



Device Driver Installation Guide for Windows 98/SE and ME



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Third Edition, November 2, 2004

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Table of Contents

Table of Contents	3
Product Overview	5
Locating Current Drivers	5
Hardware Installation Documentation	5
Driver Features	5
Installation Prerequisites	6
Installing the Device Driver	7
Disabling or Removing the Driver	7
Disabling the Windows 98/SE or ME Device Driver.....	7
Removing PCI-Bus Adapters.....	7
Removing the Windows 98/SE or ME Device Driver.....	7
Installing the New Driver	8
Extracting the Installation Files.....	8
Installing Software: PCI, Universal PCI, or CompactPCI bus.....	9
Installing Software: ISA-Bus.....	11
Advanced Configuration	15
COM Port Numbering.....	15
Remapping Baud Rates.....	16
Scan Rate.....	17
Installation Without a Dedicated IRQ.....	17
Stay Resident.....	17
Fast.....	17
Changing the IRQ.....	17
Adding Adapters	18
Adding PCI-Bus Adapters.....	18
Adding ISA-Bus Adapters.....	18
Installing Modems and Adding Serial Printers	21
Installing Modems	21
Installation Requirements.....	21
Installing a Modem.....	21
RocketModem Reconfiguration.....	27
Adding Serial Printers	28
Changing Printer Port Configuration.....	31
Changing Printer Port Assignment.....	31
Control Tools	33
Using Test Terminal	34
Starting the Test Terminal.....	34
Testing a Control Device.....	35
Testing a RocketModem Adapter.....	36
Test 1.....	36
Test 2.....	37
Test 3.....	37
Testing Terminal Modem Control Signals.....	38
Using Port Monitor	38
Starting Port Monitor.....	39
Changing Screen Appearance.....	39
Column Setup.....	40
Report Configuration.....	40
Port Monitor Files.....	41
Port Monitor Variables.....	42
Using RocketModem Reset (rktreset.exe)	44
Troubleshooting and Technical Support	45
Troubleshooting	45
RocketPort / RocketModem Issues.....	45
Known Issues.....	46
Driver Error Messages.....	47

Before calling Technical Support 48
Technical Support 48

Appendix A. Programming Information 49
Windows 98/SE or ME Software Support 49
Driver Limitations..... 49
Device Control Block (DCB) Parameters..... 50
Bypassing the Normal Windows 32 APIs 50
Real Time Issues 50
Opening Ports Higher Than COM10 51
COMMTIMEOUTS: GetCommTimeouts() and SetCommTimeouts() Structure 51
Index 53

Product Overview

This document describes how to install and configure the Comtrol© RocketPort© and RocketModem© device driver for Windows© 98/SE and ME operating systems.

Locating Current Drivers

The latest driver can be located for your product using the links to the web site or directly to the ftp site:

- *Device Driver and Downloads* page on the web site (<http://support.comtrol.com/download.asp>)
- <ftp://ftp.comtrol.com/RPort.Drivers/>
- <ftp://ftp.comtrol.com/RModem/Drivers/>

You can also use the device driver on the Comtrol CD shipped with your product. To install the driver from the CD, use the menu program and copy the driver files to your hard drive and then go to:

- *Disabling or Removing the Driver* on Page 7 if you are updating an existing driver, or
- *Installing the New Driver* on Page 8 if you are installing the driver for the first time.

Hardware Installation Documentation

For hardware specific information or the product overview, see the Hardware installation documents that are available on the Comtrol CD shipped with your product or download the current version from the ftp/web site:

- *Device Driver and Downloads* page on the web site (<http://support.comtrol.com/download.asp>)
- ftp://ftp.comtrol.com/RPort.Drivers/HW_Doc
- ftp://ftp.comtrol.com/RModem/Drivers/HW_Doc

Driver Features

This section provides information that you may need to install a device driver for a RocketPort or RocketModem adapter (ISA, PCI, Universal PCI, or CompactPCI bus types supported).

The driver supports up to 4 RocketPort and/or RocketModem boards per server.

The driver also allows you to intermix RocketPort and RocketModem boards within the same Personal Computer (PC).

Installation Prerequisites

Before you begin installation, note the following:

1. This document assumes that you have already installed the Windows 98/SE or ME operating system (OS) and that you have an understanding of OS operation. This product was developed and tested using Windows 98/SE and ME. These instructions were developed using Windows 98/SE; Windows ME prompts and screens may differ slightly.

