



User Guide



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Overview

Product Overview

The RocketPort INFINITY is a high-speed in-server serial expansion card that is RS-232/422/485 software-selectable for use in 3.3V universal PCI or PCI-X slots in a host system. The RocketPort INFINITY was designed to support speeds up to 921Kbps (if connected using fan-out cables) or 460.8Kbps (if using an interface box).

The RocketPort INFINITY series uses Control Application Specific Integrated Circuit (ASIC) technology to replace most hardware functionality to minimize components, including:

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

You can install up to four RocketPort INFINITY cards in one computer, providing a maximum of 128 additional serial ports. For information about RocketPort INFINITY models and specifications, see [Specifications and Notices](#) on Page 21.

Before Installing the RocketPort INFINITY

If you are planning on installing the RocketPort INFINITY in a Windows[®] system make sure that you have located and extracted the device driver to a location that is available to the host system before installing the card in the host.

You can use the *Software and Documentation CD* to locate the latest device drivers and documentation or use the files on the CD for your installation. Optionally, you can use the links in [Locating the Latest Drivers and Documentation](#) on Page 6 to locate the latest files.










You may want to record the model and serial number of the RocketPort INFINITY before installing the card in the event you need to call technical support.





Do not connect RS-422/485 devices until the appropriate port interface type has been configured in the device driver. The driver default port setting is RS-232.



Locating the Latest Drivers and Documentation

This table contains links the software and installation documentation.

Operating System	Device Drivers and Documentation	Download
Any	<i>RocketPort INFINITY User Guide</i>	
FreeBSD 5	Device driver (32-bit)	
FreeBSD 6	Device driver (32-bit)	
Linux [®]	Device driver (32/64-bit) See the readme file packaged with the driver for installation and configuration information.	
QNX [®] 6.x	Device driver (32-bit)	
SCO [®] OpenServer [™] 5	Device driver (32-bit)	
SCO OpenServer 6	Device driver (32-bit)	
Windows 2000, Windows XP, Windows Server 2003, Windows Vista	Device driver (32/64-bit)	
	<i>RocketPort INFINITY and RocketPort EXPRESS Device Driver Installation Guide for Windows</i>	

Operating System	Applications	Download
Any	Bootable diagnostic	
Linux	LCOM (serial port test application)	
	<i>Using Minicom</i>	
Windows 2000, Windows XP, Windows Server 2003, Windows Vista	Control Utilities (32/64-bit), which include the Test Terminal and Port Monitor applications	

Card and Interface Installation

Make sure that you have unpackaged the driver for your operating system before installing the RocketPort INFINITY.

You may want to review [Before Installing the RocketPort INFINITY](#) on Page 5 if this is your first RocketPort INFINITY installation.

Refer to [Locating the Latest Drivers and Documentation](#) on Page 6, to download the latest driver or use the *Software and Documentation CD* that was shipped with your card.

Installing the Card

Use the following procedure to install a RocketPort INFINITY card.

1. Turn off the host computer.
2. Remove the system cover from your computer.
3. Select a PCI or PCI-X expansion slot.
4. Remove the slot cover or release the clamp.
5. If necessary, replace the low-profile mounting bracket with the standard mounting bracket shipped with the RocketPort INFINITY.
6. Insert the card into the slot and seat it securely.
7. Reinstall the expansion slot retaining screw or clamp.
8. Attach the appropriate interface (cable or box) to the RocketPort INFINITY:
 - [Attaching a Quad/Octacable Interface Cable](#) (below)
 - [Attaching an Interface Box](#) on Page 8
 - [Installing a Rackmount Interface Box](#) on Page 9

Do not connect RS-422/485 devices until the appropriate port interface type has been configured in the device driver. The driver default port setting is RS-232.



9. After connecting the interface (cable or box), replace the system cover on your computer.
10. Install the latest device driver for your operating system. See [Locating the Latest Drivers and Documentation](#) on Page 6 to locate the latest driver.

Attaching a Quad/Octacable Interface Cable

Use this procedure to complete the quadcable or octacable installation.

1. Attach the 68-pin end of the quadcable or octacable to the card.

Do not connect RS-422/485 devices until the appropriate port interface type has been configured in the device driver. The driver default port setting is RS-232.



2. Tighten the retaining screws.

You are ready to install and configure the appropriate device driver. For the latest software and documentation, go to [Locating the Latest Drivers and Documentation](#) on Page 6.

After installing the driver, you should verify that the ports are functioning properly (see the driver documentation) and then connect your serial devices. If necessary, return to this guide for information about connecting serial devices ([Connecting Serial Devices](#) on Page 11.)

Attaching an Interface Box



Use this procedure to complete the installation with an interface box.

Do not connect the cable to the RocketPort INFINITY card or interface box when the computer is powered on. Connecting the cable to the RocketPort INFINITY card or interface box while the computer is powered on may damage the electronics on the card or interface box.

1. Attach the LFH60 end of the interface cable to the RocketPort INFINITY card and the DB37 end to the connector the interface box.

Do not use force when connecting the cables. Make sure that the connectors are properly aligned.

Note: The 32-port card uses a Y-cable that is labeled 1-16 and 17-32 on the connectors.

2. Tighten the retaining screws.

Do not connect RS-422/485 devices until the appropriate port interface type has been configured in the device driver. The driver default port setting is RS-232.



You are ready to install and configure the appropriate device driver. For the latest software and documentation, go to [Locating the Latest Drivers and Documentation](#) on Page 6.

After installing the driver, you should verify that the ports are functioning properly (see the driver documentation) and then connect your serial devices. If necessary, return to this guide for information about connecting serial devices ([Connecting Serial Devices](#) on Page 11.)

Installing a Rackmount Interface Box

Rackmount interface boxes are sturdy enough to allow you to stack several units on a shelf, or you can mount it directly into a rack.

1. Place the Rackmount interface box on a stable surface or attach the L brackets to the interface box using the screws supplied with the unit and attach the L bracket into your rack.



Note: You can mount the unit facing in either direction.

