

PCI-1753/1753E

96-channel Digital I/O card and its 96-channel Extension Card

Packing List

Before installation, please make sure that you have received the following:

- PCI-1753/1753E card
- Driver CD
- Quick Start User Manual

If anything is missing or damaged, contact your distributor or sales representative immediately.

User Manual

For more detailed information on this product, please refer to the PCI-1753 User Manual on the CD-ROM (PDF format).

CD:\Documents\Hardware Manuals\PCI\PCI-1753

Declaration of Conformity

FCC Class A

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause interference in which case the user is required to correct interference at his own expense.

CE

This product has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables. This kind of cable is available from Advantech. Please contact your local supplier for ordering information.

Overview

The PCI-1753 is a 96-bit digital I/O card for the PCI bus, which can be extended to 192 digital I/O channels by connecting with its extension board, PCI-1753E. The card emulates mode 0 of the 8255 PPI chip, but the buffered circuits offer a higher driving capability than the 8255. The 96 I/O lines are divided into twelve 8-bit I/O ports: A0, B0, C0, A1, B1, C1, A2, B2, C2, A3, B3 and C3. Users can configure each port as input or output via software.

Notes

For more information on this and other Advantech products, please visit our websites at:

<http://www.advantech.com/eAutomation>

For technical support and service:

<http://www.advantech.com/support/>

This startup manual is for PCI-1753/1753E.

Part No.2003175300

1st Edition

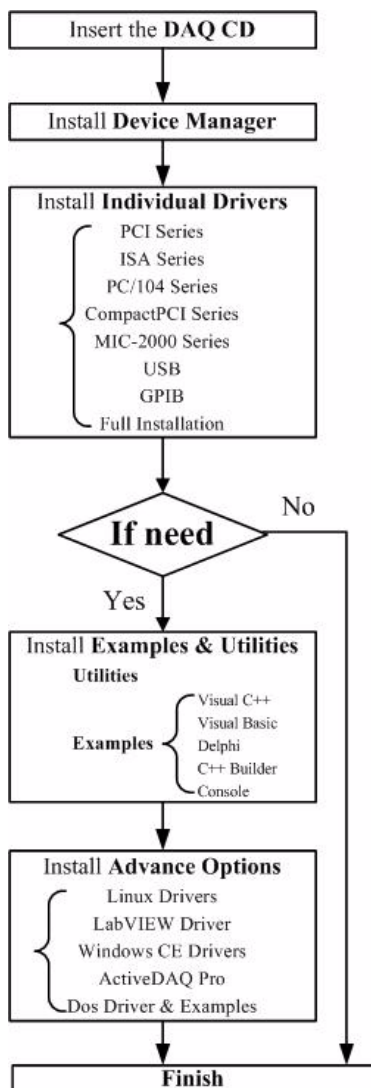
June 2007

Specifications

Isolated Digital Output

| | |
|------------------------------|---|
| I/O Channels | 96 digital I/O lines (PCI-1753 only) 192 digital I/O lines (using PCI-1753E extension) |
| Programming Mode | 8255 PPI mode 0 |
| Input Signal | Logic level 0: 0.8 V max. Logic level 1: 2.0 V min. |
| Output Signal | Logic level 0: 0.44 V max. @ 24 mA (sink) Logic level 1: 3.76 V min. @ 24 mA (source) |
| Transfer Rate | 1.6 Mbytes/sec (tested under DOS, K6 300MHz CPU) |
| Power Consumption | +5 V @ 400 mA (typical) +5 V @ 2.7 A (max.) |
| Operating Temperature | 0 ~ 60°C (32 ~ 140°F) (refer to IEC 68-2-1, 2) |
| Storage Temperature | -20 ~ 70°C (-4 ~ 158°F) |
| Operating Humidity | 5 ~ 95%RH non-condensing (refer to IEC 68-2-3) |
| Connector | One 100-pin SCSI female connector |
| Dimensions | PCI-1753: 175 x 100 mm (6.9" x 3.9") PCI-1753E: 175 x 100 mm (6.9" x 3.9") |
| MTBF | over 75,013 hrs @ 25°C, ground, fixed environment |

