



# 422 Hardware Installation Guide

## Product Overview

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The RocketPort® PCI 422 series multiport serial card fits into the PCI slot of a personal computer, and uses a 36 MHz processor that is specifically designed to process asynchronous serial communications. The RocketPort PCI 422 supports RS-422 exclusively, in either DTE or DCE mode.

The RocketPort PCI 422 series uses Application Specific Integrated Circuits (ASICs) technology to replace most hardware components, including:

- The processor
- A serial controller
- Bus interface logic and other miscellaneous logic

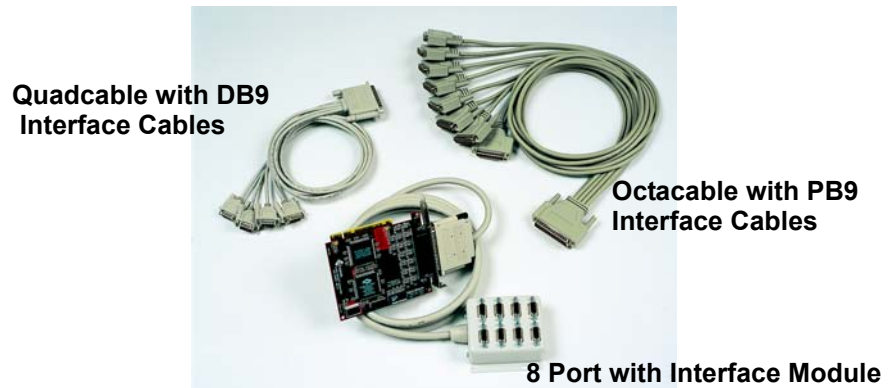
You can install up to four RocketPort PCI 422 cards in one PC, with up to 32 additional serial ports, and you can install any combination of PCI-bus and ISA-bus RocketPort cards.

**Product List and Pictures**

This *Hardware Installation* document discusses the following serial controllers.

Type	Ports	Interface Type
DB9 Quadcable	4	This model has four DB9 male connectors for RS-422 serial port connections. Includes a fanout cable with four standard DB9 male connectors.
8	8	Requires one 8-port interface module.
DB9 Octacable	8	This model has eight DB9 male connectors for RS-422 serial port connections. Includes an eight port fanout cable with standard DB9 male connectors.

**Note:** The cables and interface modules shipped with this product are described and illustrated in [RocketPort Interfaces](#) on Page 5.



**Locating Drivers and Software Documentation**

You can download the latest drivers and software installation documents from the web site at <http://support.comtrol.com/Download.asp>.

**RocketPort Terminology**

For the purposes of the following discussions, “RocketPort ISA” cards means any interface type including 4-port RJ45, 8-port RJ11, Quadcable, and Octacable, or 8/16/32-port model.

These products are referred to as “RocketPort PCI” cards:

- RocketPort PCI-bus boards (any interface type including 4-port RJ45, 8-port RJ11, Quadcable, Octacable, and 8/16/32-port models)
- RocketPort *Plus* models
- RocketPort PCI 422 models
- RocketPort Universal PCI-bus boards (any interface type including Quadcable, Octacable, 8-port low profile, 16/32-port models)

## Before Installing the Hardware

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Read this subsection:

- *If you already have one or more RocketPort ISA cards installed in your system.*
- *If you plan to install a combination of RocketPort ISA and RocketPort PCI cards at this time.*

### Existing RocketPort ISA Cards Installed

You must deconfigure and remove any existing RocketPort ISA cards before installing RocketPort PCI cards. After you have successfully installed the RocketPort PCI cards, reinstall the RocketPort ISA cards.

#### *Explanation*

The BIOS on your computer automatically handles I/O addressing for RocketPort PCI cards when you first power up the computer after installing the cards.

I/O addresses for RocketPort ISA cards are set manually using DIP switches on the card. If you install an ISA card *before* installing a RocketPort PCI card, the ISA card addressing may interfere with the computer's ability to recognize the RocketPort PCI card which may prevent the PCI card from functioning properly.

#### *Additional Considerations*

If you are mixing RocketPort ISA and PCI cards, set the DIP switches on the ISA cards so that the first ISA card that you install is the "first" card for I/O addressing purposes, even if it is physically the second, third, or fourth card that you install.

## Installing the RocketPort Hardware

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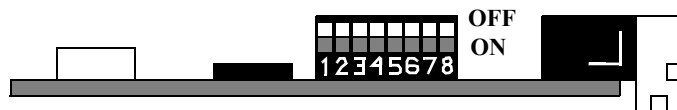
Hardware installation consists of optionally setting the DIP switch for a port to DCE, installing the card in the system, and connecting the interface.

### Card Installation

Use the following procedure to install the card.

**Note:** *If you are installing PCI and ISA RocketPort cards, install the PCI cards and driver before installing and configuring the ISA cards.*

1. **For the 2 port SMPTE card only:** to configure a specific port to DCE mode in SMPTE, set the switch for that port to **ON**.