2. Attach the cable shipped with the card between the interface box and the card.



Do not connect 16-port cards located in various machines to the 32-port Rackmount. It is possible to damage the interface box and card if the interface box is connected to two PCs using separate line power sources.

Do not connect RS-422/485 devices until the appropriate port interface type has been configured in the device driver. The driver default port setting is RS-232.

3. Use the appropriate software installation document for your operating system, with the driver to complete the RocketPort INFINITY installation.
For the latest software and documentation, go to [Locating the Latest Drivers and Documentation](#) on Page 6.
4. Verify that the ports are functioning properly and connect your serial devices. For more information about connecting serial devices, see [Connecting Serial Devices](#) on Page 11.



Caution



Rx Tx

Each port has transmit and receive LEDs.

The receive LED is lit if connected to an RS-232 device.

The transmit LED is illuminated when RS-232/422/485 data is being transmitted. Noticeable flashing occurs only if transmit data starts and stops a few times per second or less. Otherwise, if data is being transmitted continuously, the LED illumination appears to be constant. If no data is transmitted the LED is off.

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Connecting Serial Devices

This section provides information about the RocketPort INFINITY connectors, in the event that you need to build cables or loopback plugs.

- [DB9 Serial Cables and Loopback Plugs](#) on Page 11
- [DB25 Serial Cables and Loopback Plugs](#) on Page 14
- [RJ45 Serial Cables and Loopback Plugs](#) on Page 18

A *loopback plug* is a serial port plug with pins wired together that you can use with application (for example, the diagnostic, Test Terminal, or minicom) to test serial ports. See [Before Calling Technical Support](#) on Page 27 for information about using the test application shipped with the RocketPort INFINITY.

DTE Versus DCE

Most devices, except modems, are Data Terminal Equipment (DTE) devices. Modems are Data Communication Equipment (DCE) devices. RocketPort INFINITY ports are configured as DTE.

How you build a cable depends on which device you are connecting to (DTE or DCE). For example, you need a null-modem cable to connect the COM ports (COM1 or COM2) on the computer or the RocketPort INFINITY ports to printers, terminals, bar code readers or DNC equipment. If you are connecting a DTE device to a DCE device you need a straight-through modem cable.

- Straight-through cable (DTE to DCE) - connects TxD to TxD and RxD to RxD.
- Null-modem cable (DTE to DTE) - connects TxD to RxD and RxD to TxD.

DB9 Serial Cables and Loopback Plugs

The following figures and table illustrate the signals present on DB9 connectors if you need to build your own null-modem or straight-through DB9 serial cables.

Quad cable, octacable, and the interface boxes use DB9 male connectors.

- [DB9 Signals](#) on Page 12
- [DB9 Null-Modem Cables \(RS-232\)](#) on Page 13
- [DB9 Null-Modem Cables \(RS-422 or RS-485 Full-Duplex\)](#) on Page 13
- [DB9 Straight-Through Cables \(RS-232 or RS-485 Half-Duplex\)](#) on Page 13
- [DB9 Loopback Plugs](#) on Page 13

DB9 Signals

Refer to the manufacturer’s installation documentation if you need help with the connector pinouts or cabling for the serial device.

DB9 Male Connector Signals				
Pin	RS-232	RS-422	RS-485 (Full-Duplex)	RS-485 (Half-Duplex)
1	DCD	Not used	Not used	Not used
2	RxD	RxD-	RxD-	Not used
3	TxD	TxD-	TxD-	TRxD-
4	DTR	Not used	Not used	Not used
5	Gnd	Not used†	Not used†	Not used†
6	DSR	Not used	Not used	Not used
7	RTS	TxD+	TxD+	TRxD+
8	CTS	RxD+	RxD+	Not used
9	RI	Not used	Not Used	Not Used
† Pin 5 is tied to ground on the board, but is not used in the cable.				

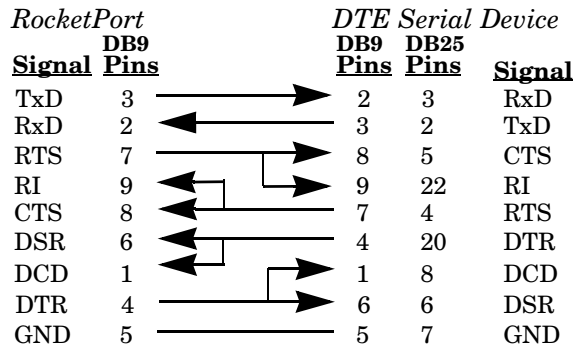
DB9 Null-Modem Cables (RS-232)

Use the following figure if you need to build an RS-232 null-modem cable. A null-modem cable is required for connecting DTE devices.

If you need RTS-CTS/DTR-DSR hardware flow control, you can use the pinouts provided in the following example.

You may want to purchase or build a straight-through cable and purchase a null-modem adapter. For example, a null-modem cable can be used to connect COM2 of one PC to COM2 of another PC.

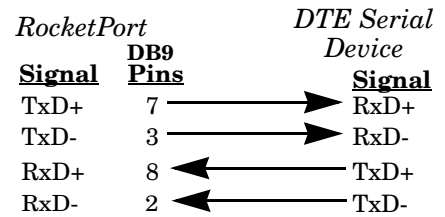
Note: *RJ45 connectors are not standardized. Refer to your serial device documentation for signal information.*



DB9 Null-Modem Cables (RS-422 or RS-485 Full-Duplex)

Use the following figure if you need to build an RS-422 or RS-485 full-duplex null-modem cable. A null-modem cable is required for connecting DTE devices.