Note: *Windows 95 and earlier versions of Windows 98 are not supported.*

2. You must have at least one RocketPort or RocketModem adapter installed before installing this driver.

Note: *The installation procedures differ depending on whether you are installing a ISA, PCI, Universal PCI, or CompactPCI bus adapter. If you need help determining which type of adapter you have, see the [Hardware Installation Guide](#).*

3. If this is an **initial installation** (installing the adapter and driver for the first time), go to [Installing the New Driver](#) on Page 8 and perform the procedures listed there in the order given.
4. Finally, if you are upgrading from an earlier version of the RocketPort or RocketModem device driver, you must remove the old driver before installing this new driver. See [Disabling or Removing the Driver](#) on Page 7 for more information. Do not use the *Update* option.

Installing the Device Driver

This section describes how to install and remove the device driver. It also discusses adapter and port configuration. If you have an installation problem, see [Troubleshooting and Technical Support](#) on Page 45.

Disabling or Removing the Driver

The following topics describe how to disable or remove a device driver. You need to disable or remove the old driver before you install the new one.

Disabling the Windows 98/SE or ME Device Driver

To temporarily disable the Windows 98/SE or ME driver, follow these steps:

1. Select **Start > Settings > Control Panel** and double-click the **System** icon.
2. Click the **Device Manager** tab on the **System Properties** window.
3. Double-click on **Multi-function adapters**.
4. Select the **RocketPort/RocketModem** and click **Properties**.
5. Check the **Disable in this hardware profile** box on the **General** tab.
6. Click **OK**.
7. Click **Yes** to restart the computer so that your changes take effect.

Removing PCI-Bus Adapters



If you move or remove a PCI-bus adapter without first removing it in Device Manager, the PC assumes the original board is still installed. You must edit the registry to correct this.

PCI-bus I/O addresses are slot-specific. If you want to move a PCI-bus adapter from one slot to another, you must use Device Manager to remove the board first, then shut down the PC, remove the adapter, and reinstall it in the new slot.

Likewise, if you remove the driver without also removing the adapter, the PC recognizes the “unknown” PCI device and automatically start the Add New Hardware wizard when the computer is rebooted.

Removing the Windows 98/SE or ME Device Driver

The following procedure describes how to remove the device driver:

1. Select **Start > Settings > Control Panel** and double-click the **System** icon.
2. Click the **Device Manager** tab on the **System Properties** window.
3. Double-click on **Multi-function adapters**.
4. Select the **RocketPort/RocketModem** to be removed and click the **Remove** button.
5. Click **OK** to remove the **RocketPort/RocketModem** from your PC and click **Close** to dismiss the Systems Properties window.
6. *If removing Version 1.46 or later, follow these additional steps:*
 - From the **Control Panel** window, double-click **Add/Remove Programs**.
 - Select **Control RocketPort/RocketModem** and click **Add/Remove**.
 - Click **OK**.

7. *All versions:* use Windows Explorer to delete all files named **Rocket*.*** in the **\Windows\System** directory.
8. Power off the computer and physically remove the RocketPort or RocketModem.

Note: *In Version 1.46 or later, removing the driver software does not remove the \Windows\System\Rocket directory, the Rktgroup.exe program, or any log files created by Port Monitor or Test Terminal. If you wish to remove this directory and / or these files, you must do so manually through Windows Explorer.*

Installing the New Driver

The following procedures describe how to install the device driver. Before you install the device driver, note the following:

- Always check the web or ftp sites to make sure that you have the current driver and documentation. See [Locating Current Drivers](#) and [Hardware Installation Documentation](#) on Page 5 for more information.
- The installation process varies depending on whether you are installing a ISA, PCI, Universal PCI, or CompactPCI bus adapter. After you extract the files as described in [Extracting the Installation Files](#) on Page 8, follow the instructions in:
 - [Installing Software: PCI, Universal PCI, or CompactPCI bus](#) on Page 9 if you are installing a PCI, Universal PCI, or CompactPCI bus adapter.
 - [Installing Software: ISA-Bus](#) on Page 11 if you are installing an ISA bus adapter.

Extracting the Installation Files

This driver may be shipped as a self-extracting zipped file. Before you can install the driver, you must:

1. Locate the file on the distribution media, or download it from the Comtrol ftp/web site.
2. In the Windows Explorer, double-click on the filename. The self-extractor utility is started.

The utility displays the default target drive and directory where the extracted files will be placed. (For example, C:\Comtrol.)

