

PIO-D144U/PIO-D144LU

Universal PCI, 144-ch Digital I/O Board

PIO-D168U

Universal PCI, 168-ch Digital I/O Board

Introduction

The PIO-D144U/D144LU/D168U cards are designed as direct replacements for PIO-D144/D168 cards without requiring any modification to the software or the driver.

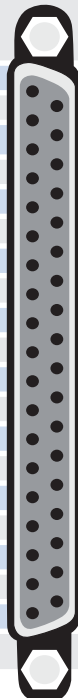
The PIO-D144U/D144LU/D168U Universal PCI cards support the 3.3 V/5 V PCI bus, and provide 144/168 TTL Digital I/O lines that are grouped into 18/21 8-bit bi-directional ports. Each group of three 8-bit ports is arranged on the connector as Port A (PA), Port B (PB) and Port C (PC), respectively, and all ports are configured as inputs Channels on power-up or after a reset.

The PIO-D144U uses 5V/TTL to provide high DO driving capability. The PIO-D144LU uses 5V/CMOS to provide low power consumption and producing less heat.

The PIO-D144U/D144LU/D168U cards also include an onboard Card ID switch that enables the board to be recognized via software if two or more boards are installed in the same computer.

Pin Assignments

Pin Assignment	Terminal No.	Pin Assignment
N.C	01	
N.C	02	
PB_7	03	
PB_6	04	
PB_5	05	
PB_4	06	
PB_3	07	
PB_2	08	
PB_1	09	
PB_0	10	
GND	11	
N.C	12	
GND	13	
N.C	14	
GND	15	
N.C	16	
GND	17	
+5 V	18	
GND	19	
	20	+5 V
	21	GND
	22	PC_7
	23	PC_6
	24	PC_5
	25	PC_4
	26	PC_3
	27	PC_2
	28	PC_1
	29	PC_0
	30	PA_7
	31	PA_6
	32	PA_5
	33	PA_4
	34	PA_3
	35	PA_2
	36	PA_1
	37	PA_0



CON1

Features

- Universal PCI (3.3 V/5 V) Interface
- 144/168 Digital I/O Channels
- 18/21 8-bit Bi-directional Programmable I/O Ports
- Emulates 6/7 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)
- DI/O Response Time approximately 1 μ s (1 MHz)



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

Pin Assignment	Terminal No.	Pin Assignment	
PC_7	01	02	GND
PC_6	03	04	GND
PC_5	05	06	GND
PC_4	07	08	GND
PC_3	09	10	GND
PC_2	11	12	GND
PC_1	13	14	GND
PC_0	15	16	GND
PB_7	17	18	GND
PB_6	19	20	GND
PB_5	21	22	GND
PB_4	23	24	GND
PB_3	25	26	GND
PB_2	27	28	GND
PB_1	29	30	GND
PB_0	31	32	GND
PB_1	33	34	GND
PB_2	35	36	GND
PB_3	37	38	GND
PB_4	39	40	GND
PB_3	41	42	GND
PB_2	43	44	GND
PB_1	45	46	GND
PB_0	47	48	GND
+5 V	49	50	GND

CN2/CN3/CN4/CN5/CN6
CN7 (for PIO-D168U only)







