

# PCI Serial Card

2 Port RS-232 High-Speed Serial PCI Card

4 Port RS-232 High-Speed Serial PCI Card

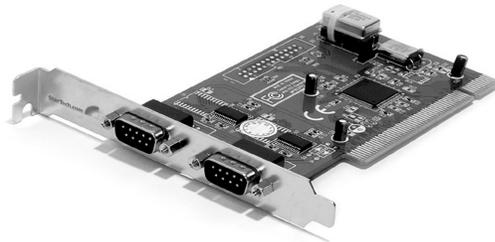
8 Port RS-232 High-Speed Serial PCI Card

**PCI2S950**

**PCI4S950**

**PCI8S950**

**Instruction Manual**



Actual product may vary from photo

**StarTech.com**

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## **FCC Compliance Statement**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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## Introduction

Thank you for purchasing a StarTech.com 16950 PCI Serial card. The latest in Plug and Play expansion cards, this high-speed serial card provides your computer with two, four, or eight 16C950 UART (Universal Asynchronous Receiver-Transmitter) RS-232 serial ports (varies by model). You can connect any 9-pin external serial device such as a modem, mouse, or ISDN adapter to your system and enjoy speeds of up to 15 Mbits/sec (asynchronous mode) or 60 Mbits/sec (isochronous) mode. This 32-bit, 33MHz PCI card is also backwards compatible with UART versions to ensure compatibility with a wide range of serial peripherals.

## Features

- Provides two/four/eight 16C950 UART RS-232 serial ports
- Buffers up to 128 bytes for FIFO receiving/transmitting
- Fully adjustable IRQ trigger levels
- Automated flow-control to prevent UART overrun
- Backward compatible with 16C450, 16C550, 16C650, and 16C750 UARTs
- Complies with PCI Bus specification 2.2, Power Management 1.0, and Plug and Play specifications
- Backed by StarTech.com's lifetime warranty

## Before You Begin

To ensure a quick and easy card installation, please read through this section carefully before attempting to install the card.

### System Requirements

- An IBM PC running Windows XP/2000/ME/98/95 or NT4.0
- An available PCI slot
- A CD-ROM or other compatible optical drive (for driver installation)

**WARNING!** PCI cards, like all computer equipment, can be severely damaged by static electricity. Be sure that you are properly grounded before opening your computer case or touching your PCI card. StarTech.com recommends that you wear an anti-static strap when installing any computer component. If an anti-static strap is unavailable, discharge yourself of any static electricity build-up by touching a large grounded metal surface (such as the computer case) for several seconds. Also be careful to handle the PCI card by its edges and not the gold connectors.

## Contents

This package should contain:

- 1 x PCI serial card
- 1 x Port “dongle” connector (PCI4S950 only)
- 2 x Port “dongles” + 1 ribbon cable panel (PCI8S950 only)
- 1 x Installation CD
- 1 x Instruction Manual

## Installation

This section will guide you through the installation of your PCI card and the related software. Please read through the instructions carefully and complete each step in the order listed.

### Installing the Card

**PCI2S950 USERS NOTE:** Advanced computer users may wish to change the clock options on this card. Please see “Advanced Performance Configuration” on page 4 before installing the card.

1. Make sure that your system is unplugged and you are grounded.
2. Remove the cover of your system (see your computer’s user manual for details, if necessary) and gently turn your computer onto its side.
3. Locate an empty PCI slot (usually white in color) and remove the metal plate that covers the rear bracket. You may need a Phillips screwdriver to perform this step. **Retain this screw!** You will need it to secure the card later.
4. Gently insert the card into the empty slot, making sure it is firmly seated.
- 5a. Secure the card in place using the screw you removed in Step 3.
- 5b. If you purchased a PCI8S950 (8 port model), connect the ribbon cable panel for the second dongle connector to the pins on the card, with the red stripe on the ribbon cable facing Pin 1 (as marked). Remove the screw and metal plate on another available slot. Secure the second dongle connector in place with the screw.
- 5c. If you purchased a PCI4S950 (4 port model) or PCI8S950 (8 port model), connect the port dongle(s) provided to the port on the back of the card (and the additional dongle connector you installed, if applicable).
6. Put your computer case back on.

### Installing the Drivers

The current software drivers for this product are included on the provided installation CD. If you lose the installation CD or want to update the existing drivers in future, please visit **www.startech.com** to download the most current version of the drivers. For advanced configuration instructions, consult the PDF files located in the **doc** folder on the installation CD. To view these files, you will need **Adobe Acrobat Reader** which is available as a free download from [www.adobe.com](http://www.adobe.com).