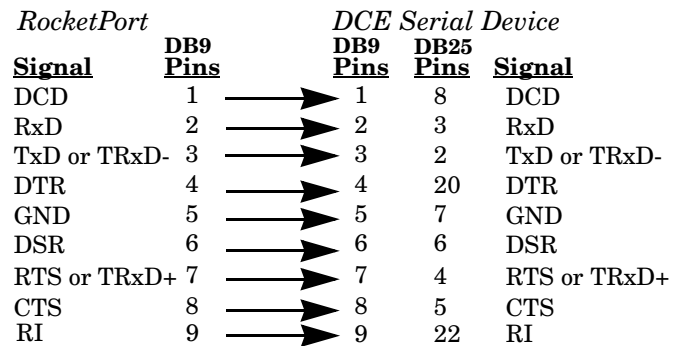
Note: *RS-422 and RS-45 signals are not standardized and each serial manufacturer uses different pinouts. Refer to the serial device documentation to determine the pinouts for the signals above.*



DB9 Straight-Through Cables (RS-232 or RS-485 Half-Duplex)

Use the following figure if you need to build an RS-232 or RS-485 half-duplex straight-through cable. Straight-through cables are used to connect modems and other DCE devices. For example, a straight-through cable can be used to connect COM2 of one PC to a modem.

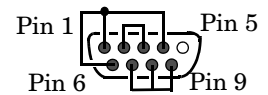
Note: *RJ45 connectors are not standardized. Refer to your serial device documentation for signal information.*



DB9 Loopback Plugs

RocketPort INFINITY models with DB9 connectors on the interface are shipped with a single loopback plug (RS-232/422).

RS-232 / 422 (Back View)



Wire the following pins together to build additional plugs or replace a missing RS-232/422 loopback plug.

- Pins 1 to 4 to 6
- Pins 2 to 3
- Pins 7 to 8 to 9

Wire these pins together if you want to build an RS-422 (only) loopback plug.

- Pins 2 to 3
- Pins 7 to 8

DB25 Serial Cables and Loopback Plugs

This section describes DB25 cables and loopback plugs for the following models:

- [Fan-out Cable Signals](#) (quadcable and octacable)
- [Interface Box Signals](#) on Page 15 (standard and surge models)
- [DB25 Null-Modem Cables \(RS-232\)](#) on Page 16
- [DB25 Null-Modem Cables \(RS-422 or RS-485 Full-Duplex\)](#) on Page 16
- [DB25 Straight-Through Cables \(RS-232 or RS-485 Half-Duplex\)](#) on Page 16
- [DB25M: Fan-out Cable Loopback Plugs](#) on Page 17
- [DB25F: Standard Interface Box](#) on Page 17
- [DB25M: Surge Interface Box Loopback Plugs](#) on Page 17

Note: Refer to the manufacturer’s installation documentation if you need help with connector pinouts or cabling for the serial device.

Fan-out Cable Signals

Refer to the manufacturer’s installation documentation if you need help with the connector pinouts or cabling for the serial device.

DB25 Male Connector Signals (Quad/Octacables)				
Pin	RS-232	RS-422	RS-485 (Full-Duplex)	RS-485 (Half-Duplex)
1	Not used	Not used	Not used	Not used
2	TxD	TxD-	TxD-	TRxD-
3	RxD	RxD-	RxD-	Not used
4	RTS	TxD+	TxD+	TRxD+
5	CTS	RxD+	RxD+	Not used
6	DSR	Not used	Not used	Not used
7	Gnd	Not used	Not used	Not used
8	DCD	Not used	Not used	Not used
9 to 19	Not used	Not used	Not used	Not used
20	DTR	Not used	Not used	Not used
21	Not used	Not used	Not used	Not used
22	RI	Not used	Not used	Not used
23-25	Not used	Not used	Not used	Not used

Interface Box Signals

Refer to the manufacturer's installation documentation if you need help with the connector pinouts or cabling for the serial device.

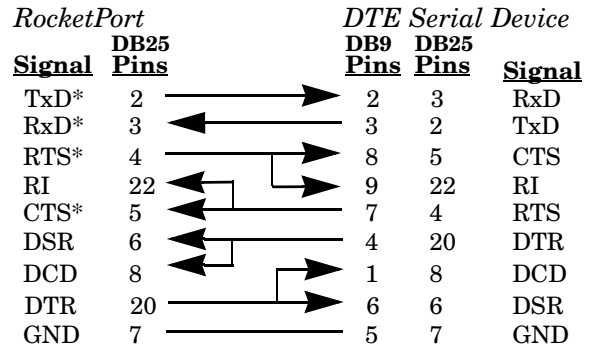
DB25 Female (Standard Interface Box) DB 25 Male (Surge Interface Box) Connector Signals				
Pin	RS-232	RS-422	RS-485 (Full-Duplex)	RS-485 (Half-Duplex)
1	Not used	Not used	Not used	Not used
2	TxD	TxD-	TxD-	TRxD-
3	RxD	RxD-	RxD-	Not used
4	RTS	TxD+	TxD+	TRxD+
5	CTS	RxD+	RxD+	Not used
6	DSR	Not used	Not used	Not used
7	Gnd	Not used	Not used	Not used
8	DCD	Not used	Not used	Not used
15	CTS	RxD+	RxD+	Not used
17	RxD	RxD-	RxD-	Not used
19	RTS	TxD+	TxD+	TRxD+
20	DTR	Not used	Not used	Not used
21	Not used	Not used	Not used	Not used
22	RI	Not used	Not used	Not used
23-24	Not used	Not used	Not used	Not used
25	TxD	TxD-	TxD-	TRxD-

DB25 Null-Modem Cables (RS-232)

Use the following figure if you need to build an RS-232 null-modem cable. A null-modem cable is required for connecting DTE devices.

You may want to purchase or build a straight-through cable and purchase a null-modem adapter. For example, a null-modem cable can be used to connect COM2 of one PC to COM2 of another PC.

Note: RJ45 connectors are not standardized. Refer to your serial device documentation for signal information.



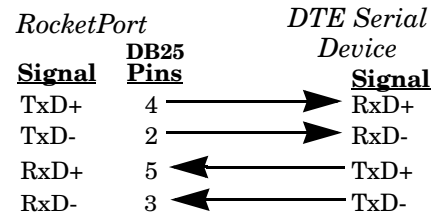
* Interface boxes have alternate pins available for this signal. Refer to Interface Box Signals for additional information.

DB25 Null-Modem Cables (RS-422 or RS-485 Full-Duplex)

Use the following figure if you need to build an RS-422 or RS-485 full-duplex null-modem cable. A null-modem cable is required for connecting DTE devices.

