

RocketPort® PCI 422 Hardware Installation

Introduction

This Hardware Installation document discusses the following information:

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Product Overview

The RocketPort PCI 422 series multiport serial card fits into the PCI slot of a personal computer, and uses a 36 MHz processor specifically designed to process asynchronous serial communications.

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

- The processor
- Serial controller
- Bus interface logic and other miscellaneous logic

To eliminate memory mapping conflicts, the RocketPort PCI 422 series is I/O mapped.

This *Hardware Installation* document discusses the following RocketPort PCI 422 serial controllers:

Name	Ports	Interface Type
Quadcable*	4	Includes a fanout cable with DB9 connectors.
8**	8	Requires one 8-port interface box.
Octacable	8	Includes a fanout cable with DB9 connectors.

* *Quadcables have the capability to be 8-port cards with an 8-port interface. Most drivers view the 4-port as an 8-port card.*

** *For interface information, see the [RocketPort Interface Overview](#) discussion later in this Card.*

The RocketPort PCI 422 supports RS-422 exclusively, in either DTE or DCE mode. You can install up to four RocketPort PCI 422 cards in one PC, for a total of 32 additional serial ports, and you can install a combination of PCI-bus and ISA-bus RocketPort cards.

For driver installation, see the [software installation and configuration](#) documentation or the driver **readme** file for your operating system.

RocketPort Terminology

For the purposes of the following discussions, these products are referred to as “RocketPort ISA” cards:

- RocketPort ISA-bus boards (any interface type including 4J, 8J, Quadcable, and Octacable)
- RocketPort 485

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

- RocketPort PCI-bus boards (any interface type including 4J, Quadcable, and Octacable)
- RocketPort *Plus*
- RocketPort PCI 422

Before Installing the Hardware

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.

Installing Both RocketPort ISA and PCI Cards:

You must complete installation of all RocketPort PCI cards before beginning to install any RocketPort ISA cards.

Explanation:

I/O addressing for RocketPort PCI cards is handled automatically by the computer’s BIOS 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 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

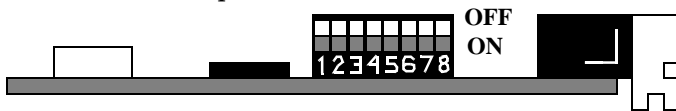
Hardware installation consists of:

- Installing the card in the system, optionally setting the DIP switch for a port to DCE
- Connecting the peripherals

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

Use the following procedure to install the card.

1. To configure a specific port to DCE mode, set the switch for that port to **ON**.



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

Note: If you are installing PCI and ISA RocketPort cards, install the PCI cards and driver before installing and configuring the ISA cards. See the [software installation and configuration](#) documentation or the driver *readme* file for information.

2. Turn off your computer.
3. Remove the system cover.
4. Select a PCI expansion slot.
5. Remove the slot cover.

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

6. Insert the card into the slot, seating it securely.
7. Reinstall the expansion slot retaining screw.

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:

If installing a Quad/Octacable:

- a. Attach the male end of the Quadcable or Octacable to the card.
- b. Tighten the retaining screws.
- c. Go to Step 9 to complete the installation.

If installing a standard interface box:

- a. Attach the interface box cable to the connector on the RocketPort card mounting bracket.
- b. Tighten the retaining screws.

- c. Go to Step 9 to complete the installation.
9. Connect your peripheral devices.
 10. Use the [software installation and configuration](#) documentation or device driver *readme* file to install the driver to complete your installation.