#### Windows XP/2000

1. Windows will automatically detect the new hardware and start the **Add New Hardware Wizard**. Click **Next**.
2. Insert the installation CD that came with the card into your computer's CD-ROM or other compatible optical drive. Choose **Search for a suitable driver...** (Windows 2000) or **Install the software automatically** (Windows XP). Click **Next**.
3. You may receive a warning that the driver is not digitally signed. Choose **OK** (Windows 2000) or **Continue Anyway** (Windows XP) when prompted to complete the installation.
4. When Windows is done copying files, you will see a message above the System Tray (next to the clock) stating that the card is installed and ready to use. You may now attach your serial devices.

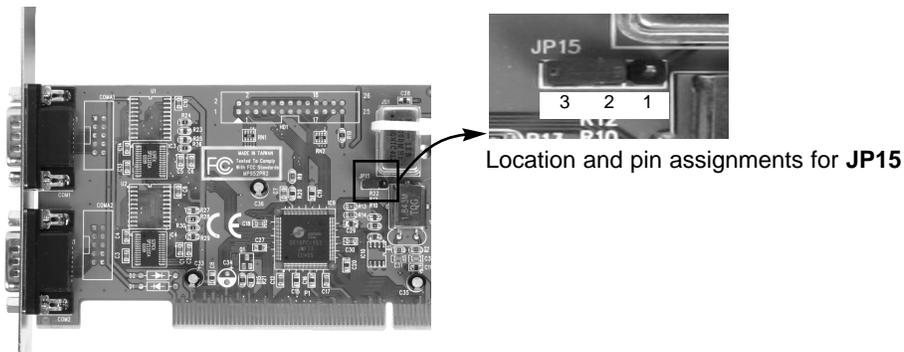
#### Windows 95/98/98SE/ME

1. Windows will automatically detect the new hardware and start the **Add New Hardware Wizard**. Click **Next**.
2. Choose **Search for the best driver for my device** and click **Next**.
3. Insert the installation CD that came with the card into your computer's CD-ROM or other compatible optical drive. Check **CD-ROM** from the list. Click **Next**.
4. The system will locate the appropriate driver. Click **Next**.
5. When the system is finished installing the driver, click **Finish**. Once the main driver for the card is installed, the system will install the serial ports automatically.

#### Windows NT4

1. Insert the driver disk into the disk drive. Browse to the WinNT4 folder on the installation CD and double-click on the **Install\_Ssr.exe** file.
2. When the installation application starts, click **Next** to continue.
3. Ensure that **Install** is selected, then click **Next**.
4. Click **OK** to accept the license agreement. The system will install the drivers and the ports will be ready for use.

## Advanced Performance Configuration (PCI2S950 only)



As an option, you can choose to configure the clock frequency of your card by setting the **JP15** jumper pins. You can alter this setting by placing the jumper on the pins according to the following chart:

Pins	Setting
3-2	1.843 MHz
2-1	40.0 MHz (OSC)

As a third option, you can choose to replace the 40.0 MHz oscillating (OSC) crystal with an OSC crystal with a frequency that satisfies your needs.

**WARNING:** The following instructions are intended for advanced computer users only. If you are not comfortable with or knowledgeable about internal computer parts, please do not attempt to configure your card in this manner. Be sure to consult the charts on the following page before adjusting your card.

1. Remove the plastic fastener from the OSC crystal (located immediately above and to the right of **JP15**) and gently lift the crystal from the crystal socket.
2. Install the replacement OSC crystal according to the manufacturer's instructions. **If you attach the crystal incorrectly you can damage it. Be sure to attach the crystal properly to avoid damaging the card or other components.**
3. You may need to adjust the FIFO and Crystal (or Data Rate) settings for the ports. Consult your operating system's documentation for more information.