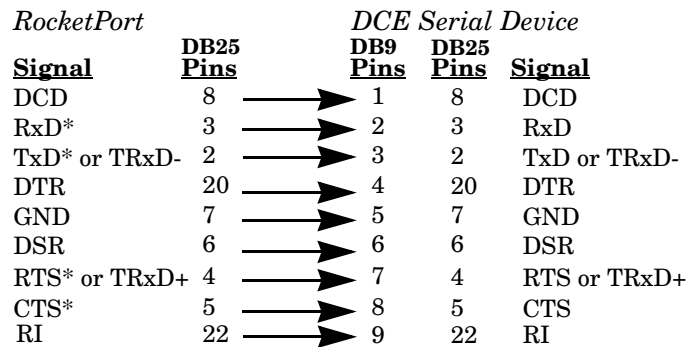
Interface boxes have optional pins available for these signals. Refer to [Interface Box Signals](#) on Page 15 for more information.

Note: RS-422 and RS-485 signals are not standardized and each serial manufacturer uses different pinouts. Refer to the serial device documentation to determine the pinouts for the signals above.



DB25 Straight-Through Cables (RS-232 or RS-485 Half-Duplex)

Use the following figure if you need to build an RS-232 or RS-485 half-duplex straight-through cable. Straight-through cables are used to connect modems and other DCE devices. For example, a straight-through cable can be used to connect COM2 of one PC to a modem.



* Interface boxes have alternate pins available for this signal. Refer to Interface Box Signals for more information.

DB25M: Fan-out Cable Loopback Plugs

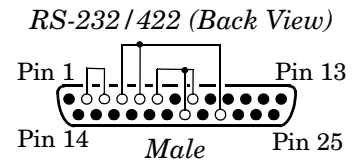
RocketPort INFINITY models with DB25 male connectors on the interface are shipped with a single loopback plug (RS-232/422).

Wire the following pins together to build additional RS-232/422 plugs or replace a missing RS-232/422 loopback plug.

- Pins 2 to 3
- Pins 4 to 5 to 22
- Pins 6 to 8 to 20

You can wire the following pins together for an RS-422 only loopback plug.

- Pins 2 to 3
- Pins 4 to 5

**DB25F: Standard Interface Box**

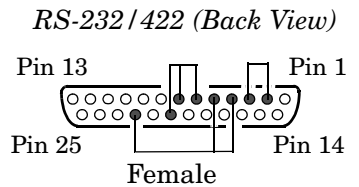
RocketPort INFINITY models with DB25 female connectors on the interface box are shipped with a single loopback plug (RS-232/422).

Wire the following pins together to build additional RS-232/422 plugs or replace a missing RS-232/422 loopback plug.

- Pins 2 to 3 or *alternately*, Pins 25 to 17
- Pins 4 to 5 to 22 or *alternately*, Pins 19 to 15 to 22
- Pins 6 to 8 to 20

You can wire the following pins together for an RS-422 only loopback plug.

- Pins 2 to 3 or *alternately*, Pins 17 to 25
- Pins 4 to 5 or *alternately*, Pins 15 to 19

**DB25M: Surge Interface Box Loopback Plugs**

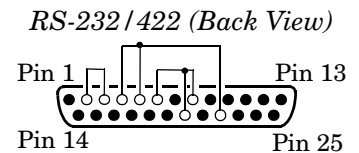
RocketPort INFINITY models with DB25 male connectors on the Surge interface box are shipped with a single loopback plug (RS-232/422).

Wire the following pins together to build additional RS-232/422 plugs or replace a missing RS-232/422 loopback plug.

- Pins 2 to 3 or *alternately*, Pins 17 to 25
- Pins 4 to 5 to 22 or *alternately*, Pins 15 to 19 to 22
- Pins 6 to 8 to 20

You can wire the following pins together for an RS-422 only loopback plug.

- Pins 2 to 3 or *alternately*, Pins 17 to 25
- Pins 4 to 5 or *alternately*, Pins 15 to 19



RJ45 Serial Cables and Loopback Plugs

This section describes RJ45 cables and loopback plugs for the Octacable and Rackmount interface boxes.

- [RJ45 Signals](#)
- [RJ45 Null-Modem Cable \(RS-232\)](#) on Page 18
- [RJ45 Null-Modem Cable \(RS-422 or RS-485 Full-Duplex\)](#) on Page 18
- [RJ45 Straight-Through Cable \(RS-485 Half-Duplex\)](#) on Page 19
- [RJ45 Loopback Plugs](#) on Page 19

RJ45 Signals

There are no standards for RJ45 connector pinouts. Refer to the manufacturer's installation documentation if you need help with connector pinouts or cabling for the serial device.

Note: Ring indicator is not supported on the RJ45 connector.

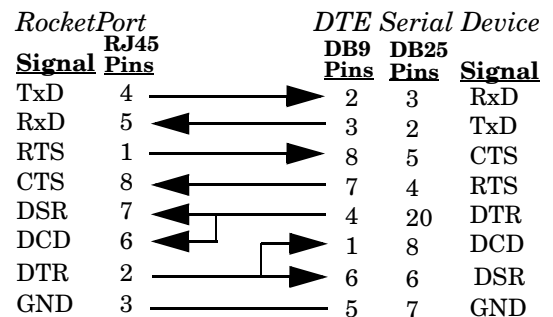


RJ45 Connector Signals				
Pin	RS-232	RS-422	RS-485 (Full-Duplex)	RS-485 (Half-Duplex)
1	RTS	TxD+	TxD+	TRxD+
2	DTR	Not Used	Not Used	Not Used
3	Gnd	Not Used	Not Used	Not Used
4	TxD	TxD-	TxD-	TRxD-
5	RxD	RxD-	RxD-	Not Used
6	DCD	Not Used	Not Used	Not Used
7	DSR	Not Used	Not Used	Not Used
8	CTS	RxD+	RxD+	Not Used

RJ45 Null-Modem Cable (RS-232)

Use the following figure if you need to build an RS-232 null-modem cable. A null-modem cable is required for connecting DTE devices.

