# Plug-in Communication Cards

<table>
<thead>
<tr>
<th>Category</th>
<th>Product Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PCI-bus Communication Cards</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industrial Communication Cards Selection Guide</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI-1601/1602</td>
<td></td>
<td>2-port RS-422/485 PCI Communication Cards</td>
</tr>
<tr>
<td>PCI-1603</td>
<td></td>
<td>2-port Isolated RS-232/Current-loop PCI Communication Card</td>
</tr>
<tr>
<td>PCI-1610 Series</td>
<td></td>
<td>4-port RS-232 PCI Communication Cards</td>
</tr>
<tr>
<td>PCI-1611U</td>
<td></td>
<td>4-port RS-422/485 Universal PCI Comm. Card w/EFT Surge &amp; Isolation</td>
</tr>
<tr>
<td>PCI-1612 Series</td>
<td></td>
<td>4-port RS-232/422/485 PCI Communication Cards</td>
</tr>
<tr>
<td>PCI-1620 Series</td>
<td></td>
<td>8-port RS-232 PCI Communication Cards</td>
</tr>
<tr>
<td>PCI-1622CU</td>
<td></td>
<td>8-port RS-422/485 Universal PCI Comm. Card w/EFT Surge &amp; Isolation</td>
</tr>
<tr>
<td><strong>Intelligent Communication Cards</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI-1825U</td>
<td></td>
<td>8-port Intelligent RS-232/422 Universal PCI Communication Card</td>
</tr>
<tr>
<td>PCL-844+</td>
<td></td>
<td>8-port Intelligent RS-232/422 ISA Communication Card</td>
</tr>
<tr>
<td><strong>PCI-bus Low-profile Cards</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI-1602UP</td>
<td></td>
<td>2-port RS-422/485 Low-profile and Universal PCI Communication Card</td>
</tr>
<tr>
<td>PCI-1604UP</td>
<td></td>
<td>2-port RS-232 Low-profile and Universal PCI Communication Card</td>
</tr>
<tr>
<td>PCI-1610UP/AUP</td>
<td></td>
<td>4-port RS-232 Low-profile and Universal PCI Communication Card</td>
</tr>
<tr>
<td><strong>ISA-bus Communication Cards</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCL-740/741</td>
<td></td>
<td>RS-232/422/485, Current-loop Communication Cards</td>
</tr>
<tr>
<td>PCL-743/745</td>
<td></td>
<td>2-port RS-422/485 Communication Cards</td>
</tr>
<tr>
<td>PCL-746+</td>
<td></td>
<td>4-port RS-232/422/485 Communication Card</td>
</tr>
<tr>
<td>PCL-846</td>
<td></td>
<td>4-port High-speed RS-422/485 Communication Card</td>
</tr>
<tr>
<td>PCL-849</td>
<td></td>
<td>4-port RS-232 Communication Card</td>
</tr>
<tr>
<td>PCL-858</td>
<td></td>
<td>8-port High-speed RS-232 Communication Card</td>
</tr>
<tr>
<td><strong>PC/104 Communication Cards</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCM-3610</td>
<td></td>
<td>Isolated RS-232/422/485 Module</td>
</tr>
<tr>
<td>PCM-3612</td>
<td></td>
<td>2-port RS-422/485 Module</td>
</tr>
<tr>
<td>PCM-3614</td>
<td></td>
<td>4-port RS-422/485 High-Speed Module</td>
</tr>
<tr>
<td>PCM-3618</td>
<td></td>
<td>8-port RS-422/485 High-Speed Module</td>
</tr>
<tr>
<td>PCM-3640/3641</td>
<td></td>
<td>4-port RS-232 High-speed Modules</td>
</tr>
<tr>
<td>PCM-3660</td>
<td></td>
<td>Jumperless Ethernet Module</td>
</tr>
<tr>
<td><strong>CAN Communication Cards</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI-1680U</td>
<td></td>
<td>2-port Isolated CAN Interface Universal PCI Communication Card</td>
</tr>
<tr>
<td>PCL-841</td>
<td></td>
<td>2-port Isolated CAN-bus Interface ISA Communication Card</td>
</tr>
<tr>
<td>PCM-3680</td>
<td></td>
<td>2-port Isolated CAN Interface PC/104 Module</td>
</tr>
<tr>
<td><strong>Accessories</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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*Courtesy of Steven Engineering, Inc.-230 Ryan Way, South San Francisco, CA 94080-6370-Main Office: (650) 588-9200-Outside Local Area: (800) 258-9200-www.stevenengineering.com*
Introduction

The PCI Local Bus is a high-performance bus that provides a processor-independent data path between the CPU and high-speed peripherals. PCI is a robust interconnection mechanism designed specifically to accommodate multiple high performance peripherals for serial communication, SCSI, LAN, etc.

Advantech serial communication cards leverage the "Plug & Play" capability defined in the PCI 2.1/2.2 bus specification, and are available with up to 8 ports. The board requires only one PCI slot within the personal computer and provides independent serial channels. All channels are addressed in a continuous 32 byte I/O block for simplified software access. And, all channels may also share one PCI interrupt. An interrupt status register is available for determining the interrupt source.

The Advantech PCI communication cards come with standard 16PCI954/16PCI952 UARTs containing 128 byte FIFOs which are available as an option. These upgraded FIFOs greatly reduce CPU overhead and are an ideal choice for demanding multi-tasking environments.

The Advantech PCI communication cards are available with optical isolation up to 3000 VDC. This protects your PC and equipment against damages from ground loops, which increases system reliability in harsh environments. To further increase reliability, the boards offers EFT surge protection; protecting your system from abrupt high voltage surges (up to 3000 VDC), such as those caused by lightning during thunderstorms.

16PCI954/16PCI952 UART

The 16PCI954/16PCI952 is a high performance Quad UART with an on-chip PCI interface. Targeted at PCI-based serial and parallel expansion cards, PCI-architecture computer systems and embedded applications, the 16PCI954/16PCI952 integrates a PCI bus interface together with four 16C950 high performance UARTs, a bi-directional parallel port and a local bus bridge function. This single-chip solution replaces five or more integrated circuits used in today’s products, giving performance, cost and size advantages to new designs.

Quick Troubleshooting

Advantech provides easy-to-use analysis tools and utilities that allows you to monitor or log data between two communicating devices, and help you acquire the data within a friendly user interface. Diagnostic functions make the installation process trouble free.

An RS-485 Network with Automatic Data Flow Control Using RS-232 Software

The RS-485 mode automatically senses the direction of incoming data and switches its transmission direction accordingly. The feature makes your network look and act just like an RS-232 network. Application software written for half duplex RS-232 can be used without modification. Moreover, you can simply and quickly build an RS-485 network with just two wires.
## Industrial Communication Cards Selection Guide

### Bus Types

**Universal Low Profile PCI**

<table>
<thead>
<tr>
<th>Model Name</th>
<th>Ports</th>
<th>Communication Interfaces</th>
<th>Protection Type</th>
<th>Cable Connector</th>
<th>Page</th>
</tr>
</thead>
</table>

**PCI & Universal PCI**

<table>
<thead>
<tr>
<th>Model Name</th>
<th>Ports</th>
<th>Communication Interfaces</th>
<th>Protection Type</th>
<th>Cable Connector</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCI-1610A</td>
<td>4</td>
<td>V, V, V, V</td>
<td>DB9 Male</td>
<td>-</td>
<td>17-4</td>
</tr>
<tr>
<td>PCI-1610A/9</td>
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<td>-</td>
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<td>PCI-1610B</td>
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<td>DB9 Male</td>
<td>-</td>
<td>17-4</td>
</tr>
<tr>
<td>PCI-1610B/9</td>
<td>4</td>
<td>V, V, V, V</td>
<td>DB9 Male</td>
<td>-</td>
<td>17-4</td>
</tr>
<tr>
<td>PCI-1610C</td>
<td>4</td>
<td>V, V, V, V</td>
<td>DB9 Male</td>
<td>-</td>
<td>17-4</td>
</tr>
<tr>
<td>PCI-1610C/9</td>
<td>4</td>
<td>V, V, V, V</td>
<td>DB9 Male</td>
<td>-</td>
<td>17-4</td>
</tr>
</tbody>
</table>

