MHz)



### Software

#### Drivers

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











#### Sample Programs











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

### Pin Assignments

PIO-D48U			PIO-D48SU		
Pin Assignment	Terminal No.	Pin Assignment	Pin Assignment	Terminal No.	Pin Assignment
N.C.	01	20	+5 V	PA_00	1
N.C.	02	21	GND	PA_01	2
PB_7	03	22	PC_7	PA_02	3
PB_6	04	23	PC_6	PA_03	4
PB_5	05	24	PC_5	PA_04	5
PB_4	06	25	PC_4	PA_05	6
PB_3	07	26	PC_3	PA_06	7
PB_2	08	27	PC_2	PA_07	8
PB_1	09	28	PC_1	PB_00	9
PB_0	10	29	PC_0	PB_01	10
GND	11	30	PA_7	PB_02	11
N.C.	12	31	PA_6	PB_03	12
GND	13	32	PA_5	PB_04	13
N.C.	14	33	PA_4	PB_05	14
GND	15	34	PA_3	PB_06	15
N.C.	16	35	PA_2	PB_07	16
GND	17	36	PA_1	PC_00	17
+5 V	18	37	PA_0	PC_01	18
GND	19			PC_02	19
				PC_03	20
				PC_04	21
				PC_05	22
				PC_06	23
PC_7	01	02	GND	PC_07	24
PC_6	03	04	GND	GND	25
PC_5	05	06	GND	-	26
PC_4	07	08	GND	-	27
PC_3	09	10	GND	-	28
PC_2	11	12	GND	-	29
PC_1	13	14	GND	-	30
PC_0	15	16	GND	-	31
PB_7	17	18	GND	-	32
PB_6	19	20	GND	-	33
PB_5	21	22	GND	-	34
PB_4	23	24	GND	-	35
PB_3	25	26	GND	-	36
PB_2	27	28	GND	-	37
PB_1	29	30	GND	-	38
PB_0	31	32	GND	-	39
PA_7	33	34	GND	-	40
PA_6	35	36	GND	-	41
PA_5	37	38	GND	-	42
PA_4	39	40	GND	-	43
PA_3	41	42	GND	-	44
PA_2	43	44	GND	-	45
PA_1	45	46	GND	-	46
PA_0	47	48	GND	-	47
+5 V	49	49	GND	-	48
		50	GND	+5 V	49
					50

## Accessories

	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-4002 CR	37-pin Male D-sub connector with plastic cover (RoHS)
	CA-5002 CR	50-pin flat cable 20 cm (RoHS)
	CA-5015 CR	50-pin flat cable 1.5 M (RoHS)
	CA-SCSI100-15 CR	SCSI II 100-pin & 100-pin Male connector cable 1.5 M (RoHS)
	ADP-37/PCI CR	50-pin connector extender to 37-pin connector (RoHS)

	DB-24P CR	24-channel isolated D/I board (RoHS)
	DB-24R CR	24-channel relay board (RoHS)
	DB-24PR CR	24-channel power relay board (RoHS)
	DB-24POR CR	24-channel of PhotoMos Relay output board (RoHS)
	DB-24SSR CR	24-channel Photo Mos relay output board (RoHS)
	DB-24C CR	24-channel of open-collector output board (RoHS)
	DN-100 CR	I/O Connector Block with DIN-Rail Mounting and 100-Pin SCSI II Connector (RoHS)
	DN-100-CA CR	I/O Connector Block with DIN-Rail Mounting and 100-Pin SCSI II Connector Include one CA-SCSI100-15 cable (RoHS)
	DN-37/DN-37-381 CR	I/O Connector Block with DIN-Rail Mounting and 37-Pin D-Sub Connector (RoHS)
	DN-50/DN-50-381 CR	I/O Connector Block with DIN-Rail Mounting and 50-Pin Header (RoHS)

### PIO-D48U/PEX-D48