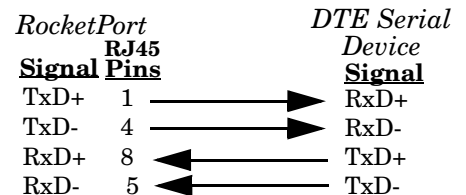
Note: You may want to purchase or build a straight-through cable and purchase a null-modem adapter. For example, a null-modem cable can be used to connect COM2 of one PC to COM2 of another PC.



RJ45 Null-Modem Cable (RS-422 or RS-485 Full-Duplex)

Use the following figure if you need to build an RS-422 null-modem cable. A null-modem cable is required for connecting DTE devices.

Note: RS-422 pinouts are not standardized. Each serial manufacturer uses various pinouts. Please refer to the documentation for the serial to determine the pinouts for the signals in the previous picture.



RJ45 Straight-Through Cable (RS-485 Half-Duplex)

Use straight-through cables to connect modems and other DCE devices. For example, you can connect one end of a straight-through cable to COM2 on one computer and the other end of the straight-through cable to a modem.

<i>RocketPort</i> Signal	RJ45 Pins	<i>DCE Serial Device</i>		Signal
		DB9 Pins	DB25 Pins	
DCD	6	1	8	DCD
RxD	5	2	3	RxD
TxD or TRxD-	4	3	2	TxD
DTR	2	4	20	DTR
GND	3	5	7	GND
DSR	7	6	6	DSR
RTS or TRxD+	1	7	4	RTS
CTS	8	8	5	CTS
RI	N/A	9	22	RI

RJ45 Loopback Plugs

RocketPort INFINITY models with RJ45 connectors are shipped with a single loopback plug (RS-232/422).

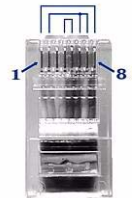
Wire the following pins together to build additional loopback plugs or replace a missing RS-232/422 loopback plug:

- Pins 4 to 5
- Pins 1 to 8
- Pins 2 to 6 to 7

Wire the following pins together for an RS-422 loopback plug:

- Pins 4 to 5
- Pins 1 to 8

RS-232/422



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Specifications and Notices

The RocketPort INFINITY specifications include:

- [RocketPort INFINITY Specifications](#)
- [68-Pin VHDCI Connector \(Quad/Octacable\)](#) on Page 22
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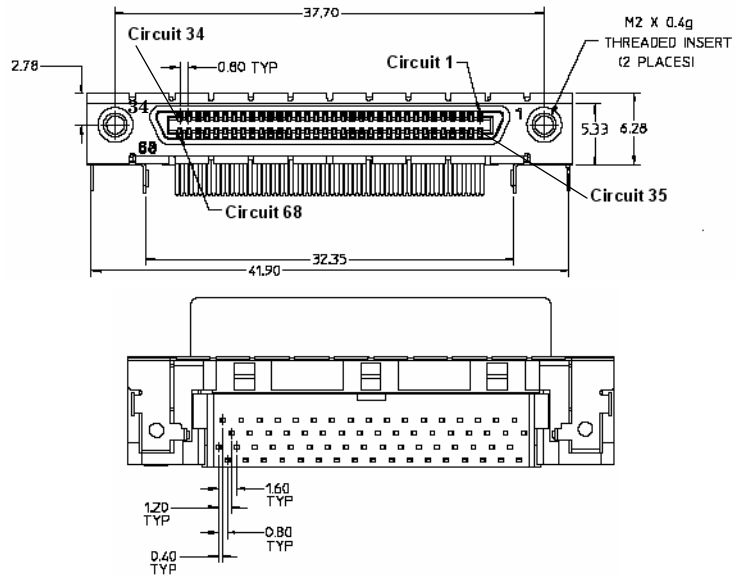
RocketPort INFINITY Specifications

Use this table to locate specifications for your product on the Control web site.

Ports	Interface Type	Part Number
4†	Card with DB9M fan-out cable	30005-2
4†	Card with DB25M fan-out cable	30006-9
4††	Interface box - DB9M	30050-2
8	Card with DB9M fan-out cable	30000-7
8	Card with DB25M fan-out cable	30001-4
8	Card with RJ45 fan-out cable	30002-1
8	Card (requires interface)	30020-5
8	Interface box - DB9M	30040-3
8	Surge Interface box - DB9M	30045-8
8	Interface box - DB25F	30080-9
8	Surge Interface box - DB25M	30085-4
16	Card (requires interface)	30015-1
16	Interface box - DB9M	30030-4
16	Surge Interface box - DB9M	30035-9
16	Interface box - DB25F	30070-0
16	Surge Interface box - DB25M	30075-5
16	Rackmount - RJ45	30055-7
32†††	Card (requires interface)	30010-6
32	Rackmount - RJ45	30060-1
†	The device driver for Windows® views the quad cable as an 8-port card during driver installation, if the cable is not attached.	
††	The device driver view the 4-port card as an 8-port. Only the first four ports are usable.	
†††	Optionally, connect the 32-port with the “Y” cable and two 16-port interface boxes.	

68-Pin VHDCI Connector (Quad/Octacable)

Use the following table if you need to build a cable for a proprietary serial device.

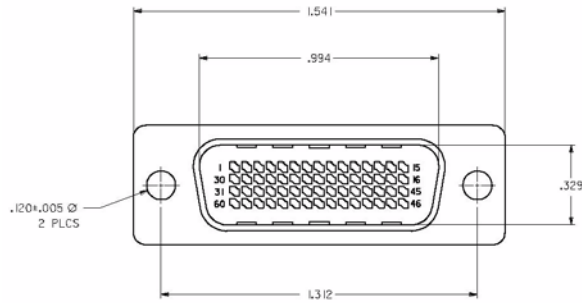
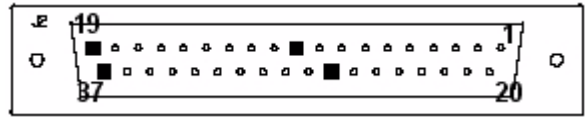