### ISA

<table>
<thead>
<tr>
<th>Model Name</th>
<th>Connectors Side 1</th>
<th>Connectors Side 2</th>
<th>Length</th>
<th>Type</th>
<th>Use With</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPT406</td>
<td>1 x DB9 Male</td>
<td>8 x DB9 Female</td>
<td>1.5 m</td>
<td>Connection Box</td>
<td>PCI-1602A/B/AU/AU</td>
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<tr>
<td>OPT407</td>
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<tr>
<td>OPT800</td>
<td>1 x DB9 Male</td>
<td>8 x DB9 Female</td>
<td>1.5 m</td>
<td>Connection Box</td>
<td>PCI-1602A/B/AU/AU</td>
</tr>
<tr>
<td>OPT100</td>
<td>1 x DB9 Male</td>
<td>8 x DB9 Female</td>
<td>1.5 m</td>
<td>Connection Box</td>
<td>PCI-1602A/B/AU/AU</td>
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<tr>
<td>OPT101</td>
<td>1 x DB9 Male</td>
<td>8 x DB9 Female</td>
<td>1.5 m</td>
<td>Connection Box</td>
<td>PCI-1602A/B/AU/AU</td>
</tr>
</tbody>
</table>

**PC/104**

<table>
<thead>
<tr>
<th>Model Name</th>
<th>Connectors Side 1</th>
<th>Connectors Side 2</th>
<th>Length</th>
<th>Type</th>
<th>Use With</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPT406</td>
<td>1 x DB9 Male</td>
<td>8 x DB9 Female</td>
<td>1.5 m</td>
<td>Connection Box</td>
<td>PCI-1602A/B/AU/AU</td>
</tr>
<tr>
<td>OPT407</td>
<td>1 x DB9 Male</td>
<td>8 x DB9 Female</td>
<td>1.5 m</td>
<td>Connection Box</td>
<td>PCI-1602A/B/AU/AU</td>
</tr>
<tr>
<td>OPT800</td>
<td>1 x DB9 Male</td>
<td>8 x DB9 Female</td>
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<td>Connection Box</td>
<td>PCI-1602A/B/AU/AU</td>
</tr>
<tr>
<td>OPT100</td>
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<td>8 x DB9 Female</td>
<td>1.5 m</td>
<td>Connection Box</td>
<td>PCI-1602A/B/AU/AU</td>
</tr>
<tr>
<td>OPT101</td>
<td>1 x DB9 Male</td>
<td>8 x DB9 Female</td>
<td>1.5 m</td>
<td>Connection Box</td>
<td>PCI-1602A/B/AU/AU</td>
</tr>
</tbody>
</table>

*Intelligent Communication Card, **Link with OPT800 can support RS-422*
Introduction

PCI-1601 and PCI-1602 are 2 port RS-422/485 PCI communication cards that are compatible with the PCI 2.1 bus specification. Both cards provide two optional isolated and EFT surge protected RS-422/485 ports, and comes with features such as: high transmission speed of 921.6 kbps, optional EFT Surge & isolation protection, windows utility software and more. The cards also come with high-performance 16PCI952 UART with a 128-byte FIFO to reduce CPU load. This makes the PCI-1601 and PCI-1602 especially suitable for multitasking environments.

PCI-1602 is available with 3,000 V<sub>oc</sub> optical isolation to protect your PC and equipment against damages from ground loops in harsh environments. To further increase reliability, both boards has EFT surge protection technology, protecting your system from abrupt high voltages up to 2,500 V<sub>oc</sub> (PCI-1601B and PCI-1602B). Besides, Advantech also provides a convenient utility program called ICOM Tools, to help test the PCI card performance by analyzing the port status. Controlled by easy-to-use menu commands and toolbar buttons, ICOM Tools acts as a PC-based data scope that lets you set a trigger condition, capture the communications data and monitors the signal status. In addition, ICOM Tools is applicable to all series of Advantech ICOM cards.

Specifications

**General**
- **Bus Type**: PCI V 2.2
- **Certifications**: CE, FCC class A
- **Connectors**: 2 x DB9-M
- **Dimensions**: 123 x 92 mm (4.8” x 3.6”)
- **Power Consumption**
  - PCI-1601: 220 mA (+5 V), 270 mA (+5 V)
  - PCI-1602: 250 mA (+5 V), 300 mA (+5 V)

**Communications**
- **Controller**: 16PCI952
- **Data Bits**: 5, 6, 7, 8
- **Data Signals**: Tx+, Tx-, Rx+, Rx-, RTS+, RTS-, CTS+, CTS-, GND (RS-422 Data+ , Data-, GND (RS-485)
- **FIFO**: 128 bytes
- **Flow Control**: RTS/CTS, Xon/Xoff
- **IRQ**: Assigned by Plug & Play
- **Parity**: None, even, odd
- **Speed**: 50 bps – 921.6 kbps
- **Stop Bits**: 1, 1.5, 2

**Protection**
- **ESD Protection**: 16 kV
- **Isolation Protection**: 3,000 V<sub>oc</sub> (PCI-1602A/B only)
- **EFT Surge Protection**: 2,500 V<sub>oc</sub> (PCI-1601B/PCI-1602B only)

**Software**
- **Bundled Software**: ICOM Tools
- **Driver Support**: Windows 98/ME/2000/XP/XP Embedded, Linux

**Environment**
- **Humidity (Operating)**: 5 – 95 % RH, non-condensing (refer to IEC 68-2-3)
- **Operating Temperature**: 0 – 65° C (refer to IEC 68-2-1, 2) (32 – 149° F)
- **Storage Temperature**: -25 – 85° C (-13 – 185° F)

**Ordering Information**
- **PCI-1601A**: 2-port RS-422/485 PCI COMM Card
- **PCI-1601B**: 2-port RS-422/485 PCI COMM Card, w/EFT Surge Protection
- **PCI-1602A**: 2-port RS-422/485 PCI COMM Card, w/Isolation Protection
- **PCI-1602B**: 2-port RS-422/485 PCI COMM Card, w/Isolation and EFT Surge Protection
PCI-1603 2-port Isolated RS-232/Current-loop
PCI Communication Card

Introduction

PCI-1603 offers a versatile range of high-speed interfacing options. You can switch its ports between the popular RS-232 or noise-resistant current-loop. The card utilizes 16PCI952 UARTs with 128-byte FIFO buffer for faster and more reliable communication, especially under multi-tasking environments such as Windows operating systems.

PCI-1603 provides two isolated RS-232 or current-loop serial ports. You can configure each port individually to RS-232 or current-loop using onboard jumpers. The card utilizes 16PCI952 UART that buffers data into packets before sending it to the bus. This drastically reduces CPU load and avoids data loss when the system is busy and cannot process an interrupt quickly. These FIFO buffers make the PCI-1603 especially suitable for high speed serial I/O under Windows.

Onboard optical isolators protect your PC and equipment against damage from ground loops, increasing system reliability in harsh environments.

Specifications

General
- Bus Type: Universal PCI V 2.2
- Certifications: CE, FCC class A
- Connectors: 2 x D9-M
- Dimensions: 123 x 92 mm (4.8” x 3.6”)
- Power Consumption: +5 V (250 ~ 300 mA)

Current-loop Interface
- Baud-rate: 50 ~ 57600 bps
- Current Value: 20 mA (Standard)
- Mode: Asynchronous, full duplex
- Signal Driver/receiver: 6N136
- Signals: TxD+, TxD-, RxD+, RxD-
- Transmission Distance: 1000 m

Communications
- Communication Controller: 16PCI952
- Data Bits: 5, 6, 7, 8
- Data Signals: RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, RI, GND
  Current Loop: T+x, T-, R+x, R-
- FIFO: 128 bytes
- Flow Control: RTS/CTS, Xon/Xoff
- IRQ: Assigned by Plug & Play
- Parity: None, even, odd
- Speed: RS-232: 50 bps ~ 230.4 kbps
  Current Loop: 57.6 kbps
- Stop Bits: 1, 1.5, 2

Software
- Bundled Software: ICOM Tools

Protection
- ESD Protection: 16 kV
- Isolation Protection: 3,000 VDC for RS-232 and current-loop

Environment
- Humidity (Operating): 5 ~ 95% RH, non-condensing (refer to IEC 68-2-3)
- Operating Temperature: 0 ~ 65°C (refer to IEC 68-2-1, 2) (32 ~ 149°F)
- Storage Temperature: -25 ~ 85°C (-13 ~ 185°F)