3. Optionally, select a different target drive and/or directory.
4. Click the **Unzip** button.

If the specified target directory does not exist, the self-extractor utility will create it. The self-extractor then places the extracted files in the target directory.

When the process is finished, a completion message appears. Click **OK**, then click **Close** to exit from the self-extractor utility.

5. If you are installing an ISA-bus adapter, go to [Installing Software: ISA-Bus](#) on Page 11.

Installing Software: PCI, Universal PCI, or CompactPCI bus

Follow these steps to install the Windows 98/SE or ME device driver for use with PCI, Universal PCI, or CompactPCI bus adapters:

1. Shut down the computer and power off the PC.
2. Install the PCI-bus adapter, following the instructions in the [Hardware Installation Documentation](#) on Page 5.
3. Power on the PC.

Note: The PC should recognize that a new PCI-bus device has been installed and start the Add New Hardware Wizard.

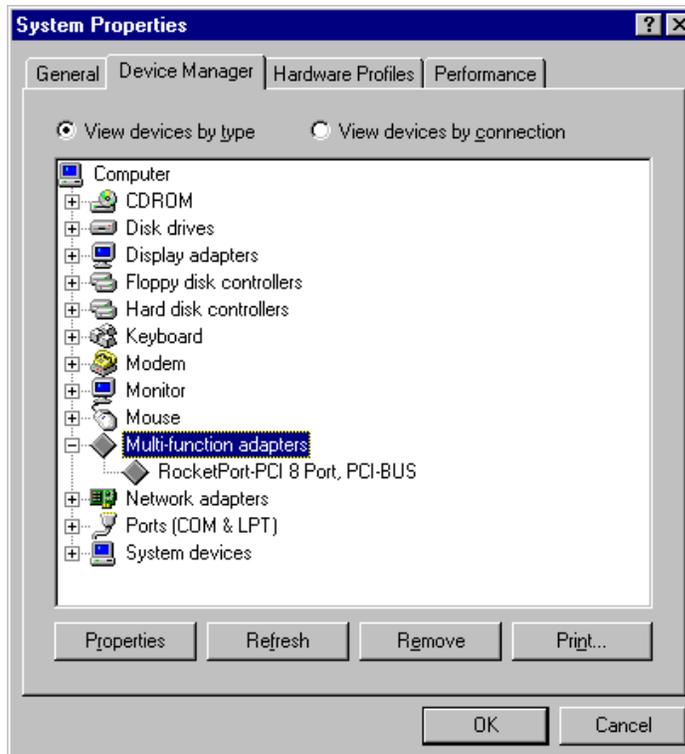
4. Click **Next**.
5. Select **Search for the best driver for your device (Recommended)** and click **Next**.
6. Select **Specify a location** and use the **Browse** option to find the directory containing the driver files that you extracted in [Extracting the Installation Files](#) on Page 8.
7. Click **Next** and Windows locates the driver.
8. Click **Next** to continue.
9. Click **Finish**.

Note: You may be required to re-enter the source directory. Do so until it no longer requests the source directory.

10. After the install wizard has finished installing the driver software, **right-click** on the **My Computer** icon and select **Properties**.

Alternately, select **Start > Settings > Control Panel** and double-click the **Systems** icon.

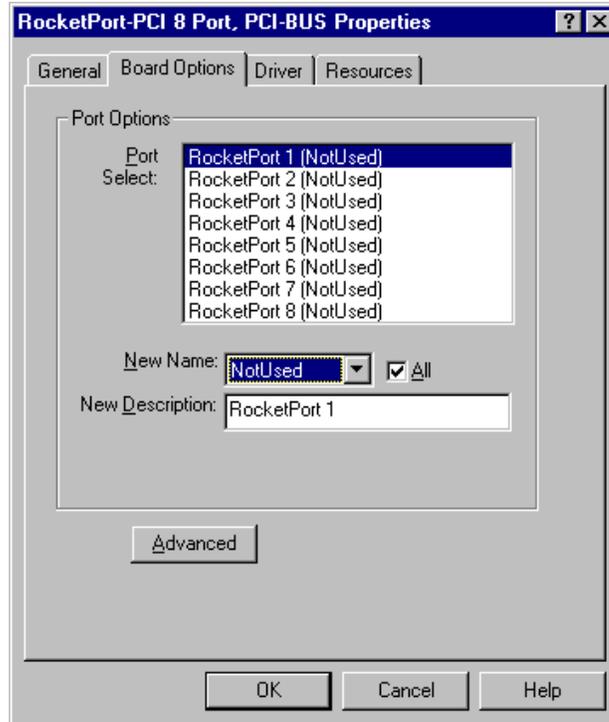
11. Select the **Device Manager** tab.
12. Double-click the **Multi-function adapters** option:



13. Select the RocketPort/RocketModem device and click **Properties**.

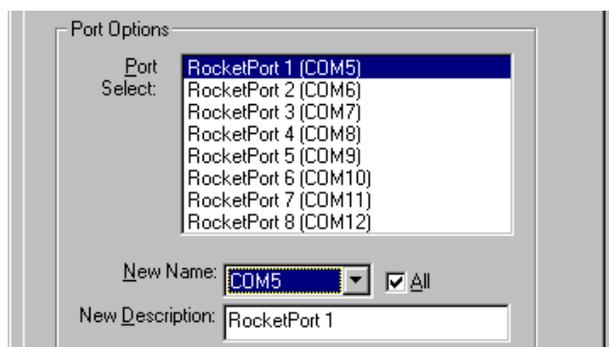
14. Select the **Board Options** tab in the RocketPort-PCI and RocketPortPlus window.
15. Use the **Port Select** window to select the first port in the list to configure.

Note that all unassigned ports are labeled “(NotUsed)”. By default all ports are unassigned on installation.



16. Select a COM port from the **New Name** droplist to assign a COM port number to the port.

If you check the **All** box, all ports *after* the one you select are automatically numbered in sequence:



You can also use the **New Description** field to rename individual ports: for example, you can describe COM5 as **RocketPort 1**.

17. If desired, click the **Advanced** button to access the **Advanced Board Options** window.

For example, the Advanced Board Options are used to configure the driver for rates above 230.4 Kbps. For more information, see *Advanced Board Options*, beginning on [Advanced Configuration](#) on Page 15.

18. When you are done, click **OK** to exit the **Board Options** window.

19. Click **OK** to dismiss the notice to reboot the PC.
20. Click **OK** to exit the **System Properties** window.
21. Reboot the PC so that your changes take effect.
22. If you have installed a RocketModem, go to [RocketModem Reconfiguration](#) on Page 27.
To configure modems, go to [Installing Modems](#) on Page 21.
To configure serial printers, go to [Adding Serial Printers](#) on Page 28.

Installing Software: ISA-Bus

Follow these steps to install the Windows 98/SE or ME device driver for use with an ISA-bus adapter.

Note: *If you are installing a combination of PCI- and ISA-bus adapters, install all PCI-bus adapters before installing any ISA-bus adapters.*

1. If you are *updating* from an earlier version of the Windows 98/SE or ME driver, see the **Note** on Page 7 before proceeding.
2. Click the **Start** button, select **Settings**, then select **Control Panel**.
3. Double-click the **Add New Hardware** icon. The Add New Hardware Wizard starts.
4. Click **Next**. You are asked if you want to search for new hardware



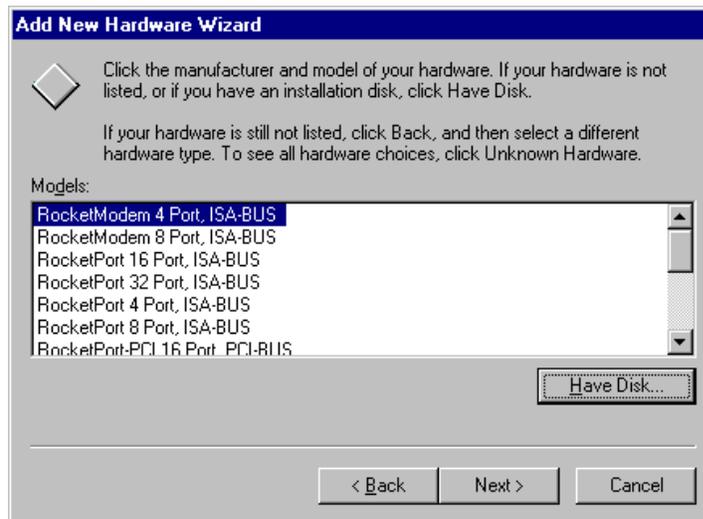
5. Click **No**, then click **Next**.

You are asked to select the type of hardware to install:



6. Select **Multi-function adapters** and click **Next**. A list of board manufacturers and models appears.
7. Click the **Have Disk** button. Then enter the drive and directory where you stored the extracted installation files and click **OK**.