## Instruction Manual

Example Clock Options and their associated maximum baud rates:

Clock Frequency (MHz)	CPR Value	Effective Crystal Frequency	% Error from 1.8432 MHz	Max Baud with CPR=1, TCR=16	Max Baud with CPR=1, TCR=4
1.8432	0 x 08 (1)	1.8432	0.00	115,200	460,800
7.3728	0 x 20 (4)	1.8432	0.00	460,800	1,843,200
14.7456	0 x 40 (8)	1.8432	0.00	921,600	3,686,400
18.4320	0 x 50 (10)	1.8432	0.00	1,152,000	4,608,000
32.0000	0 x 8B (17.375)	1.8417	0.08	2,000,000	8,000,000
33.0000	0 x 8F (17.875)	1.8462	0.16	2,062,500	8,250,000
40.0000	0 x AE (21.75)	1.8391	0.22	2,500,000	10,000,000
50.0000	0 x D9 (27.125)	1.8433	0.01	3,125,000	12,500,000
60.0000	0 x FF (31.875)	1.8824	2.13	3,750,000	15,000,000

Maximum Baud Rates available at all TCR Sampling Clock Values:

Samp. Clock	TCR Value	System Clock (MHz)							
		1.8432	7.3728	14.7456	18.432	32.000	40.000	50.000	60.000
16	0 x 00	115,200	460,750	921,600	1.152M	2.000M	2.500M	3.125M	3.750M
15	0 x 0F	122,880	491,467	983,040	1.228M	2.133M	2.666M	3.333M	4.000M
14	0 x 0E	131,657	526,571	1.053M	1.316M	2.285M	2.857M	3.571M	4.285M
13	0 x 0D	141,785	567,077	1.134M	1.417M	2.461M	3.076M	3.846M	4.615M
12	0 x 0C	153,600	614,333	1.228M	1.536M	2.666M	3.333M	4.166M	5.000M
11	0 x 0B	167,564	670,182	1.340M	1.675M	2.909M	3.636M	4.545M	5.454M
10	0 x 0A	184,320	737,200	1.474M	1.843M	3.200M	4.000M	5.000M	6.000M
9	0 x 09	204,800	819,111	1.638M	2.048M	3.555M	4.444M	5.555M	6.666M
8	0 x 08	230,400	921,500	1.843M	2.304M	4.000M	5.000M	6.250M	7.500M
7	0 x 07	263,314	1.053M	2.106M	2.633M	4.571M	5.714M	7.142M	8.571M
6	0 x 06	307,200	1.228M	2.457M	3.072M	5.333M	6.666M	8.333M	10.000M
5	0 x 05	368,640	1.474M	2.949M	3.686M	6.400M	8.000M	10.000M	12.000M
4	0 x 04	460,800	1.843M	3.686M	4.608M	8.000M	10.000M	12.500M	15.000M

## Specifications

Form Factor/Interface	Full-size PCI, 32-bit PCI standard ver. 2.2 compliant
Maximum Data Transfer Rate	15 Mbits/sec (asynchronous mode) 60 Mbits/sec (isochronous mode) (Some speeds may require a different clock crystal)
Connectors	DB-9 RS-232 serial (male)
UART Chipset	Oxford OX16PCI952 (PCI2S950) Oxford OX16PCI954 (PCI4S950, PCI8S950)
Regulatory Certifications	FCC Class B, CE, UL

## Accessory Products from StarTech.com

Contact your local StarTech.com dealer or visit [www.startech.com](http://www.startech.com) for cables or other accessories that will help you get the best performance out of your new product.

3 ft. AT Modem Cable DB9F-DB25M

**MC3MF**

6 ft. AT Modem Cable (male to female)

**MC6MF**

6 ft. 9-pin Straight Through Cable (male to female)

**MXT100**

25 ft. 9-pin Straight Through Cable (male to female)

**MXT100\_25**

Adapter DB9F to DB25F

**AT925FF**

Adapter DB9F to DB25M

**AT925FM**

Slimline Adapter DB9F to DB25M

**AT925SFM**

10 ft. Cross Wired Serial/Null Modem Cable DB9F to DB25M

**SCNM925FM**

10 ft. Cross Wired Serial/Null Modem Cable DB9 F/F

**SCNM9FF**

25 ft. Cross Wired Serial/Null Modem Cable DB9 F/F

**SCNM9FF25**

10 ft. Cross Wired Serial/Null Modem Cable DB9 F/M

**SCNM9FM**

6 ft. Modem Cable DB9F-DB9F

**MXT100FF**



## Technical Support

StarTech.com's lifetime technical support is an integral part of our commitment to provide industry-leading solutions. If you ever need help with your product, visit [www.startech.com/support](http://www.startech.com/support) and access our comprehensive selection of online tools, documentation, and downloads.

## Warranty Information

This product is backed by a lifetime warranty. In addition, StarTech.com warrants its products against defects in materials and workmanship for the periods noted, following the initial date of purchase. During this period, the products may be returned for repair, or replacement with equivalent products at our discretion. The warranty covers parts and labor costs only. StarTech.com does not warrant its products from defects or damages arising from misuse, abuse, alteration, or normal wear and tear.

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