Ordering Information

Features
- Two independent RS-232 or Current-loop serial ports
- Each port can be individually configured to RS-232 or current-loop
- 16PCI952 FIFO UART (128-byte FIFO)
- PCI bus specification 2.2 compliant
- Speeds:
  RS-232: 50 bps ~ 230.4 kbps
  Current-loop: 57.6 kbps
- I/O address automatically assigned by PCI Plug & Play
- OS supported: Windows® 98/ME/2000/XP/XP Embedded, Linux
- Interrupt status register for increased performance
- Powerful and easy-to-use utility (ICOM Tools)
- Universal PCI (Supports 3.3 V or 5 V PCI bus signal)
**PCI-1610 Series**

4-port RS-232 PCI
Communication Cards

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### Features

- PCI bus specification 2.1(PCI-1610A/1610B), 2.2 (PCI-1610CU) compliant
- Speeds up to 921.6 kbps
- 4-port RS-232
- 16PCI954 UARTs with 128-byte FIFOs standard
- I/O address automatically assigned by PCI Plug & Play
- OS supported: Windows® 98/ME/2000/XP/XP Embedded, Linux
- Interrupt status register for increased performance
- Powerful and easy to use Utility (ICOM Tools)
- Universal PCI (Supports 3.3 V or 5 V PCI bus signal) (PCI-1610CU only)
- 2.500 V<sub>oc</sub> EFT Surge Protection (PCI-1610B/1610CU)
- 2.500 V<sub>oc</sub> Isolation Protection (PCI-1610CU only)

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### Introduction

PCI-1610 is a 4-port RS-232 PCI communication card that is compatible with the PCI 2.1 bus specification. (PCI-1610CU is also compliant with 2.2) and offer transmission speeds up to 921.6 kbps. PCI-1610 also comes with high-performance 16PCI954 UART with a 128-byte FIFO to reduce CPU load. These components make your system more stable and reliable. Thus, the PCI-1610 is especially suitable for multitasking environments.

PCI-1610CU has a universal PCI connector that is compatible with both the latest 3.3 V signaling systems and the traditional 5V signaling system. This gives high compatibility and allows usage in diverse systems. To further increase reliability, the PCI-1610B and PCI-1610CU offers EFT surge protection technology, protecting your system from abrupt high voltages up to 2,500 V<sub>oc</sub>. PCI-1610CU also provides 2,500 V<sub>oc</sub> isolation to protect your PC and equipment against damages from ground loops in harsh environments.

Advantech also provides a convenient utility program, ICOM Tools, to help test the PCI card performance by analyzing the port status. With menu commands and toolbar buttons, ICOM Tools acts as a PC-based data scope that lets you set a trigger condition, capture the communications data and monitor the signal status. ICOM Tools is applicable to all series of Advantech ICOM cards.

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### Specifications

<table>
<thead>
<tr>
<th>Features</th>
<th>PCI-1610A/8</th>
<th>PCI-1610CU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus Type</td>
<td>PCI V 2.1 (PCI-1610A/1610B)</td>
<td>Universal PCI V 2.2 (PCI-1610CU)</td>
</tr>
<tr>
<td>Certifications</td>
<td>CE, FCC class A</td>
<td></td>
</tr>
<tr>
<td>Connectors</td>
<td>1 x DB37-F</td>
<td></td>
</tr>
<tr>
<td>Dimensions (L x W)</td>
<td>123 x 92 mm (4.8&quot; x 3.6&quot;) (for 1610A and PCI-1610B)</td>
<td>185 x 100 mm (7.3&quot; x 3.9&quot;) (for PCI-1610CU)</td>
</tr>
<tr>
<td>Power Consumption</td>
<td>Typical</td>
<td>Max</td>
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<tr>
<td>+12 V: 60 mA</td>
<td>+12 V: 80 mA</td>
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</tr>
<tr>
<td>+5 V: 150 mA</td>
<td>+5 V: 180 mA</td>
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</tr>
</tbody>
</table>

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### Communications

| Data Bits | 5, 6, 7, 8 |
| Data Signals | TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND, RI |
| FIFO | 128 bytes |
| Flow Control | RTS/CTS, Xon/Xoff |
| IRQ | Assigned by Plug & Play |
| Parity | None, even, odd |
| Stop Bits | 1, 1.5, 2 |
| Speed | 50 bps – 921.6 kbps |

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### Protection

- ESD Protection 16 kV
- Isolation Protection 2,500 V<sub>oc</sub> (PCI-1610CU only)
- EFT Surge Protection 2,500 V<sub>oc</sub> (PCI-1610B/1610CU only)

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### Software

- Bundled Software ICOM Tools
- Driver Support Windows 98/ME/2000/XP/XP Embedded, Linux

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### Environment

- Humidity (Operating) 5 – 95% RH, non-condensing (refer to IEC 68-2-3)
- Operating Temperature 0 – 65°C (refer to IEC 68-2-1, 2), (32 – 149°F)
- Storage Temperature -25 – 85°C (-13 – 185°F)

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### Ordering Information

- **PCI-1610A** 4-port RS-232 PCI COMM Card (30 cm DB9 to 4 DB25 cable included)
- **PCI-1610A/9** 4-port RS-232 PCI COMM Card (30 cm DB9 to 4 DB9 cable included)
- **PCI-1610B** 4-port RS-232 PCI COMM Card w/EFT Surge Protection (30 cm DB9 to 4 DB25 cable included)
- **PCI-1610B/9** 4-port RS-232 PCI COMM Card w/EFT Surge Protection (30 cm DB9 to 4 DB9 cable included)
- **PCI-1610CU** 4-port RS-232 Universal PCI COMM Card w/Isolation & EFT Surge Protection (30 cm DB9 to 4 DB25 cable included)
- **PCI-1610CU/9** 4-port RS-232 Universal PCI COMM Card w/Isolation & EFT Surge Protection (30 cm DB9 to 4 DB9 cable included)

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Courtesy of Steven Engineering, Inc.-230 Ryan Way, South San Francisco, CA 94080-6370-Main Office: (650) 588-9200-Outside Local Area: (800) 258-9200-www.stevenengineering.com
Introduction

PCI-1611U is a 4-port RS-422/485 PCI communication card that is compatible with the PCI 2.2 bus specification. The PCI-1611U provides many functions such as four independent RS-422/485 ports with isolation protection, high transmission speed of 921.6 kbps, and EFT surge protection. PCI-1611U also comes with high-performance 16PCI954 UARTs with a 128-byte FIFO to reduce CPU loading. These components make your system more stable and reliable. Thus, the PCI-1611U is especially suitable for multitasking environments.

PCI-1611U has a universal PCI connector that is compatible with both newer 3.3 V signaling systems and the traditional 5 V signaling systems. This gives high compatibility and allows usage in diverse systems.

To improve the performance of the system, the PCI-1611U allows transmission rates up to 921.6 kbps, and to further increase reliability, the PCI-1611U offers EFT surge protection technology, protecting your system from abrupt high voltages up to 2,500 Vdc. Besides, Advantech also provides a convenient utility program, ICOM Tools, to help you test the PCI card's performance by analyzing the port status. The easy-to-use graphical user interface of ICOM Tools works like a PC-based data scope that lets you set trigger conditions to capture communication data and monitor a signal's status. ICOM Tools is applicable to all series of Advantech ICOM cards.

Specifications

**General**
- **Bus Type**: Universal PCI V 2.2
- **Certifications**: CE, FCC class A
- **Connectors**: 1 x DB37-F
- **Dimensions**: 185 x 100 mm (7.3” x 3.9”)
- **Power Consumption**: 600 mA @ 5 V

**Communications**
- **Communication Controller**: 16PCI954
- **Data Bits**: 5, 6, 7, 8
- **Data Signals**: T+, T-, R+, R-, RTS+, RTS-, CTS+, CTS-, GND (RS-422), Data+, Data-, GND (RS-485)
- **FIFO**: 128 bytes
- **Flow Control**: RTS/CTS, Xon/Xoff
- **IRQ**: Assigned by Plug & Play
- **Parity**: None, even, odd
- **Speed**: 50 bps – 921.6 kbps
- **Stop Bits**: 1, 1.5, 2

**Protection**
- **ESD Protection**: 16 kV
- **Isolation Protection**: 2,000 Vdc
- **EFT Surge Protection**: 2,500 Vdc

**Software**
- **Bundled Software**: ICOM Tools
- **Driver Support**: Windows 98/ME/2000/XP/XP Embedded, Linux

**Environment**
- **Operating Temperature**: 0 – 65°C (refer to IEC 68-2-1, 2), (32 ~ 149°F)
- **Humidity (Operating)**: 5 ~ 95 % Relative Humidity, non-condensing (refer to IEC 68-2-3)
- **Storage Temperature**: -25 ~ 85°C (-13 ~ 185°F)

**Ordering Information**
- **PCI-1611U**: 4-port RS-422/485 Universal PCI Communication Card, w/Isolation & EFT Surge Protection (30 cm DB37 to 4 DB25 cable included)
- **PCI-1611U/9**: 4-port RS-422/485 Universal PCI Communication Card, w/Isolation & EFT Surge Protection (30 cm DB37 to 4 DB9 cable included)
PCI-1612 Series

Introduction

PCI-1612 is a 4-port RS-232/422/485 PCI communication card that is compatible with the PCI 2.1/2.2 bus specification and offer transmission rates up to 921.6 kbps. PCI-1612 comes with high-performance 16PCI954 UARTs with a 128-byte FIFO to reduce CPU load. These components make your system more stable and reliable. Thus, the PCI-1612 is especially suitable for multitasking environments.