The list of products supported by this driver appears:



8. Select the Control product you are installing and click **Next**. The Add New Hardware Wizard selects an I/O address and IRQ setting. *Make note of these values, as you may need to change them.*



9. Click **Next**. The PC copies the driver files and rebuilds the driver database.
 10. Click **Finish**. The following message appears:



11. If the I/O address and interrupt selected by the PC in Step 8 match those you plan to use when installing the hardware, click **Yes** to shut down your computer and skip to Step 12.
- If the I/O address or interrupt selected in Step 8 do *not* match those you plan to use, click **No**, then follow these additional steps:
 - Access the **System Properties** window. (Either double-click on the Control Panel **System** icon, or right-click on the **My Computer** icon and select **Properties**.)
 - Select the **Device Manager** tab.
 - Double-click on **Multi-function adapters**.
 - Select the adapter and click **Properties**.
 - Select the **Resources** tab.
 - Select **Input/Output Range** and click the **Change Setting** button.
 - Set the **Value** to the hardware I/O address you plan to use.
 - Optionally, select **Interrupt Request** and click the **Change Setting** button, then set the **Value** to the IRQ you plan to use.
 - Make sure the **Use automatic settings** checkbox is blank.
 - Click **OK** to return to the **Resources** tab.
 - Click **OK** to close the window. A warning message appears.

- m. Click **Yes** to continue. Another message appears advising you to shut down and restart your computer.
 - n. Click **Yes**. Then power off your computer.
12. When it is safe to do so (after the computer is powered off), install the adapter by following the instructions in the *Hardware Installation Card*.

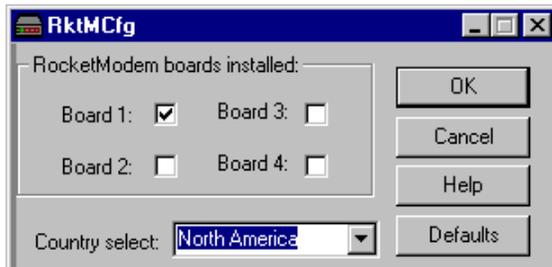
Note: Pay special attention to the I/O Address DIP switch setting. If the address you select on the hardware does not match the address selected in the software, you will need to repeat Step 11 later and shut down and reboot again.

13. Power on the computer under Windows. The PC should recognize the new hardware and automatically find and install the software for it. Be patient; this may take some time.

Note: When the process is complete, the PC creates and displays the *RocketPort / RocketModem* program group:



Note: If you selected a RocketModem in Step 7, the PC also launches the RocketModem configuration program:



Note: (This window is small. You may need to minimize or move other windows in order to find it.)

- 14. Verify that the correct board number is checked for any RocketModem installed.
- 15. Use the droplist to select the country or geographic region where the RocketModem will be used.
- 16. Click **OK** to close the RocketModem configuration window. Your PC is now ready for use. No reboot is necessary.
- 17. If desired, continue with the **Advanced Configuration** options, below.
To configure RocketModem adapters, go to [Installing Modems](#) on Page 21.
To configure serial printers, go to [Adding Serial Printers](#) on Page 28.

Advanced Configuration

After initial installation, use the following procedures to change RocketPort/RocketModem configuration settings.

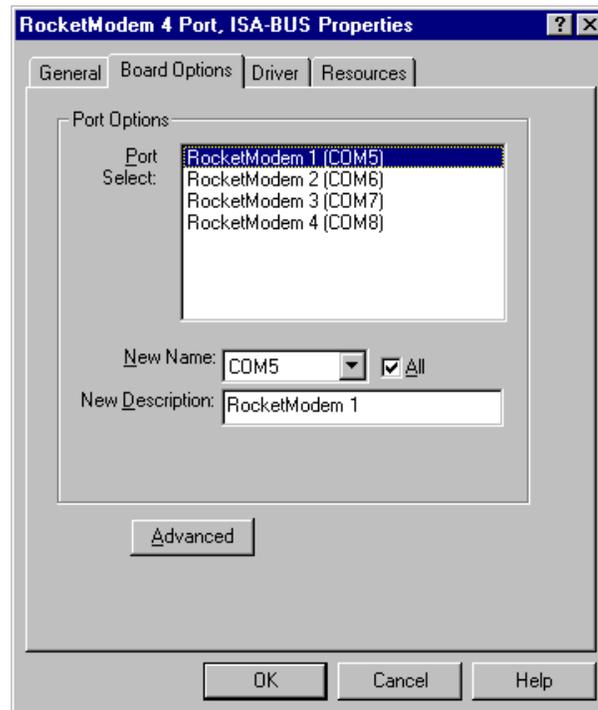
COM Port Numbering

When installing a PCI-bus adapter, the COM port numbers are usually set in [Step 15](#) of *Installing Software: PCI, Universal PCI, or CompactPCI bus* on Page 9. When installing an ISA-bus adapter, the first Control port defaults to COM5 and the other ports follow in sequence.