Pin	RS-232	RS-422	RS-485 FD	RS-485 HD
1	TXD1	TXD-1	TXD-1	TRXD-1
2	RI1			
3	DCD1			
4	DTR1			
5	RTS1	TXD+1	TXD+1	TRXD+1
6	DSR1			
7	RXD1	RXD-1	RXD-1	
8	CTS1	RXD+1	RXD+1	
9	TXD2	TXD-2	TXD-2	TRXD-2
10	RI2			
11	DCD2			
12	DTR2			
13	RTS2	TXD+2	TXD+2	TRXD+2
14	DSR2			
15	RXD2	RXD-2	RXD-2	
16	CTS2	RXD+2	RXD+2	
17	RJ45			
18	GND			
19	TXD3	TXD-3	TXD-3	TRXD-3
20	RI3			
21	DCD3			
22	DTR3			
23	RTS3	TXD+3	TXD+3	TRXD+3
24	DSR3			
25	RXD3	RXD-3	RXD-3	

Pin	RS-232	RS-422	RS-485 FD	RS-485 HD
26	CTS3	RXD+3	RXD+3	
27	TXD4	TXD-4	TXD-4	TRXD-4
28	RI4			
29	DCD4			
30	DTR4			
31	RTS4	TXD+4	TXD+4	TRXD+4
32	DSR4			
33	RXD4	RXD-4	RXD-4	
34	CTS4	RXD+4	RXD+4	
35	TXD5	TXD-5	TXD-5	TRXD-5
36	RI5			
37	DCD5			
38	DTR5			
39	RTS5	TXD+5	TXD+5	TRXD+5
40	DSR5			
41	RXD5	RXD-5	RXD-5	
42	CTS5	RXD+5	RXD+5	
43	TXD6	TXD-6	TXD-6	TRXD-6
44	RI6			
45	DCD6			
46	DTR6			
47	RTS6	TXD+6	TXD+6	TRXD+6
48	DSR6			
49	RXD6	RXD-6	RXD-6	
50	CTS6	RXD+6	RXD+6	
51	GND			
52	4-Port			
53	TXD7	TXD-7	TXD-7	TRXD-7
54	RI7			
55	DCD7			
56	DTR7			
57	RTS7	TXD+7	TXD+7	TRXD+7
58	DSR7			
59	RXD7	RXD-7	RXD-7	
60	CTS7	RXD+7	RXD+7	
61	TXD8	TXD-8	TXD-8	TRXD-8
62	RI8			
63	DCD8			
64	DTR8			
65	RTS8	TXD+8	TXD+8	TRXD+8
66	DSR8			
67	RXD8	RXD-8	RXD-8	
68	CTS8	RXD+8	RXD+8	

LFH60 and DB37M Multiplex Connectors DB9 and DB25 Interface Box Cable

Use the following table if you need to build an interface cable.



Ports 1-16			
DB37-1 Source	LFH60 Dest	Pair	Signal
J1-1	N/C		
J1-2	J2-44		GND
J1-3	J2-43		GND
J1-4	J2-42		GND
J1-5	J2-41		GND
J1-6	J2-23		RESET
J1-7	J2-46	1A	RXCLK+
J1-8	J2-16	2A	RXDATA+
J1-9	J2-17	3A	RXDATB+
J1-10	J2-18	4A	RXCNVT+
J1-11	N/C		
J1-12	J2-19	5A	TXDATB-
J1-13	J2-20	6A	TXDATA-
J1-14	J2-21	7A	TXCLK-
J1-15	J2-22	8A	TXCNVT-
J1-16	J2-47		V+
J1-17	J2-48		V+
J1-18	J2-49		V+
J1-19	J2-50		V+
J1-20	N/C		
J1-21	N/C		
J1-22	J2-40		GND
J1-23	J2-39		GND
J1-24	J2-39		GND
J1-25	J2-45	1B	RXCLK-
J1-26	J2-15	2B	RXDATA-
J1-27	J2-14	3B	RXDATB-
J1-28	J2-13	4B	RXCNVT-
J1-29	N/C		

Ports 17-32			
DB37-2 Source	LFH60 Dest	Pair	Signal
J3-1	N/C		
J3-2	N/C		GND
J3-3	J2-37		GND
J3-4	J2-36		GND
J3-5	J2-35		GND
J3-6	J2-8		RESET
J3-7	J2-24	1A	RXCLK+
J3-8	J2-25	2A	RXDATA+
J3-9	J2-26	3A	RXDATB+
J3-10	J2-27	4A	RXCNVT+
J3-11	N/C		
J3-12	J2-28	5A	TXDATB-
J3-13	J2-29	6A	TXDATA-
J3-14	J2-30	7A	TXCLK-
J3-15	J2-31	8A	TXCNVT-
J3-16	J2-54		V+
J3-17	J2-55		V+
J3-18	J2-56		V+
J3-19	N/C		
J3-20	N/C		
J3-21	N/C		
J3-22	J2-34		GND
J3-23	J2-33		GND
J3-24	J2-32		GND
J3-25	J2-7	1B	RXCLK-
J3-26	J2-6	2B	RXDATA-
J3-27	J2-5	3B	RXDATB-
J3-28	J2-4	4B	RXCNVT-
J3-29	N/C		

Ports 1-16 (Continued)			
DB37-1 Source	LFH60 Dest	Pair	Signal
J1-30	J2-12	5B	TXDATB+
J1-31	J2-11	6B	TXDATA+
J1-32	J2-10	7B	TXCLK+
J1-33	J2-9	8B	TXCNVT+
J1-34	J2-51		V+
J1-35	J2-52		V+
J1-36	J2-53		V+
J1-37	N/C		

Ports 17-32 (Continued)			
DB37-2 Source	LFH60 Dest	Pair	Signal
J3-30	J2-3	5B	TXDATB+
J3-31	J2-2	6B	TXDATA+
J3-32	J2-1	7B	TXCLK+
J3-33	J2-60	8B	TXCNVT+
J3-34	J2-57		V+
J3-35	J2-58		V+
J3-36	J2-59		V+
J3-37	N/C		

Regulatory Compliances

This table provides compliance and regulatory approvals.