PCI-1612AU, PCI-1612BU and PCI-1612CU have universal PCI connectors that are compatible with both newer 3.3 V signaling systems and the traditional 5 V signaling system. This gives highly-compatibility and allows usage in diverse systems. To further increase reliability, PCI-1612B, PCI-1612BU and PCI-1612CU offers EFT surge protection for high voltages up to 2,500 VDC. Meanwhile, PCI-1612CU provides 2,500 VDC isolation protection to protect your PC and equipment against damages from ground loops in harsh environments. Advantech also provides a convenient utility program called ICOM Tools to help test the PCI card performance by analyzing the port status. The menu commands and toolbar buttons of ICOM Tools acts as a PC-based data scope that lets you set a trigger condition, capture the communications data and monitor the signal status. ICOM Tools is applicable to all series of Advantech ICOM cards.

Specifications

General

- Card Interface:
  - PCI V 2.1 (PCI-1612A, PCI-1612B)
  - Universal PCI V 2.2 (PCI-1612BU, PCI-1612AU, PCI-1612CU)
- Certifications:
  - CE, FCC class A
- Connectors:
  - 1 x DB37-F
- Dimensions:
  - 185 x 100 mm (7.3” x 3.9”)
- Power Consumption:
  - Typical: +12 V: 60 mA, +5 V: 270 mA
  - Max: +12 V: 80 mA, +5 V: 338 mA

Communications

- Communication Controller: 16PCI954
- Data Bits: 5, 6, 7, 8
- Data Signals:
  - TxA, RxD, RTS, CTS, DTR, DSR, DCD, RI, Xon/Xoff (RS-232)
  - TxA, RxD, RX+, RX-, RTS+, RTS-, CTS+, CTS- (RS-422)
  - Data+, Data- (RS-485)
- FIFO:
  - 128 bytes
- Flow Control:
  - RTS/CTS, Xon/Xoff
- IRQ:
  - Assigned by Plug & Play
- Parity:
  - None, even, odd
- Speed:
  - 50 bps – 921.6 kbps
- Stop Bits:
  - 1, 1.5, 2

Protection

- EFT Surge Protection: 2,500 VDC (PCI-1612B/1612BU/1612CU only)
- ESD Protection: 16 kV
- Isolation Protection: 2,500 VDC (PCI-1612CU only)

Software

- Bundled Software: ICOM Tools

Environment

- Humidity (Operating): 5 – 95% RH, non-condensing (refer to IEC 68-2-3)
- Operating Temperature: 0 – 65°C (refer to IEC 68-2-1, 2), (32 – 149°F)
- Storage Temperature: -26 – 85°C (-13 – 185°F)

Ordering Information

- PCI-1612A/9: 4-port RS-232/422/485 PCI COMM Card (30 cm DB37 to 4 DB9 cable included)
- PCI-1612B/9: 4-port RS-232/422/485 PCI COMM Card w/EFT Surge Protection (30 cm DB37 to 4 DB9 cable included)
- PCI-1612AU/9: 4-port RS-232/422/485 Universal Comm. Card (30 cm DB37 to 4 DB9 cable included)
- PCI-1612BU/9: 4-port RS-232/422/485 Universal PCI COMM Card w/EFT Surge Protection (30 cm DB37 to 4 DB9 cable included)
- PCI-1612CU/9: 4-port RS-232/422/485 Universal PCI COMM Card w/Isolation & EFT Surge Protection (30 cm DB37 to 4 DB9 cable included)
## Introduction

PCI-1620 is an 8-port RS-232 PCI communication card that is compatible with the PCI 2.1 bus specification. The card provides eight optional EFT surge protected RS-232 ports, and has many functions such as high transmission speed of 921.6 kbps, eight independent RS-232 ports and also comes with high-performance 16PCI954 UARTs with 128-byte FIFO and a 16C954 UART to reduce CPU load. Thus, the PCI-1620 is especially suitable for making your system reliable in multitasking environments.

PCI-1620AU and PCI-1620BU have an universal PCI connector that is compatible with both 3.3 V signaling and 5 V signaling. This means that PCI-1610AU and PCI-1620BU can not only be used in traditional systems with 5 V signaling but also newer systems with 3.3 V signaling.

To further increase reliability, PCI-1620B and PCI-1620BU offer EFT surge protection technology, protecting your system from abrupt high voltages of up to 3,000 VDC. Advantech also provides a convenient utility program called ICOM Tools, to help you test the PCI card's performance by analyzing the port status. ICOM Tools is easy to use with its menu commands and toolbar buttons, and acts as a PC-based data scope that lets you set a trigger condition, capture the communications data and monitor the signal status. ICOM Tools is applicable to all series of Advantech ICOM cards.

## Specifications

### General
- **Bus Type**: PCI-1620A, PCI-1620B, PCI V2.1
- **Certifications**: CE, FCC class A
- **Connectors**: 1 x DB62-F
- **Dimensions**: 185 x 100 mm (7.3" x 3.9")
- **Power Consumption**
  - Typical: +12 V: 120 mA, +5 V: 180 mA
  - Max: +12 V: 150 mA, +5 V: 220 mA
- **Power Requirement**: ±12 V

### Communications
- **Communication Controller**: 16PCI954+16C954
- **Data Bits**: 5, 6, 7, 8
- **Data Signals**: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND (RS-232)
- **FIFO**: 128 bytes
- **Flow Control**: RTS/CTS, Xon/Xoff
- **IRQ**: Assigned by Plug & Play
- **Parity**: None, even, odd
- **Speed**: 50 bps – 921.6 kbps
- **Stop Bits**: 1, 1.5, 2

### Protection
- **ESD Protection**: 16 kV
- **EFT Surge Protection**: 3,000 V_oc (PCI-1620B), 2,500 V_oc (PCI-1620AU)

## Software
- **Bundled Software**: ICOM Tools
- **Driver Support**: Windows 98/ME/2000/XP/XP Embedded, Linux

## Environment
- **Operating Temperature**: 0 – 65°C (refer to IEC 68-2-1,2) (32 – 149°F)
- **Humidity (Operating)**: 5 – 95 % RH, non-condensing (refer to IEC 68-2-3)
- **Storage Temperature**: -25 – 85°C (-13 – 185°F)

## Ordering Information
- **PCI-1620A**: 8-port RS-232 PCI COMM Card (cables not included)
- **PCI-1620B**: 8-port RS-232 PCI COMM Card, w/EFT Surge Protection (cables not included)
- **PCI-1620AU**: 8-port RS-232 Universal PCI COMM Card (cables not included)
- **PCI-1620BU**: 8-port RS-232 Universal PCI COMM Card w/Surge Protection (cables not included)
- **Opt8C**: 8-port RS-232 cable with male DB62 to DB25 connector (1 m)
- **Opt8H**: 8-port RS-232 cable with male DB62 to DB9 connector (1 m)
- **OPT8AP**: 8-port RS-232(DCE) connection box with female DB9 connectors
- **OPT8BP**: 8-port RS-232(DTE) connection box with male DB25 connectors
- **OPT8FP**: 8-port RS-422 to RS-232 converter connection box with Isolation Protection
Introduction

PCI-1622CU is an 8-port RS-422/485 PCI communication card that is compatible with the PCI 2.2 bus specification. PCI-1622CU provides many functions such as eight independent RS-422/485 ports with isolation protection, high transmission speed of 921.6 kbps, surge protection and comes with high-performance 16PCI954 UARTs with a 128-byte FIFO to reduce CPU load. These components make your system more stable and reliable. Thus, the PCI-1622CU is especially suitable for multitasking environments.