**Note:** *The default switch settings are set to OFF for DTE mode.*

2. Turn off your computer.
3. Remove the system cover.
4. Select a PCI expansion slot.
5. Remove the slot cover.
6. Insert the card into the slot and seat it securely.
7. Reinstall the expansion slot retaining screw.

**Note:** *You may want to write down the model number and serial number of the card before installation.*

**Note:** *You may want to leave the system unit cover off until the driver is installed and running, in case you need to change the DTE/DCE switch setting.*

8. Attach the interface that came with your card using the appropriate procedure:
  - [Installing a Quad / Octacable Interface](#) on Page 4
  - [Installing a Standard or Surge Interface Module for an 8 Port Card](#) on Page 4

### Installing a Quad/Octacable Interface

Use this procedure to complete the Quadcable or Octacable hardware installation.

**Note:** *Quad and Octacable models support RS-232 exclusively.*

1. Attach the male end of the Quadcable or Octacable to the card.
2. Tighten the retaining screws.  
See [RocketPort Interfaces](#) on Page 5, if you need information about the connectors.
3. Use the software installation and configuration document for your operating system, with the driver to complete your installation.  
For the latest software and documentation, go to <http://support.comtrol.com/download.asp>.

**Note:** *After installing the hardware, you must install the device driver for your operating system.*

4. Verify that the ports are functioning properly and connect your peripheral devices.

### Installing a Standard or Surge Interface Module for an 8 Port Card

Use this procedure to complete the installation with a standard interface module.

**Do not connect the RocketPort cable to the card or the interface module when the PC is powered on. This prevents possible damage to the interface module electronics.**



1. Attach the interface module cable to the connector on the RocketPort card mounting bracket.
2. Tighten the retaining screws.
3. Use the software installation and configuration document for your operating system, with the driver to complete your installation.  
For the latest software and documentation, go to <http://support.comtrol.com/download.asp>.

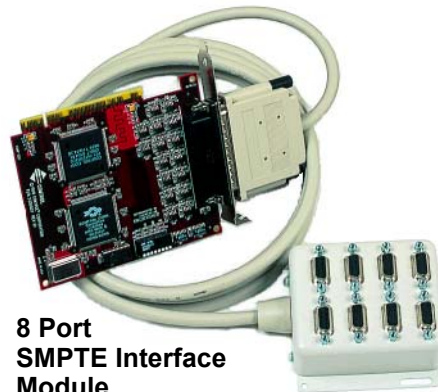
**Note:** *After installing the hardware, you must install the device driver for your operating system.*

4. Verify that the ports are functioning properly and connect your peripheral devices.

## RocketPort Interfaces

A cable or interface module may be shipped with RocketPort PCI 422 series. The type of cable or interface module shipped with RocketPort PCI 422 series depends on the product part number. The cables and interface modules are described below:

- Quadcable and Octacable fanout cables with the following configurations:
  - Quadcable DB9 male
  - Octacable DB9 male
- Interface modules with the following configurations:
  - 8-port DB9 male
  - 8-port SMPTE (Society of Motion Picture and Television Engineers) 207M DB9 female



**8 Port SMPTE Interface Module**



**Octacable DB9**

*Note: RS-422 supports up to 10 multidrop devices.*

## Cabling Requirements

Use the appropriate pinout specification provided below for your hardware.

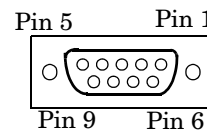
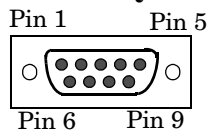
### DB9 Interfaces

The RocketPort PCI 422 supports Quadcable, Octacable, an 8-port box interface equipped with male DB9 connectors, and the 8-port SMPTE 207M interface module, which is equipped with female DB9 connectors.

#### DB9 Pinouts

The following figures and table illustrate the signals present on DB9 connectors.

#### DB9 Male for Quad/Octa    DB9 Female for SMPTE



Pin	DTE Mode	DCE Mode
1	Not Connected	Not Connected
2	TxD-	RxD-
3	RxD+	TxD+
4 to 6	Not used	Not used
7	TxD+	RxD+
8	RxD-	TxD-
9	Chassis Ground	Chassis Ground

*Building DB9 Loopback Plugs*

Loopback connectors are plugs, with pins wired together, that are used in conjunction with the RocketPort diagnostic software to test serial ports. To build a DB9 loopback plug, wire the following pins together:

- Pin 2 to 8
- Pin 3 to 7

## Specifications

The following tables illustrate RocketPort PCI 422 conditions and specifications.

Environmental Condition	Value
<b>Air temperature:</b> System on System off	0 to 40°C -20 to 85°C
<b>Humidity (non-condensing):</b> System on System off	8% to 80% 20% to 80%
<b>Altitude:</b>	0 to 10,000 feet (0 to 3048 meters)

### Electromagnetic Compliance

**Emission:**

Canadian EMC requirements  
CISPR-22/EN55022 Class B  
FCC PART 15: Class B

**Immunity:**

EN50082: 801-2 ESD, 801-3 RF, 801-4 FT

**Safety:**

UL recognized.