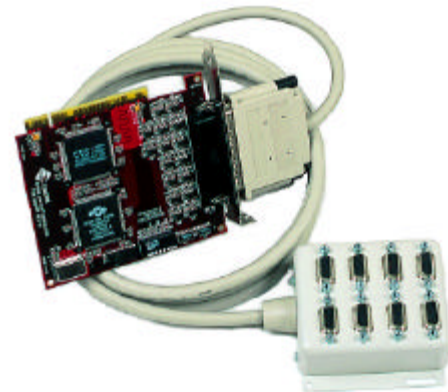
RocketPort Interface Overview

The RocketPort series provides several interface options:

- Quadcable and Octacable fanout cables, which are available with the following configurations:
 - Quadcable DB9
 - Octacable DB9



- Interface boxes are available in two configurations:
 - 8-port DB9 male
 - 8-port SMPTE (Society of Motion Picture and Television Engineers) 207M DB9 female



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

Cabling Requirements

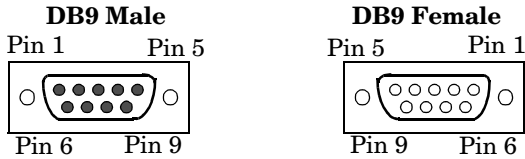
For building cables, use shielded, twisted-pair cable (category 5 recommended). Use the appropriate “Pinout” discussion for your hardware.

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 box, which is equipped with female DB9 connectors.

DB9 Pinouts

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



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 plugs are used with the Diagnostics 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 conditions and specifications.

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

Electromagnetic Compliance	Status
Emission: Canadian EMC requirements CISPR-22/EN55022 Class B FCC PART 15: Class B	Yes
Immunity: EN50082: 801-2 ESD, 801-3 RF, 801-4 FT	Yes
UL Recognized	Yes

RocketPort PCI 422 Card	Specification
Baud Rate: RS-422 DTE/DCE	50 to 460.8K baud
<i>Note: Baud rate is dependent upon hardware and operating system configuration.</i>	
Bus interface	PCI
Control by device driver: Data bits Parity Stop bits	7 or 8 Odd, Even, None 1 or 2
Current Consumption	$\pm 5V$ 850 mA
Dimensions	4.9" by 4.2"
Heat output	14.49 BTU/Hr
Interfaces	RS-422
Interrupt (<i>software selectable</i>)	None, 3, 4, 5, 9, 10, 11, 12, 15
Mean time between failures (MTBF)	55.8 Years
Mode (<i>hardware selectable</i>)	DTE or DCE
Power consumption	4.25 W
RocketPort cards/system	4
SMPTE standard	207M
Surge protection	Provides ESD surge protection exceeding 10 KV
Weight	1 lb 10 oz. (with cable)

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

FCC Notices

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 separation between the equipment and the 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 B operation when used with shielded cables.

Troubleshooting and Running Diagnostics

The first step to troubleshooting a problem is to determine that your RocketPort is functioning properly. To do so, you can create a bootable 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 *Comtrol Software and Documentation CD* or [download](#) them from the ftp site.

Note: *If you have the Comtrol Software and Documentation CD, you can use the Quick Start Card for procedures for your operating system.*

Creating a Bootable Diagnostics Diskette

This discussion outlines how to create a bootable diagnostics diskette. You can use [this file](#) on our web site 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.
- Provide you with the ability to stress test 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

You can run the diagnostics using one of the following methods:

- Execute the **rocket.exe** file on the diskette in a native DOS environment.

Note: *The diagnostic occasionally fails when running in Windows MS-DOS(R) windows.*

- Boot the system from diagnostics diskette you created.

Use the following procedure to run the diagnostics:

1. Restart your machine in DOS mode or insert the diagnostics diskette.
2. Execute **rocket.exe** or start the machine.
The diagnostic starts automatically,
3. Verify that the system locates the RocketPort card.
4. Follow the remainder of the on-line 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. Before you call, please have the following information available:

Item	Your System Information
Model number	
Serial number	
Interface type	
I/O address and IRQ	
Operating system type and release	
Device driver version	
PC make, model, and speed	
List other devices in the PC and their addresses	

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Web site	www.comtrol.com	www.comtrol.co.uk
FTP site	ftp.comtrol.com	

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