PCI-1622CU has a universal PCI connector that is compatible with both newer 3.3 V signaling systems and the traditional 5 V signaling system. This gives high-compatibility and allows usage in diverse systems.

To further increase reliability, the PCI-1622CU offers EFT surge protection from high voltages up to 2,500 Vdc and 2,500 Vdc isolation to protect your PC and equipment against damages from ground loops in harsh environments.

Advantech provides a convenient utility program called ICOM Tools to help test the PCI card's performance by analyzing the port status. The menu commands and toolbar buttons of ICOM Tools acts as a PC-based data scope that lets you set a trigger condition captures the communication data and monitors the signal status. ICOM Tools is applicable to all series of Advantech ICOM cards.

Specifications

General
- Card Interface: Universal PCI V2.2
- Certifications: CE, FCC class A
- Connectors: 1 x DB78-F
- Dimensions: 185 x 100 mm (7.3" x 3.9")
- Power Consumption: 600 mA @ 5 V

Communications
- Communication Controller: 16PCI954
- Data Bits: 5, 6, 7, 8
- Data Signals: RTS+, RTS-, CTS+, CTS-, TX+, TX-, RX+, RX-, GND (for RS-422)
- FIFO: 128 bytes
- Flow Control: RTS/CTS, Xon/Xoff
- IRQ: Assigned by Plug & Play
- Parity: None, even, odd
- Ports: 8
- Speed: 50 bps – 921.6 kbps
- Stop Bits: 1, 1.5, 2

Protection
- ESD Protection: 16 kV
- Isolation Protection: 2,500 Vdc
- EFT Surge Protection: 2,500 Vdc

Software
- Bundled Software: ICOM Tools

Environment
- Humidity: 5 ~ 95% RH, non-condensing, (IEC 68-2-3)
- Operating Temperature: 0 ~ 65°C (32 ~ 149°F) (IEC 68-2-1, 2)
- Storing Temperature: -25 ~ 85°C (-13 ~ 185°F)

Ordering Information
- PCI-1622CU: 8-port RS-422/485 Universal PCI COMM Card w/isolation and EFT Surge Protection (cables not included)
- OPT8I: 1 m DB78 to 8 DB25 cable
- OPT8J: 1 m DB78 to 8 DB9 cable

Note: For most applications the PCI-1622 requires an OPT8I or OPT8J cable.
Introduction

The intelligent PCI-1625U is virtually a self contained computer. The card has an onboard DSP processor that takes over the processing load from the host PC. When you are transferring large amounts of data from multiple ports, servicing the interrupts alone consumes a large percentage of the capacity of your computer's CPU. PCI-1625U serves as a high-speed dedicated interrupt processor. PCI-1625U also has 1 MB of SRAM which can store serial data and reduce host CPU loading effectively. When PCI-1625U initializes, it downloads the driver software (which functions like a PC's BIOS) into its onboard DSP. This improves performance and makes version upgrading easy so there is no hardware redundancy.

PCI-1625U has a universal PCI connector that is compatible with both newer 3.3 V PCI bus and the traditional 5 V PCI bus. It also provides a convenient utility program called ICOM Tools to help test the PCI card performance by analyzing the port status. The menu commands and toolbar buttons of ICOM Tools acts as a PC-based data scope that lets you set a trigger condition, capture the communications data and monitor the signal status. ICOM Tools is applicable to all series of Advantech ICOM cards.

The intelligent PCI-1625U 8-port RS-232 or RS-422 interface card is designed for industrial applications where a PC needs to communicate with terminals, modems, or other instruments. RS-422 applications have to use the optional OPT8FP, 8-port RS-232 to RS-422 converter with 2,500 VDC isolation protection. You can install up to four PCI-1625U cards for total of 32 ports in any PCI bus-based PC.

Specifications

General
- Card Interface: Universal PCI V2.2
- Certifications: CE, FCC class A
- Connectors: 1 x DB62-F
- Dimensions: 185 x 100 mm (7.3” x 3.9”)
- Power Consumption: 504 mA, max 558 mA @ 5 V

Communications
- Controller: 8 x 16c550
- Processor: TMS320c5402
- Memory: 1 MB
- Data Bits: 5, 6, 7, 8
- Stop Bits: 1, 1.5, 2
- Data Signals: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND(RS-232)
- Flow Control: RTS/CTS, Xon/Xoff
- IRQ: Assigned by Plug & Play
- Parity: None, even, odd
- Speed: 50 bps – 921.6 kbps

Protection
- ESD Protection: 16 kV

Software
- Bundled Software: ICOM Tools
- Driver Support: Windows 2000/XP

Environment
- Operating Temperature: 0 – 65° C (refer to IEC 68-2-1,2) (32 – 149° F)
- Storing Temperature: 5 – 95 % RH, non-condensing (refer to IEC 68-2-3)
- Storing Humidity: -25 – 85° C (-13 – 185° F)

Ordering Information
- PCI-1625U: 8-port Intelligent RS-232 Universal PCI Communication Card (cables not included)
- OPT8AP: 8-port RS-232 (DCE) connection box with male DB25 connectors
- OPT8BP: 8-port RS-232 (DTE) connection box with male DB25 connectors
- OPT8C: 8-port RS-232 cable with male DB25 connector (1 m)
- OPT8H: 8-port RS-232 cable with male DB9 connector (1 m)
- OPT8FP: 8-port RS-422 to RS-232 converter connection box w/ Isolation Protection

Courtesy of Steven Engineering, Inc.-230 Ryan Way, South San Francisco, CA 94080-6370-Main Office: (650) 588-9200-Outside Local Area: (800) 258-9200-www.stevenengineering.com
Introduction

The intelligent PCL-844+ was designed as an 8-port RS-232 or RS-422 interface card for lab and industrial applications where a PC needs to communicate with terminals, modems, or other instruments. RS-422 applications have to use OPT8FP which is an 8-port RS-232 to RS-422 converter with 2,500 Vdc isolation protection. You can install up to four PCL-844+ cards for a total of 32 ports in any AT/ISA bus-based PC.

The PCL-844+ card has an onboard RISC processor that takes over the communications load from the host PC. When you are processing large amounts of data from multiple ports, servicing the interrupts alone consumes a large percentage of the capacity of your computer’s CPU. The PCL-844+ serves as a high speed, dedicated interrupt processor.

PCL-844+ is virtually a self contained computer in its own right. It contains 512 KB of dual-port RAM which you can use to store and run programs. The dual-port RAM maps into the host system’s address space to give you the fastest possible data transfers between PCL-844+ and the PC memory.

When the PCL-844+ initializes, it downloads the driver software (which functions like a PC’s BIOS) into onboard SRAM. This improves performance and makes version upgrading easy, with no hardware redundancy.

Specifications

General
- Card Interface: ISA
- Certifications: CE
- Connectors: 1 x DB62-F
- Dimensions: 185 x 100 mm (7.3” x 3.9”)
- Power Consumption: +5 V @ 155 mA, +12 V @ 110 mA, -12 V @ 160 mA

Communications
- Number of Ports: 8
- Processor: RISC, TI TMS320C203-57
- Dual-ported RAM: 512 KB
- SRAM: 16 KB
- UART: RISC-based CD180
- Interrupt: 2, 3, 4, 5, 7, 10, 11, 12 or 15
- Maximum Ports in One System: 32

RS-232 Interface
- Signals: TxD, RxD, RTS, CTS, DTR, DSR, DCD and GND
- Mode: Asynchronous full duplex
- Communication Speed: 50 bps – 921.6 kbps
- Data Bits: 5, 6, 7, 8
- Stop Bits: 1, 1.5, 2
- Parity: Even, odd or none

Environment
- Operating Temperature: 0 – 55°C (32 – 131°F)
- Storing Temperature: -20 – 85°C (-4 – 185°F)
- Storing Humidity: 5 – 95% RH, non-condensing (refer to IEC68-2-3)

Ordering Information
- PCL-844+: 8-port Intelligent RS-232 Card, with ISA bus (cables not included)
- Opt8AP: 8-port RS-232 (DCE) connection box with female DB25 connectors
- Opt8BP: 8-port RS-232 (DTE) connection box with male DB25 connectors
- Opt8C: 8-port RS-232 connection cable with male DB25 connectors
- Opt8H: 8-port RS-232 connector cable with male DB9 connector (1 m length)
- Opt8FP: 8-port RS-422 to RS-232 converter connection box with Isolation Protection
Introduction

These RS-232/422/485 PCI communication cards are compatible with the PCI 2.2 bus specification for universal connectivity and low profile PCI cards. PCI-1604UP provides two independent RS-232 ports, while PCI-1610UP has two RS-422/485 ports. PCI-1610UP and PCI-1610AUP provide 4 RS-232 ports. To improve system performance, all cards allow transmission rates up to 921.6 kbps. To increase reliability, the cards offer EFT surge protection, protecting your system from abrupt high voltages up to 2,500 VDC. High-performance 16PCI952 and 16PCI954 UARTs with 128-byte FIFO, reduces the CPU load, making the cards especially suitable for multitasking environments.

