



## PIO-D96U/PIO-D96SU

Universal PCI, 96-ch Digital I/O Board

### Introduction

The PIO-D96U/D96SU card is designed as a direct replacement for the PIO-D96, without requiring any modification to the software or the driver.

The PIO-D96U provides four connectors for I/O wiring, while the PIO-D96SU provides a single high-density connector that reduces the amount of installation space required for the card in the computer.

The PIO-D96U/D96SU Universal PCI card supports the 3.3 V/5 V PCI bus, and provides 96 TTL Digital I/O lines that consist of twelve 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 on power-up or after a reset.

The PIO-D96U/D96SU card also includes 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

| Models                | PIO-D96U                                     | PIO-D96SU                                    |
|-----------------------|----------------------------------------------|----------------------------------------------|
| Programmable DIO      |                                              |                                              |
| Channels              | 96                                           |                                              |
| Digital Input         |                                              |                                              |
| Compatibility         | 5 V/TTL                                      | 5 V/CMOS                                     |
| Input Voltage         | Logic 0: 0.8 V Max. ; Logic 1: 2.0 V Min.    |                                              |
| Response Speed        | 1 MHz                                        |                                              |
| Digital Output        |                                              |                                              |
| Compatibility         | 5 V/TTL                                      | 5 V/CMOS                                     |
| Output Voltage        | Logic 0: 0.4 V Max.;<br>Logic 1: 2.4 V Min.  | Logic 0: 0.1 V Max.<br>Logic 1: 4.4 V Min.   |
| Output Capability     | Sink: 6 mA @ 0.33 V<br>Source: 6 mA @ 4.77 V | Sink: 64 mA @ 0.8 V<br>Source: 32 mA @ 2.0 V |
| Response Speed        | 1 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<br>50-pin Box Header x 3     | Female SCSI II 100-pin x 1                   |
| Power Consumption     | 600 mA @ +5 V                                |                                              |
| Operating Temperature | 0°C to +60°C                                 |                                              |
| Humidity              | 5 to 85% RH, Non-condensing                  |                                              |

### Ordering Information

|                     |                                               |
|---------------------|-----------------------------------------------|
| <b>PIO-D96U CR</b>  | Universal PCI, 96-ch Digital I/O Board (RoHS) |
| <b>PIO-D96SU CR</b> | Universal PCI, 96-ch Digital I/O Board (RoHS) |

### Features

- Universal PCI (3.3 V/5 V) Interface
- 96-channel Digital I/O
- Twelve 8-bit Bi-directional Programmable I/O Ports
- All I/O Lines Buffered on the Board
- 4-channel Interrupt Source
- Buffer Output for Higher Driving Capability
- Supports Card ID (SMD Switch)
- I/O Response Time approximately 1  $\mu$ s (1 MHz)



### Software

#### Drivers

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

#### Sample Programs

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

### Hardware Specifications

| PIO-D96U       |              |                | PIO-D96SU      |              |                |
|----------------|--------------|----------------|----------------|--------------|----------------|
| Pin Assignment | Terminal No. | Pin Assignment | Pin Assignment | Terminal No. | Pin Assignment |
| N.C.           | 01           | 20 +5 V        | PA_00          | 1            | 51 PA_10       |
| N.C.           | 02           | 21 GND         | PA_01          | 2            | 52 PA_11       |
| PB_7           | 03           | 22 PC_7        | PA_02          | 3            | 53 PA_12       |
| PB_6           | 04           | 23 PC_6        | PA_03          | 4            | 54 PA_13       |
| PB_5           | 05           | 24 PC_5        | PA_04          | 5            | 55 PA_14       |
| PB_4           | 06           | 25 PC_4        | PA_05          | 6            | 56 PA_15       |
| PB_3           | 07           | 26 PC_3        | PA_06          | 7            | 57 PA_16       |
| PB_2           | 08           | 27 PC_2        | PA_07          | 8            | 58 PA_17       |
| PB_1           | 09           | 28 PC_1        | PB_00          | 9            | 59 PB_10       |
| PB_0           | 10           | 29 PC_0        | PB_01          | 10           | 60 PB_11       |
| GND            | 11           | 30 PA_7        | PB_02          | 11           | 61 PB_12       |
| N.C.           | 12           | 31 PA_6        | PB_03          | 12           | 62 PB_13       |
| GND            | 13           | 32 PA_5        | PB_04          | 13           | 63 PB_14       |
| N.C.           | 14           | 33 PA_4        | PB_05          | 14           | 64 PB_15       |
| GND            | 15           | 34 PA_3        | PB_06          | 15           | 65 PB_16       |
| N.C.           | 16           | 35 PA_2        | PB_07          | 16           | 66 PB_17       |
| GND            | 17           | 36 PA_1        | PC_00          | 17           | 67 PC_10       |
| +5 V           | 18           | 37 PA_0        | PC_01          | 18           | 68 PC_11       |
| GND            | 19           |                | PC_02          | 19           | 69 PC_12       |
|                |              |                | PC_03          | 20           | 70 PC_13       |
|                |              |                | PC_04          | 21           | 71 PC_14       |
|                |              |                | PC_05          | 22           | 72 PC_15       |
|                |              |                | PC_06          | 23           | 73 PC_16       |
|                |              |                | PC_07          | 24           | 74 PC_17       |
|                |              |                | GND            | 25           | 75 GND         |
|                |              |                | PA_20          | 26           | 76 PA_30       |
|                |              |                | PA_21          | 27           | 77 PA_31       |
|                |              |                | PA_22          | 28           | 78 PA_32       |
|                |              |                | PA_23          | 29           | 79 PA_33       |
|                |              |                | PA_24          | 30           | 80 PA_34       |
|                |              |                | PA_25          | 31           | 81 PA_35       |
|                |              |                | PA_26          | 32           | 82 PA_36       |
|                |              |                | PA_27          | 33           | 83 PA_37       |
|                |              |                | PB_20          | 34           | 84 PB_30       |
|                |              |                | PB_21          | 35           | 85 PB_31       |
|                |              |                | PB_22          | 36           | 86 PB_32       |
|                |              |                | PB_23          | 37           | 87 PB_33       |
|                |              |                | PB_24          | 38           | 88 PB_34       |
|                |              |                | PB_25          | 39           | 89 PB_35       |
|                |              |                | PB_26          | 40           | 90 PB_36       |
|                |              |                | PB_27          | 41           | 91 PB_37       |
|                |              |                | PC_20          | 42           | 92 PC_30       |
|                |              |                | PC_21          | 43           | 93 PC_31       |
|                |              |                | PC_22          | 44           | 94 PC_32       |
|                |              |                | PC_23          | 45           | 95 PC_33       |
|                |              |                | PC_24          | 46           | 96 PC_34       |
|                |              |                | PC_25          | 47           | 97 PC_35       |
|                |              |                | PC_26          | 48           | 98 PC_36       |
|                |              |                | PC_27          | 49           | 99 PC_37       |
|                |              |                | +5 V           | 50           | 100 +5 V       |
|                |              |                |                |              | CN1            |

## 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)              |
|   | CA-SCSI100-30 CR | SCSI II 100-pin & 100-pin Male connector cable 3 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)                                             |