Software Installation



Hardware Installation

1. Turn off your computer and unplug the power cord and cables. TURN OFF your computer before installing or removing any components on the computer.
2. Disconnect the power cord and any other cables from the back of the computer.
3. Remove the cover of the computer.
4. Select an empty 5 V PCI slot. (If you also need to install the extension board, the PCI-1753E, to control more than 96 I/O points, please find two adjacent 5V PCI slots.) Remove the screw that secures the expansion slot cover to the system unit. Save the screw to secure the interface card retaining bracket.
5. Carefully grasp the upper edge of the PCI-1753. Align the hole in the retaining bracket with the hole on the expansion slot and align the gold striped edge connector with the expansion slot socket. Press the card into the socket gently but firmly. Make sure the card fits the slot tightly.
 - 1) Repeat Step 5 for the PCI-1753E.
 - 2) Connect the PCI-1753 and PCI-1753E with the 10-cm 20-pin flat cable, which is shipped with the PCI-1753E.

Caution! Please note that the first pin* of the cable connector should match the first pin* of the connector CN2 on the PCI-1753/1753E. (* first pin as marked by the arrow on each connector)

6. Secure the PCI-1753/1753E card by screwing the mounting bracket to the back panel of computer.
7. Attach any accessories (100-pin cable, wiring terminal board, etc.) to the card.
8. Replace the cover of your computer. Connect the cables you removed in step 2.
9. Turn the computer power on.

Switch and Jumper Settings

We designed the PCI-1753/1753E with ease-of-use in mind. It is a “plug and play” card, i.e. the system BIOS assigns the system resources such as base address and interrupt automatically. There are only two functions with 17 jumpers on the PCI-1753, and one function with 16 jumpers on the PCI-1753E.

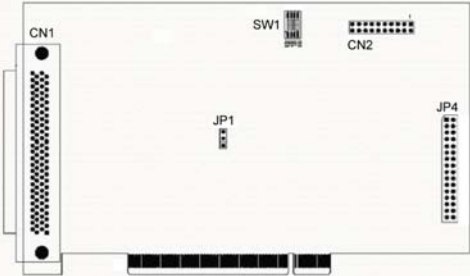


Figure 1: Location of Connectors and Jumpers

| Names of Jumpers | Function description | |
|---|----------------------|---|
| JPA0, JPA1, JPA2 and JPA3: Jumpers for ports A0, A1, A2 and A3 JPB0, JPB1, JPB2 and JPB3: Jumpers for ports B0, B1, B2 and B3 JPC0L, JPC1L, JPC2L and JPC3L: Jumpers for low nibble of ports C0, C1, C2 and C3 JPC0H, JPC1H, JPC2H and JPC3H: Jumpers for high nibble of ports C0, C1, C2 and C3 | | Sets port as an output port |
| | | Sets port to be software configurable as input or output (default) |
| JP1 | | Enables the reset protection function. All ports return to the state held just prior to reset |
| | | Disables the reset protection function. All ports return to the default state (for software-set) or to output port, output low (for jumper-set ports) (default) |

Setting the BoardID Switch (SW1)

You can use the BoardID command (0x20) to get the board's unique identifier. PCI-1753 has a built-in BoardID DIP switch (SW1), which is used to define each card's unique identifier. You can determine the identifier in the register as shown in Table 2.2. When there are multiple cards on the same chassis, this BoardID setting is useful for identifying each card's device number. We set the PCI-1753's BoardID switch to 0 at the factory. If you need to adjust this setting, please see below.

| BoardID (DEC) | Switch Position | | | |
|---------------|-----------------|-----|-----|-----|
| | ID3 | ID2 | ID1 | ID0 |
| 0* | ON | ON | ON | ON |
| 1 | ON | ON | ON | OFF |
| 2 | ON | ON | OFF | ON |
| 3 | ON | ON | OFF | OFF |
| 4 | ON | OFF | ON | ON |
| 5 | ON | OFF | ON | OFF |
| 6 | ON | OFF | OFF | ON |
| 7 | ON | OFF | OFF | OFF |
| 8 | OFF | ON | ON | ON |
| 9 | OFF | ON | ON | OFF |
| 10 | OFF | ON | OFF | ON |
| 11 | OFF | ON | OFF | OFF |
| 12 | OFF | OFF | ON | ON |
| 13 | OFF | OFF | ON | OFF |
| 14 | OFF | OFF | OFF | ON |
| 15 | OFF | OFF | OFF | OFF |
| * : Default | | | | |