Advantech also provides a convenient utility called ICOM Tools, to help test the PCI card’s performance by analyzing the port status. The menu commands and toolbar buttons of ICOM Tools acts as a PC-based data scope that lets you set a trigger condition, capture the communication data and monitor the signal status. ICOM Tools can be used with all series of Advantech ICOM cards.

Features

- PCI bus specification 2.2 compliant
- speeds up to 921.6 kbps
- 2-port RS-232/PCI-1604UP; 2-port RS-422/485 (PCI-1602UP); 4-port RS-232 (PCI-1610UP)
- I/O address automatically assigned by PCI Plug & Play
- OS support: Windows® 98/ME/2000/XP, XP Embedded, Linux
- 2,500VDC EFT Surge Protection
- 2,500VDC Isolation protection for RS-422/485 (PCI-1602UP)
- Interrupt status register for increased performance
- Space reserved for termination resistors (PCI-1602UP)
- Automatic RS-485 data flow control (PCI-1602UP)
- Powerful and easy-to-use utility (ICOM Tools)
- Universal and Low-profile PCI (Supports 3.3 V or 5 V PCI bus signal)

Specifications

General

- Bus Type: Universal PCI V 2.2
- Certifications: CE, FCC class A
- Connectors: PCI-1610UP: 1 x Female DB44
- PCI-1602UP and PCI-1604UP: 1 x Female DB25
- Dimensions: 119.91 x 64.41 mm (4.7” x 2.5”) (Low profile MD1)
- Power Consumption: 5 V @ 400 mA (Max.)
- Power Requirement: 5 V

Communication

- Communication: PCI-1602UP, PCI-1604UP: 16PCI952
- PCI-1610UP: 16PCI954
- Data Bits: 5, 6, 7, 8
- Data Signals: RS-232: TxD,RxD,RTS, CTS, DTR, DSR, DCD, GND, RI
- RS-422: Tx+,Tx-, Rx+,Rx-, RTS-,CTS-,GND
- RS-485: Data+, Data-, GND
- FIFO: 128 bytes
- Flow Control: CTS/RTS, Xon/Xoff
- IRQ: Assigned by Plug & Play
- Parity: None, even, odd
- Speed: 50 bps – 921.6 kbps
- Stop Bits: 1, 1.5, 2

Protection

- ESD Protection: 16 kV
- Isolation Protection: 2,500 VDC (PCI-1602UP)
- EFT Surge Protection: 2,500 VDC (PCI-1602UP, PCI-1604UP, PCI-1610UP)

Software

- Bundled Software: ICOM Tools

Environment

- Humidity (Operating): 5 – 95 % RH, non-condensing (refer to IEC 68-2-3)
- Operating Temperature: 0 – 65° C (refer to IEC 68-2-1, 2) (32 – 149° F)
- Storage Temperature: -25 – 85° C (-13 – 185° F)

Ordering Information

- PCI-1602UP: 2-port RS-422/485 Low-Profile Universal PCI COMM Card, w/Isolation and EFT Surge Protection (30 cm DB25 to 20dB9 cable included)
- PCI-1604UP: 2-port RS-232 Low-Profile Universal PCI COMM Card, w/EFT Surge Protection (30 cm DB25 to 20dB9 cable included)
- PCI-1610UP: 4-port RS-232 Low-Profile Universal PCI COMM Card, w/EFT Surge Protection (30 cm DB44 to 4 DB9 cable included)
- PCI-1610AUP: 4-port RS-232 Low-Profile Universal PCI COMM Card, (30cm DB44 to 4 DB9 cable included)
## Introduction

The PCL-740 offers a versatile range of high speed interfacing options. You can switch its single port between the popular RS-232, long distance RS-422, multi-drop RS-485, or noise-resistant current-loop. The card's 16C550 UART has an on-chip 16-byte FIFO buffer for faster and more reliable communication, especially under Windows.

The PCL-741 provides two isolated RS-232 or current-loop serial ports. You can configure each port individually to RS-232 or current-loop using onboard jumpers. Onboard optical isolators protect your PC and equipment against damage from ground loops, increasing system reliability in harsh environments.

### Specifications

#### Features
- RS-232, RS-422, RS-485 or current-loop interface
- 16C550 UART with 16-byte FIFO
- Transmission speeds up to 921.6 kbps
- Flexible I/O address and IRQ selection
- IRQ: 3, 4, 5, 6, 7, 9, 10, 11, 12 or 15
- Complete RS-232 modem control signals
- Supports 4-wire or 2-wire operation for RS-422/485
- Automatic RS-485 data flow control
- Space reserved for termination resistors
- Supports Windows® 98/ME/2000/XP, Linux
- Powerful and easy-to-use utility (ICOM Tools)

#### General
- Card Interface: ISA
- Certifications: CE
- Connectors:
  - PCL-740: 1 x DB9-M, 1 x DB25-M
  - PCL-741, PCL-743, PCL-745: 2 x DB9-M
  - PCL-746+: 1 x DB37-F
- Dimensions: 185 x 100 mm (7.3” x 3.9”)
- Power Consumption:
  - PCL-740: +5 V @ 180 mA max., ±12 V @ 20 mA max.
  - PCL-741: +5 V @ 300 mA typical, ±12 V @ 1.5 A max.
  - PCL-746+: +5 V @ 800 mA typical, 1.5 A max.
- Weight (Gross): PCL-740/PCL-741: 1.1 kg (2.4 lb) (including cable)

#### Communications
- Data Bits: 5, 6, 7, 8
- Data Signals:
  - RS-232: Tx, Rx, CTS, RTS, DTR, DSR, DCD, GND, RI
  - RS-422: Tx+, Tx-, Rx+, Rx-, GND, CTS+, CTS-, RTS+, RTS-
  - RS-485: Data+, Data-, GND
  - I/O Address:
    - From 200H to 3F8H (for PCL-740/741/743/745)
    - From 000H to 3F8H (for PCL-746+)
  - IRQ: 3, 4, 5, 6, 7, 9, 10, 11, 12 or 15
  - Ports:
    - PCL-740: 1, PCL-741: 2
    - PCL-743, PCL-745: 4
    - PCL-746+: 2
- Parity: None, even, odd
- Protocols:
  - PCL-740: RS-232/422/485, current-loop
  - PCL-746+: RS-232/485
  - PCL-746+/9: RS-232/422/485
- Speed:
  - PCL-740, PCL-741: 50 bps ~ 115.2 kbps
  - PCL-746+: 50 bps ~ 57.6 kbps
  - PCL-743, PCL-745: 50 bps ~ 921.6 kbps
  - PCL-746+: 50 bps ~ 115.2 kbps

#### Protection
- Isolation Protection:
  - PCL-740/741: 2500 VDC
  - PCL-743, PCL-745: 3000 VDC
- Surge Protection:
  - PCL-740/741: 2500 VDC
  - PCL-743, PCL-745: 3000 VDC

#### Software
- Bundled Software: ICOM Tools
- Driver Support: Windows 98/ME/2000/XP, Linux

#### Ordering Information
- PCL-740: RS-232/422/485/current-loop serial interface card
- PCL-741: Isolated dual-port RS-232/current-loop interface card
- PCL-743B: 2-port RS-422/485 communication card
- PCL-743S: 2-port RS-422/485 communication card with EFT surge protection
- PCL-745B: 2-port RS-422/485 communication card with isolation protection
- PCL-745S: 2-port RS-422/485 communication card with isolation and EFT Surge Protection
- PCL-746+: 4-port RS-232/422/485 communication card (30cm DB37 to 4 DB25 cable included)
- PCL-746+/9: 4-port RS-232/422/485 communication card (30cm DB37 to 4 DB9 cable included)
PCL-846
PCL-849
PCL-858