RocketPort PCI 422 Card	Specification
<b>Baud Rate:</b> RS-422 DTE/DCE	50 to 460.8K baud
<i>Note: Baud rate is dependent upon hardware and operating system configuration.</i>	
<b>Bus interface</b>	PCI
<b>Control by device driver:</b> Data bits Parity Stop bits	7 or 8 Odd, Even, None 1 or 2
<b>Current consumption</b>	<b>+5V</b> 850mA
<b>Power consumption</b>	4.25 W
<b>Dimensions</b>	4.9" by 4.2"
<b>Heat output</b>	14.49 BTU/Hr
<b>I/O ports/expansion slot</b>	From 4 to 8
<b>Interfaces</b>	RS-422
<b>Mean time between failures (MTBF)</b>	55.8 Years
<b>Mode (<i>hardware selectable</i>)</b>	DTE or DCE
<b>RocketPort cards/system</b>	4
<b>SMPTE standard</b>	207M
<b>Surge protection</b>	Provides ESD surge protection minimum of 10KV @ 200A for a duration of 1 ns.

Interface Module Type	Mounting Dimensions	Overall Dimensions
RS-422, 8-Port	3.37" x 2.69"	3.68" x 3.6" x 1.6"

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## FCC Notices

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**Radio Frequency Interference (RFI) (FCC 15.105)**

This equipment has been tested and found to comply with the limits for Class B digital devices pursuant to Part 15 of the FCC Rules.

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. 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 and correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the distance between the equipment and receiver.
- Connect the equipment to 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.

**Labeling Requirements (FCC 15.19)**

This equipment complies with Part 15 of FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

**Modifications (FCC 15.21)**

Changes or modifications to this equipment not expressly approved by Comtrol Corporation may void the user's authority to operate this equipment.

**Serial Cables (FCC 15.27)**

This equipment is certified for Class A operation when used with shielded cables.



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## Troubleshooting and Running Diagnostics

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This section describes how to diagnose and troubleshoot problems. When a problem occurs, first determine that your RocketPort is functioning properly. Start by creating a bootable diagnostics diskette.

### Creating a Diagnostics Diskette

You need two files to create a bootable floppy diagnostic diskette:

- The **Rawrite** utility that creates a bootable diagnostics diskette.
- The diskette image file (\*.i).

You can find both files on the *Control Software and Documentation CD* or at <ftp://ftp.comtrol.com/RPort>.

This discussion outlines how to create a bootable diagnostics diskette. You can use our Web site <http://support.comtrol.com/bootdiag.asp> to:

- Download the necessary files.
- Easily find specific procedures for your operating system to create the bootable diskette.

### Diagnostics Overview

After you create a bootable diagnostic diskette, you can use the diagnostic program to:

- Confirm that the hardware is functioning.
- Determine resolutions to conflicts during installation.
- Perform stress test on the cards.

For example, you may want to run the diagnostics overnight to evaluate a possible problem. You will need loopback plugs for each port that you want to stress test. If you need additional loopback plugs, you can use the appropriate *Building Loopback Plugs* discussion in this document to build additional loopback plugs.

### Running the Diagnostics

Use the following procedure to run the diagnostics:

1. Insert the diagnostics diskette you created and restart your machine. The diagnostic starts automatically.
2. Verify that the system locates the RocketPort card.
3. Follow the remainder of the online instructions.

If the diagnostics did not pass you may want to use the following discussion to diagnose your problem.

### Resolving Failures

If the diagnostics could not find the card:

- Turn off the power and reseal the card into the slot.
- Check for proper cable connections.
- Check for proper installation of the loopback plug.

Try running the diagnostics again. If they fail again, you may have a bad port, contact Technical Support.

## Technical Support

Comtrol has a staff of support technicians available to help you. You should review [Troubleshooting and Running Diagnostics](#) on Page 9 before calling Technical Support. In addition, the Web site has [Online Technical Support](#) available. If you call for Technical Support, please have the following information available:

Item	Your System Information
Model number	
Serial number	
Interface type	
Operating system type, release, and service package	
Device driver version	
PC make, model, speed, and single or dual processor	
List other devices in the PC and their addresses	

Comtrol	Headquarters	Europe
Phone	(763) 494-4100	+44 (0)1869 323220
FAX	(763) 494-4199	+44 (0)1869 323211
E-mail	<a href="mailto:support@comtrol.com">support@comtrol.com</a>	<a href="mailto:support@comtrol.co.uk">support@comtrol.co.uk</a>
Web support	<a href="http://support.comtrol.com/">http://support.comtrol.com/</a>	
Downloads	<a href="http://.support.comtrol.com/download.asp">http://.support.comtrol.com/download.asp</a>	
Web site	<a href="http://www.comtrol.com">www.comtrol.com</a>	<a href="http://www.comtrol.co.uk">www.comtrol.co.uk</a>
FTP site	<a href="ftp.comtrol.com">ftp.comtrol.com</a>	

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