Regulatory Compliances	
Emission Quad/octacable and 4/8/16/32- port standard and surge interface boxes	Canadian EMC requirements ICES-003 CISPR-22/AS/NZS-3548 European Standard EN55022: Amendment A1 FCC PART 15 Subpart B: Class B Limit
Emission Rackmount	Canadian EMC requirements ICES-003 CISPR-22/AS/NZS-3548 European Standard EN55022: Amendment A1 FCC PART 15 Subpart B: Class A Limit
Immunity	European Standard EN55024: IEC 1000-4-2/EN61000-4-2: ESD IEC 1000-4-3/EN61000-4-3: RF IEC 1000-4-4/EN61000-4-4: Fast Transient IEC 1000-4-5/EN61000-4-5: Surge IEC 1000-4-6/EN61000-4-6: Conducted Disturbance IEC 1000-4-8/EN61000-4-8: Magnetic Field IEC 1000-4-11/EN61000-4-11: Dips and Voltage Variations
Safety	IEC 60950/EN60950 CSA C22.2 No. 60950/UL60950 Third Edition
Regulatory Approvals	CE Mark, C-Tick, CUL/UL, and FCC Part 15: Subpart B: Class B
<i>This product is RoHS compliant and conforms to EU Directive 2002/95/EC. It does not contain any restricted substances (lead, cadmium, hexavalent chromium, mercury, PBB, and PBDE) except as specifically provided in the Directive.</i>	

FCC Notices

Radio Frequency Interference (RFI) (FCC 15.105)

The RocketPort INFINITY has been tested and found to comply with the limits for Class B digital devices pursuant to Part 15 of the FCC Rules when connected to:

- Quad/octacable interface
- Standard or surge interface boxes (4/8/16/32-port models)

The RocketPort INFINITY has been tested and found to comply with the limits for Class A digital devices pursuant to Part 15 of the FCC Rules when connected to 16 or 32-port Rackmount interface boxes.

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)

Depending on the interface box, this equipment is certified for Class B operation when used with shielded cables.

Troubleshooting

If you are experiencing problems with the RocketPort INFINITY, review the troubleshooting procedures for your system before calling Technical Support.

Before Calling Technical Support

Review the following information before calling Technical Support because they will request that you perform many of the procedures or verifications before they will be able to help you diagnose a problem.

- Verify the cabling using [Connecting Serial Devices](#) on Page 11.
Note: Most customer problems reported to Control Technical Support are eventually traced to cabling or network problems.
- If you have not done so, run the diagnostics ([RocketPort INFINITY Diagnostics](#) on Page 28).
- Verify that you have installed the latest RocketPort INFINITY device driver, see [Locating the Latest Drivers and Documentation](#) on Page 6.
If necessary, remove or update the existing driver using the procedures in the *RocketPort INFINITY Device Driver Installation Guide for Windows* or README file packaged with the FreeBSD, Linux, QNX, or SCO OpenServer driver.

If none of the above work, you can refer to one of these subsections:

- [Troubleshooting Windows Systems](#) on Page 29
- [Troubleshooting Linux Systems](#) on Page 31

RocketPort INFINITY Diagnostics

This subsection describes how to run the bootable diagnostic CD to verify that the RocketPort INFINITY hardware is functioning properly. The RocketPort INFINITY is shipped with a bootable CD that executes hardware diagnostics.

Note: *Diagnostic CD 1000081 Rev A (rpinfinity-custdiag-1.03.iso) only supports IDE devices at this time. Subsequent versions of the Diagnostic will include support for SATA and USB devices. We apologize for any inconvenience this cause, and will provide additional device support as soon as possible.*

In the event that you cannot locate the CD, you can [download](#) the latest version and burn the .iso image to a CD-ROM.

You can use the diagnostic to:

- Confirm that the hardware is functioning
- Determine resolutions to conflicts during installation
- Perform a stress test on all RocketPort INFINITY ports in the system

The diagnostic requires a loopback plug to test a port or ports. A single loopback plug is shipped with the RocketPort INFINITY. You can build additional loopback plugs or move the loopback plug to the port you want to test. See [Connecting Serial Devices](#) on Page 11 if you want to build loopback plugs.

Use the following procedure to run the diagnostics.

1. Insert the bootable CD that contains the diagnostic and restart your machine. The diagnostic starts automatically and takes a few minutes before the first screen appears.

2. Press **Enter** at the disclaimer screen to begin the diagnostic.

Note: *If the diagnostic goes into sleep mode while unattended, press the **Num Lock** key to activate the screen.*

3. Enter **1** to **4** to test a port or ports on a specific RocketPort INFINITY, or select **S** to run the stress test on all RocketPort INFINITY cards installed in the system.

Note: *The stress test requires a loopback plug for each port on each card.*

Use **Ctrl/Alt Delete** to kill the diagnostic process at any time.

Testing a Port or Ports

Enter **A** to test all ports on the RocketPort INFINITY or enter the port number of a port that you want to test and follow the instructions on the screen. If you are testing all of the ports and have only one loopback plug, you must move it from port to port during the test.

Stress Testing the RocketPort INFINITY

The stress test uses a default configuration to simultaneously stream data to all ports of the RocketPort INFINITY cards in a system until you stop the test. To stop the test and review the results of the stress test, enter **S**.

To end the diagnostic, you may need to select **b** to return to a screen that contains a **q** to quit. Type **reboot**, select **Enter**, and remove the CD from the drive when prompted.

If the diagnostics *did not detect* a hardware problem, you may have a device driver problem. See [Before Calling Technical Support](#) on Page 27 for more information.

If the diagnostics could *not find* the card:

- Check for proper cable connections between the card and interface. Verify your cables using [Connecting Serial Devices](#) on Page 11.
- Verify that the loopback plug is firmly connected.
- Turn off the power and reseal the RocketPort INFINITY card into the slot.

- Try running the diagnostics again. If they fail again, you may have a bad port, contact [Technical Support](#) on Page 32.

Troubleshooting Windows Systems

If you are using a RocketPort INFINITY driver on a Windows system and the diagnostic verified that the card is functional, you can check the following:

1. Verify that the RocketPort INFINITY has installed by checking the *Device Manager* to verify that the RocketPort INFINITY card displays.
2. Verify that you are addressing the port correctly.