4-port High-speed RS-422/485 Communication Card
4-port RS-232 Communication Card
8-port High-speed RS-232 Communication Card

Features
- Four or eight RS-232 or RS-422/485 serial ports
- Transmission speeds up to 921.6 kbps
- Independent/shared IRQ settings between each of the 4 serial ports
- Wide IRQ selection: 3, 4, 5, 6, 7, 9, 10, 11, 12 or 15
- Supports COM1, COM2, COM3, and COM4
- Provides 1000 V<sub>DC</sub> isolation (PCL-846 only)
- Provides 2000 V<sub>DC</sub> EFT Surge Protection (PCL-846B only)
- Provides 3000 V<sub>DC</sub> EFT Surge Protection (PCL-849B, PCL-849+, PCL-858B)
- Space reserved for termination resistors
- Supports 2 wire or 4 wire operation
- Automatic RS-485 data flow control or RTS control
- Supports Windows® 98/ME/2000/XP, Linux
- Powerful and easy-to-use utility (ICOM Tools)

Introduction
PCL-800 series communication card provides reliable, high-speed serial communication. The unique shared interrupt can be set to most common (extended) AT interrupts. This simplifies programming, speeds up interrupt processing and frees up interrupts for other devices. PCL-800 series cards also provide EFT surge or isolation protection to prevent your PC and equipment against damage from ground loops, increasing system reliability in harsh environments or abrupt high voltage surges such as those caused by lightning during thunderstorms.

Specifications

General
- Card Interface: ISA
- Certifications: CE
- Connectors: 1 x DB37-F (PCL-846, PCL-849), 1 x DB62-F (PCL-858)
- Dimensions: 185 x 100 mm (7.3” x 3.9”)
- Power Consumption: PCL-846: +5 V @ 450 mA typical, 950 mA max.
  PCL-849: +5 V @ 250 mA typical, 500 mA max.
  PCL-858: +5 V @ 140 mA typical, 240 mA max.

Communications
- Data Bits: 5, 6, 7, 8
- Ports: PCL-846 and PCL-849: 4, PCL-858: 8
- Stop Bits: 1, 1.5, 2
- Speed: PCL-849L: 50 – 115.2 kbps
  PCL-849B, PCL-849+: 50 – 70.72 kbps
  Other: 50 – 921.6 kbps
- Parity: None, even and odd
- I/O Address Range: PCL-846, PCL-849: From 200H to 3F8H
  PCL-858: From 000H to 3FFH
- IRQ: 3, 4, 5, 6, 7, 9, 10, 11, 12, 15
- UART: PCL-846: 4 x 16C550 with 16-byte FIFO
  PCL-849A/B/9: 4 x 16C554
  PCL-849+: 1 x 16C554
  PCL-858A/858B: 2 x 16C554

Protection
- Isolation Protection: PCL-846: 1,000 V<sub>DC</sub>
  PCL-846B: 2,000 V<sub>DC</sub>
  PCL-849B, PCL-849+: 3,000 V<sub>DC</sub>

Software
- Bundled Software: ICOM Tools
- Driver Support: Windows 98/ME/2000/XP/Linux

Environment
- Operating Temperature: 0 – 60 °C (32 – 140 °F)
- Storage Temperature: -25 – 85 °C (-13 – 176 °F)

Ordering Information
- PCL-846A
  4-port RS-422/485 interface card w/isolation protection (30 cm DB37 to 4 DB9 cable included)
- PCL-846B
  4-port RS-422/485 interface card w/isolation and EFT surge protection (30 cm DB37 to 4 DB9 cable included)
- PCL-849A
  4-port high-speed RS-232 interface card (30 cm DB37 to 4 DB25 cable included)
- PCL-849A/9
  4-port high-speed RS-232 interface card (30 cm DB37 to 4 DB9 cable included)
- PCL-849B
  4-port high-speed RS-232 interface card w/EFT surge protection (30 cm DB37 to 4 DB25 cable included)
- PCL-858B
  8-port RS-232 interface card w/EFT surge protection and 16C654 UART
  (30 cm DB37 to 4 DB25 cable included)
- PCL-849+/9
  4-port high-speed RS-232 interface card w/EFT surge protection and 16C654 UART
  (30 cm DB37 to 4 DB9 cable included)
- PCL-849L
  4-port RS-232 interface card (30 cm DB37 to 4 DB25 cable included)
- PCL-849L/9
  4-port RS-232 interface card (30 cm DB37 to 4 DB9 cable included)
- PCL-858A
  8-port RS-232 interface card (cables not included)
- PCL-858B
  8-port high-speed RS-232 interface card w/EFT surge protection (cables not included)
**Plug-in Communication**

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### Specifications

**General**
- Card Interface: PC/104
- Certifications: CE
- Connectors: 2 x DB9-M
- Ports: 2
- Power Consumption: +5 V @ 400 mA typical, ±12 V @ 950 mA max

**Communications**
- Channel 1 and 2: RS-422, RS-485
- Character Length: 5, 6, 7, 8 bits
- IRQ: 3, 4, 5, 6, 7, 9, 10, 11, 12, 15
- Parity: Even, odd, none
- Speed: 50 bps – 115.2 kbps
- Stop Bit: 1, 1.5, 2

**Protection**
- Isolation Protection: 1,000 VDC

**Environment**
- Humidity (Operating): 0 – 90 % RH
- Operating Temperature: 0 – 65° C (32 – 149° F)
- Storing Temperature: -40 – 85° C (-40 – 185° F)

### Ordering Information
- PCM-3610-B: Isolated RS-232/422/485 Module
- PCM-3612-A: Dual port RS-422/485 Module
- PCM-3614-A: 4-port RS-422/485 High-speed Module
### PCM-3618
- 8-port RS-422/485 High-speed Module
- 4-port RS-232 Module

### Features
- Automatic RS-485 data flow control
- Shared IRQ settings for each port
- LED indicators: TX, RX
- Supports Windows® 98/2000/XP
- Supports WinCE 4.2
- Powerful and easy-to-use utility (ICOM Tools)

### Specifications
**General**
- Card Interface: PC/104
- Certifications: CE
- Connectors: 8 x DB9-M
- Ports: 8
- Power Consumption: +5 V @ 650 mA

**Communications**
- Data Bits: 5, 6, 7, 8
- I/O Address Range: 0x000 ~ 0x3F8
- IRQ: 3, 4, 5, 6, 7, 9, 10, 11, 12, 15
- Parity: None, even and odd
- RS-422 Signal Support: TxD+, TxD-, RxD+, RxD-
- RS-485 Signal Support: DATA+, DATA-, CTS+, CTS-
- Speed: 50 bps ~ 921.6 kbps
- Stop Bits: 1, 1.5, 2
- Termination Resistor: 120 Ω

### Ordering Information
- PCM-3618-A
- 8-port RS-422/485 High-Speed Module

### PCM-3640/3641
- 8-port RS-422/485 High-speed Module
- 4-port RS-232 Module

### Features
- Transmission speeds up to 460 kbps (PCM-3641)
- Shared IRQ settings for each of 4 RS-232 ports (PCM-3641)
- Standard PC ports: COM1, COM2, COM3, COM4 compatible
- Supports Windows 98/2000/XP
- Supports WinCE 3.0, 4.2
- Powerful and easy-to-use utility (ICOM Tools)

### Specifications
**General**
- Card Interface: PC/104
- Certifications: CE
- Connectors: 4 x DB9-M
- Ports: 4
- Power Consumption: +5 V @ 200 mA (Typical); +5 V @ 250 mA (Max.)