Hardware Specifications









Models	PIO-D144LU	PIO-D144U	PIO-D168U
Hardware			
Card ID	Yes (4-bit)		
Connector	Female DB37 x 1 50-pin box header x 5		Female DB37 x 1 50-pin box header x 6
Digital Input			
Channels	144 (Bi-Direction)		168 (Bi-Direction)
Type	5 V/CMOS	5 V/TTL	
TTL Input, ON Voltage Level	2.0 V Min.		
TTL Input, OFF Voltage Level	0.8 V Max.		
Response Speed	500 kHz (Typical)		
Trigger Mode	Static Update		
Digital Output			
Channels	144 (Bi-Direction)		168 (Bi-Direction)
Type	5 V/CMOS	5 V/TTL	
Operation Mode	Static Update		
Voltage	Logic 0: 0.1 V Max. Logic 1: 4.4 V Min.	Logic 0: 0.4 V Max. Logic 1: 2.4 V Min.	
Max. Load Current	Sink: 6 mA @ 0.33 V Source: 6 mA @ 4.77 V	Sink: 64 mA @ 0.8 V Source: 32 mA @ 2.0 V	
Response Speed	500 kHz (Typical)		
PC Bus			
Type	3.3 V/5 V Universal PCI, 32-bit, 33 MHz		
Data Bus	8-bit		
Power			
Consumption	250 mA @ +5 V	600 mA @ +5 V	1300 mA @ +5 V
Mechanical			
Dimensions (mm)	105 x 180 x 22 (W x L x D)		105 x 200 x 22 (W x L x D)
Environmental			
Operating Temperature	0 ~ +60°C		
Storage Temperature	-20 ~ +70°C		
Humidity	5 ~ 85% RH, Non-condensing		

Ordering Information

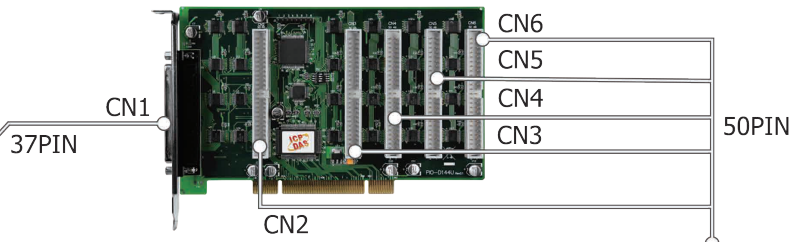
PIO-D144U CR	Universal PCI, 144-ch Digital I/O Board (RoHS)
PIO-D144LU CR	Universal PCI, 144-ch Digital I/O Board (RoHS)
PIO-D168U CR	Universal PCI, 168-ch Digital I/O Board (RoHS)

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)

 DB-24PD CR	24-channel of isolated D/I board (RoHS)
 DB-24RD CR	24-channel of relay board (RoHS)
 DB-24PRD CR	24-channel of 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)
 CA-5002 CR	50-pin flat cable 20 cm (RoHS)
 CA-5015 CR	50-pin flat cable 1.5 M (RoHS)

**PIO-D144U
PIO-D144LU**

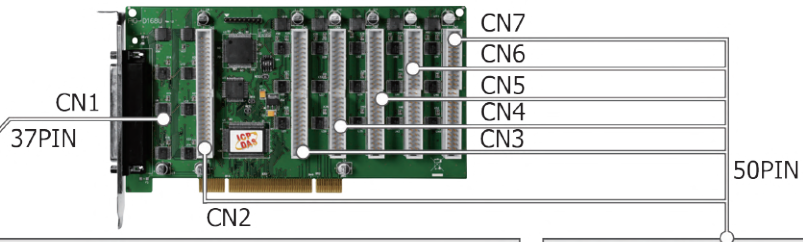


Cable (37PIN)					Cable (50PIN)	
CA-3710 (1M)	CA-3710D (1M)	CA-3715DM-H (1.5M)	CA-3730DM-H (3M)	CA-3750DM-H (5M)	CA-5002 (20CM)	CA-5015 (1.5M)
37PIN					50PIN	

Daughter Boards

DB-24PD	DB-24RD	DB-24POR	DB-24SSR	DB-24PRD	DB-24C

PIO-D168U



Cable (37PIN)					Cable (50PIN)	
CA-3710 (1M)	CA-3710D (1M)	CA-3715DM-H (1.5M)	CA-3730DM-H (3M)	CA-3750DM-H (5M)	CA-5002 (20CM)	CA-5015 (1.5M)
37PIN					50PIN	

Daughter Boards

DB-24PD	DB-24RD	DB-24POR	DB-24SSR	DB-24C