In many applications, device names above COM9 require the prefix \\.\ in order to be recognized. For example, to reference COM20, use \\.\COM20 as the file or port name. RocketPort INFINITY.

3. After driver installation, *if a port does not open*; go to *Ports COM & LPT*, right-click on the yellow exclamation mark on the port, and click **Update Driver**. Use the same procedure used when installing the ports that are detected with plug and play systems.
4. Enable the *Verbose Event Log* feature on the *Options* tab of the RocketPort INFINITY driver and then reboot the server.
5. Install and use one of the tools in the **Control Utility** package. The **Control Utility** is available on the *Software and Documentation CD* or you can [download the latest version](#). The file is a self-extracting zip file that automatically starts the installation procedure. It is not necessary to reboot the PC after installation.

The **Control Utility** package includes the following applications that you can access from the *Control Program* group:

- **Test Terminal** can be used to troubleshoot communications on a port-by-port basis. Test Terminal requires a loopback plug. You can build a loopback plug if you are missing the loopback plug shipped with the RocketPort INFINITY ([Connecting Serial Devices](#) on Page 11).
- **Port Monitor** checks for errors, modem control, and status signals. In addition, it provides you with raw byte input and output counts.

Use the following procedures to run **Test Terminal** tests.

Test Terminal Explanation

This subsection provides background information about the two tests procedures in the following subsection.

- **Send and Receive Test Data:** This sends data out the transmit line to the loopback plug, which has the transmit and receive pins connected thus sending the data back through the Rx line to **Test Terminal**, which then displays the received data in the terminal window for that port. This test is only testing the Tx and Rx signal lines and nothing else. This test works in either RS-232 or RS-422 modes as both modes have transmit and receive capability. A failure in this test will essentially prevent the port from working in any manner.
- **Loopback Test:** This tests all of the modem control signals such as RTS, DTR, CTS, DSR, DCD, and RI along with the Tx and Rx signals. When a signal is made HI in one line the corresponding signal line indicates this. The **Loopback Test** changes the state of the lines and looks for the corresponding state change. If it successfully recognizes all of these changes, the port passes.

A failure on this test is not necessarily critical as it will depend on what is connected and how many signal lines are in use. For example, if you are using RS-232 in 3-wire mode (Transmit, Receive and Ground) a failure will cause no discernible issue since the other signals are not being used. If the port is configured for use as either RS-422 or RS-485 this test will fail and is expected

to fail since RS-422 and RS-485 do not have the modem control signals that are present in RS-232 for which this test is designed.

Using Test Terminal to Test a Port

The following procedure shows how to use **Test Terminal** to send and receive test data to the serial ports and run a loopback test.

1. Stop all applications that may be accessing the ports such as RAS, RRAS, or any faxing or production software. See the appropriate help systems or manuals for instructions on stopping these services or applications. If another application is controlling the port, then **Test Terminal** will be unable to open the port and an error message will be shown.

***Note:** Remember to restart the application once testing of the ports has been completed.*

2. From the **Start** menu, select **Programs > Control > Utilities > Test Terminal (WCOM2)**.
3. Select **File > Open Port** and the appropriate port (or ports) from the *Open Ports* drop list.
4. Install the loopback plug onto the port (or ports) that you want to test.
5. Select **Port > Send and Receive Test Data**.

You should see the alphabet scrolling across the port. If so, then the port installed properly and is operational. Select **Port > Send and Receive Test Data** to stop the scrolling data.

6. Select **Port > Loopback Test**.

This is a pass fail test and will take a second or two to complete. Repeat for each port that needs testing.

7. Close **Test Terminal**

If both of these tests successfully complete, then the port is operational as expected.

***Note:** Do forget to restart the application.*

Troubleshooting Linux Systems

You can use the following subsections to test the serial ports.

lcom(1)

Control has available **lcom(1)**, which is a multiport serial I/O test program. You can use **lcom** in test mode to send test data to any serial port.

lcom is available on the *Software and Documentation CD* or you can [download the latest version](#).

Note: For assistance using *lcom*, use the manual page, *lcom(1)* that accompanies the program.

File Transfer

You can transfer a file using the following information. The default settings are 9600, 8, n, 1, and no parity. To send a file you can redirect output to a device; for example:

```
cat /etc/inittab > /dev/ttyRP0
```

Sends the contents of the */etc/inittab* file to the **ttyRP0** device at 9600 baud, 8, n, 1, and no parity.

Changing Serial Port Settings (stty)

Use the following information if you need assistance changing or viewing the baud rate settings.

To change the baud rate, use the following example, which changes the baud rate to 19200:

```
stty 19200 </dev/ttyRP0
```

To view the current serial port settings for **ttyRP0**, enter:

```
stty -a </dev/ttyRP0
```

Note: Settings changes via *stty* are only valid during current log in session. For permanent setting changes, use the */etc/inittab* file.

Setting Up Terminals and Modems (mgetty, getty)

Add the appropriate line or lines to the */etc/inittab* file then restart.

Terminal Example:

```
T0:23:respawn:/sbin/getty -L ttyRP0 57600 vt100
```

Modem Example:

```
T1:23:respawn:+/sbin/mgetty -m "" AT&F OK' -D -x9 -s 115200 ttyRP0
```

Note: If necessary, see the manual pages for more information on *mgetty*.

Testing with minicom

You can also use **minicom**, which shipped with most Linux distributions, to test the serial ports. A Control document is available for using [minicom](#).

Technical Support

Control has a staff of support technicians available to help you. You should review [Before Calling Technical Support](#) on Page 27 before calling Technical Support. If you call for Technical Support, please have the following information available:

- Model number
- Serial number
- Interface type
- Operating system type, release, and service package, and if Linux, the kernel version
- Device driver version
- Computer make, model, speed, and single or dual processor
- List other devices in the computer and their addresses

Contact Method	Corporate Headquarters
Support	http://www.comtrol.com/support
Web site	http://www.comtrol.com
Phone	763.494.4100
FTP site	ftp.comtrol.com

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