**Communications**
- Data Bits: 5, 6, 7, 8
- Data Signals: TxD, RxD, RTS,CTS, DTR, DSR, DCD, RI, GND
- I/O Address Range: 0 x 200 ~ 0 x 3F8
- IRQ: 3, 4, 5, 6, 7, 9, 10, 11, 12, 15
- Parity: None, even and odd
- Speed: 50 bps ~ 460.3 kbps (PCM-3641)
- Stop Bits: 1, 1.5, 2
- Termination Resistor: 120 Ω

### Ordering Information
- PCM-3640-A
- 4-port RS-232 Module
- PCM-3641-A
- 4-port RS-232 High-speed Module

### PCM-3660
- Jumperless Ethernet Module

### Features
- Automatically detects 8-bit or 16-bit
- AUJ connector supports external MAUs
- Onboard 32 KB buffer for multi-packages
- Capacitive smoothing
- Supports Windows 98/2000/XP
- Supports WinCE 3.0, 4.2
- Powerful and easy-to-use utility (ICOM Tools)

### Specifications
**General**
- Boot ROM Address: C0000, C8000, D0000, or D8000H
- Card Interface: PC/104
- Certifications: CE
- Connectors: 1 x PC/104 stackthrough
- Ports: 1 x 10Base-T (RJ-45)
- Power Consumption: +5 V @ 200 mA max

**Communications**
- Data Bus: 8-bit, 16-bit, or auto-sending
- I/O Address: 200, 220, 240, 260, 280, 300, 320, 340, 360
- IRQ: 3, 4, 5, 6, 7, 9, 10, 11, 12, 15
- Standard: IEEE 802.3 10 Mbps CSMA/CD 10Base-T Transceiver

### Ordering Information
- PCM-3660-C1
- Jumperless Ethernet Module

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Courtesy of Steven Engineering, Inc.-230 Ryan Way, South San Francisco, CA 94080-6370-Main Office: (650) 588-9200-Outside Local Area: (800) 258-9200-www.stevenengineering.com
# PCI-1680U

## Features
- PCI bus specification 2.2 compliant
- Operates two separate CAN networks at the same time
- High speed transmission up to 1 Mbps
- 16 MHz CAN controller frequency
- Optical isolation protection of 1000 Vdc ensures system reliability
- I/O address automatically assigned by PCI PnP
- LED indicated transmit/receive status on each port
- Windows® DLL library and examples included
- Universal PCI Universal PCI (Supports 3.3 V or 5 V PCI bus signal)
- Supports Windows 95/98/2000/XP and Linux

## Introduction
PCI-1680U is a special purpose communication card that offers the connectivity of the Controller Area Network (CAN) to your PC. With its built-in CAN controllers, the PCI-1680U provides bus arbitration and error detection with an automatic transmission repeat function. This drastically reduces the chance of data loss and ensures system reliability. The onboard CAN controllers are located at different positions in the memory, and you can run both CAN controllers independently at the same time. Besides, PCI-1680U has a universal PCI connector, which is compatible with both new 3.3 V signaling systems and traditional 5 V signaling systems. With high-compatibility, the PCI-1680U can be used in diverse systems.

## Controller Area Network (CAN)
The CAN is a serial bus system especially suitable for networking “intelligent” I/O devices as well as sensors and actuators within a machine or plant. Characterized by its multi-master protocol, real-time capability, error correction, high noise immunity, and the existence of many different silicon components, the CAN serial bus system, originally developed by Bosch™ for use in automobiles, is increasingly being used in industrial automation.

## Direct Memory Mapping Enables Direct Access to the CAN Controller
The PCI-1680U is assigned a memory address. This is the simplest method of integrating a board in a PC and provides the quickest access since the board is treated by the PC as being standard RAM.

## Optical Isolation Protection
Onboard optical isolators protect your PC and equipment against damage from ground loops, which increases system reliability in harsh environments.

## Specifications

### General
- **Card Interface**: Universal PCI V 2.2
- **Certifications**: CE, FCC class A
- **Connectors**: 2 x D89-M
- **Dimensions**: 185 x 100 mm (7.3” x 3.9”)
- **Ports**: 2
- **Power Consumption**: 5 V @ 400 mA (Typical)

### Communication
- **CAN Controller**: SJA-1000
- **CAN Transceiver**: 82C250
- **Protocol**: CAN 2.0 A/B
- **Signal Support**: CAN_H, CAN_L
- **Speed**: 1 Mbps

### Protection
- **Isolation Protection**: 1,000 Vdc

### Environment
- **Humidity (Operating)**: 5 – 95% RH, non-condensing (refer to IEC 68-2-3)
- **Operating Temperature**: 0 – 65° C (refer to IEC 68-2-1, 2) (32 – 149° F)
- **Storage Temperature**: -25 – 85° C (-13 – 185° F)

### Ordering Information
- **PCI-1680U-A**: 2-Port CAN Interface Universal PCI Communication Card w/ Isolation
PCL-841
PCM-3680

Features
- Operates two separate CAN networks at the same time
- High speed transmission up to 500 kbps
- 16 MHz CAN controller frequency
- Optical isolation protection of 1000 V_{oc} ensures system reliability
- Wide IRQ selection for each port: IRQ 3, 4, 5, 6, 7, 9, 10, 11, 12, 15
- LEDs indicate Transmit/Receive status on each port
- Direct memory mapping enables very fast access to the CAN controllers
- Supports Windows® 95/98/2000/XP and Linux

Specifications
General
- Card Interface: ISA
- Certifications: CE
- Connectors: 2 x DB9-M
- Dimensions: 185 x 100 mm (7.3” x 3.9”) (PCL-841)
- Ports: 2
- Power Consumption: +5 V @ 400 mA typical, 950 mA max.
- Weight (Gross): 0.6 kg (1.3 lb)

Communications
- CAN Controller: SJA-1000
- CAN Transceiver: 82C250
- Protocol: CAN2.0 A/B
- IRQ: 3, 4, 5, 6, 7, 9, 10, 11, 12, 15
- Memory Segment Base Address: From C800H to EFO0H
- Signal Support: CAN_H, CAN_L

Protection
- Isolation Protection: 1,000 V_{oc}

Environment
- Operating Temperature: 0 – 50° C (32 – 122° F)

Ordering Information
- PCL-841-A: Dual-port Isolated CAN-bus Interface ISA Card

Specifications
General
- Card Interface: PC/104
- Certifications: CE
- Connectors: 2 x DB9-M w/cable
- Dimensions: 90 x 96 mm (3.6” x 3.8”)
- Ports: 2
- Power Consumption: +5 V @ 400 mA

Communications
- CAN Controller: SJA-1000
- CAN Transceiver: 82C250
- Protocol: CAN2.0 A/B
- IRQ: 3, 4, 5, 6, 7, 9, 10, 11, 12, 15
- Memory Segment Base Address: From C800H to EFO0H
- Signal Support: CAN_H, CAN_L

Protection
- Isolation Protection: 1,000 V_{oc}

Environment
- Operating Temperature: 0 – 65° C (32 – 122° F)

Ordering Information
- PCM-3680-A: Dual-port Isolated CAN Interface Module
Accessories

OPT1A: 1 m RJ-48 to male DB9 RS-232/422/485 cable
To be used with:
EDG-4508P/16P, EDG-4508(R)+/16(R)+, ADAM-4570, ADAM-4570L, ADAM-4571, ADAM-4570S, ADAM-4571S, ADAM-4579

OPT10: 30 cm RJ-48 to male DB9 RS-232/422/485 cable
To be used with:
EDG-4508P/16P, EDG-4508(R)+/16(R)+, ADAM-4570, ADAM-4570L, ADAM-4571, ADAM-4570S, ADAM-4571S, ADAM-4579

OPT1E: 1 m RJ-45 to male DB9 cable
To be used with:
PCI-1610AJU

OPT1F: 30 cm RJ-45 to male DB9 cable
To be used with:
PCI-1610AJU

OPT4A: 30 cm DB-37 to 4 x male DB9 cable
To be used with:
PCI-1610A/B/CU, PCI-1611U, PCI-1612A/B/AU/BU/CU, PCL-746+, PCL-846A/B, PCL-849A/B+/L

OPT8C: 1 m DB62 to 8 x male DB25 cable
To be used with:
PCI-1620A/B/AU/BU, PCI-1625U, PCL-844+, PCL-858A/B

OPT8H: 1m DB-62 to 8 x male DB9 cable
To be used with:
PCI-1620A/B/AU/BU, PCI-1625U, PCL-844+, PCL-858A/B

OPT8I: 1 m DB-78 to 8 x male DB25 cable
To be used with:
PCI-1622CU

OPT8J: 1 m DB-78 to 8 x male DB9 cable
To be used with:
PCI-1622CU

OPT8AP: 8-port RS-232 Connection Box (DCE) with female DB25 connector
To be used with:
PCI-1620A/B/AU/BU, PCI-1625U, PCL-844+, PCL-858A/B

OPT8BP: 8-port RS-232 Connection Box (DTE) with male DB25 Connector
To be used with:
PCI-1620A/B/AU/BU, PCI-1625U, PCL-844+, PCL-858A/B

OPT8FP: 8-port RS-422 to RS-232 converter connection box with isolation protection
Isolation Protection 2500Vdc