PIN Assignment

| | | | |
|------|----|-----|------|
| PA00 | 1 | 51 | PA20 |
| PA01 | 2 | 52 | PA21 |
| PA02 | 3 | 53 | PA22 |
| PA03 | 4 | 54 | PA23 |
| PA04 | 5 | 55 | PA24 |
| PA05 | 6 | 56 | PA25 |
| PA06 | 7 | 57 | PA26 |
| PA07 | 8 | 58 | PA27 |
| PB00 | 9 | 59 | PB20 |
| PB01 | 10 | 60 | PB21 |
| PB02 | 11 | 61 | PB22 |
| PB03 | 12 | 62 | PB23 |
| PB04 | 13 | 63 | PB24 |
| PB05 | 14 | 64 | PB25 |
| PB06 | 15 | 65 | PB26 |
| PB07 | 16 | 66 | PB27 |
| PC00 | 17 | 67 | PC20 |
| PC01 | 18 | 68 | PC21 |
| PC02 | 19 | 69 | PC22 |
| PC03 | 20 | 70 | PC23 |
| PC04 | 21 | 71 | PC24 |
| PC05 | 22 | 72 | PC25 |
| PC06 | 23 | 73 | PC26 |
| PC07 | 24 | 74 | PC27 |
| GND | 25 | 75 | GND |
| PA10 | 26 | 76 | PA30 |
| PA11 | 27 | 77 | PA31 |
| PA12 | 28 | 78 | PA32 |
| PA13 | 29 | 79 | PA33 |
| PA14 | 30 | 80 | PA34 |
| PA15 | 31 | 81 | PA35 |
| PA16 | 32 | 82 | PA36 |
| PA17 | 33 | 83 | PA37 |
| PB10 | 34 | 84 | PB30 |
| PB11 | 35 | 85 | PB31 |
| PB12 | 36 | 86 | PB32 |
| PB13 | 37 | 87 | PB33 |
| PB14 | 38 | 88 | PB34 |
| PB15 | 39 | 89 | PB35 |
| PB16 | 40 | 90 | PB36 |
| PB17 | 41 | 91 | PB37 |
| PC10 | 42 | 92 | PC30 |
| PC11 | 43 | 93 | PC31 |
| PC12 | 44 | 94 | PC32 |
| PC13 | 45 | 95 | PC33 |
| PC14 | 46 | 96 | PC34 |
| PC15 | 47 | 97 | PC35 |
| PC16 | 48 | 98 | PC36 |
| PC17 | 49 | 99 | PC37 |
| VCC | 50 | 100 | VCC |

PA00 ~ PA07 : I/O pins of Port A0
 PA10 ~ PA17 : I/O pins of Port A1
 PA20 ~ PA27 : I/O pins of Port A2
 PA30 ~ PA37 : I/O pins of Port A3
 PB00 ~ PB07 : I/O pins of Port B0
 PB10 ~ PB17 : I/O pins of Port B1
 PB20 ~ PB27 : I/O pins of Port B2
 PB30 ~ PB37 : I/O pins of Port B3
 PC00 ~ PC07 : I/O pins of Port C0
 PC10 ~ PC17 : I/O pins of Port C1
 PC20 ~ PC27 : I/O pins of Port C2
 PC30 ~ PC37 : I/O pins of Port C3
 GND : Ground
 VCC : +5V voltage output (1A max.)

Connection

Dry Contact Support for Digital Input

Each digital input channel accepts either dry contact or 0 ~ 5 VDC wet contact inputs. Dry contact capability allows the channel to respond to changes in external circuitry (e.g., the closing of a switch in the external circuitry) when no voltage is present in the external circuit. Figure 3-1 shows external circuitry with both wet and dry contact components, connected as an input source to one of the card's digital input channels.