To change the COM port number assignment, follow these steps:

1. Access the **System Properties** window. (Either double-click on the Control Panel **System** icon or right-click on the **My Computer** icon and select **Properties**.)
2. Select the **Device Manager** tab.
3. Double-click on **Multi-function adapters**.
4. Select the RocketPort/RocketModem and click **Properties**.
5. Select the **Board Options** tab.

Your current COM port assignment appears:



6. Use the **Port Select** window to select the RocketPort/RocketModem port you want to work with.
7. Use the **New Name** droplist to select the COM port number you want to associate with the selected port.

Note: Do not use an existing COM port number. If you do, the existing port will be disabled.

If the **All** box is checked, then all subsequent ports are numbered in sequence. If the **All** box is *not* checked, you can set the COM number for each port individually.

8. If desired, use the **New Description** field to give each port a more descriptive or meaningful name.
9. When you are done, click **OK** to return to the System Properties window. Your changes take effect immediately. No restart is required.

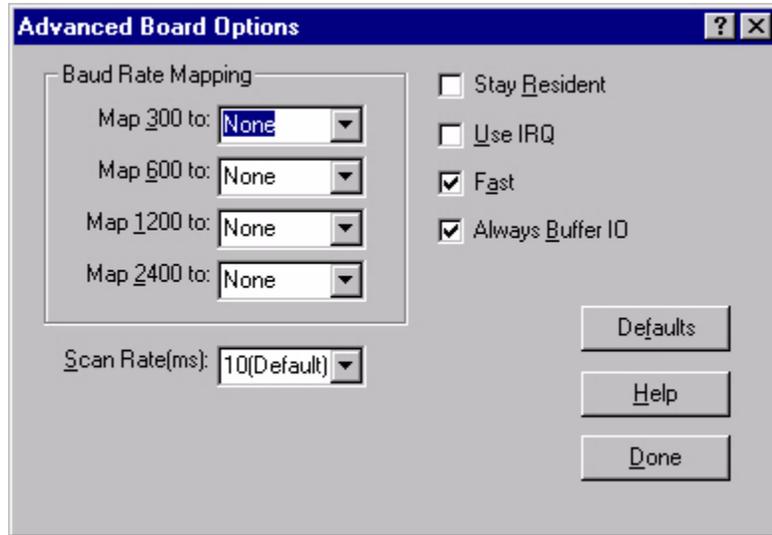
Remapping Baud Rates

This option allows you remap the 300, 600, 1200, and 2400 baud rates to more useful values. A common use of this option is to enable an application to use a higher baud rate than is otherwise available.

Once a value is placed in one of the mapped fields, whenever an application selects the mapped rate, the alternate rate is used instead. For example, if you map 300 to 115200, then select 300 baud in an application, the actual baud rate used is 115,200.

Follow these steps to remap baud rates:

1. Access the **System Properties** window. (Either double-click on the Control Panel **System** icon or right-click on the **My Computer** icon and select **Properties**.)
2. Select the **Device Manager** tab.
3. Double-click on **Multi-function adapters**.
4. Select the RocketPort/RocketModem and click **Properties**.
5. Select the **Board Options** tab.
6. Click the **Advanced** button. The Advanced Board Options window appears:



7. In the **Baud Rate Mapping** section of this window, select the rate you want to remap.
8. Use the droplist to select a new baud rate, or type in a value.
Note: See the Hardware Installation Card to determine which baud rates are supported by your adapter.
9. Repeat Steps 7 and 8 as required.
10. If necessary, set the scan rate as described in [Scan Rate](#) on Page 17. In order to use a Scan Rate faster than 10 ms, the **Use IRQ** box must also be checked.
Note: Typically, you should leave the scan rate set to the default value (10 ms) for most applications. Only change the scan rate if you are experiencing performance bottlenecks. If you go lower than 10 ms, it may affect overall system performance.
11. Click **Done** to save your changes and return to the Board Options window.

- Click **OK** to return to the System Properties window. Your changes take effect immediately. No restart is required.

Scan Rate

Typically, you should leave the scan rate set to the default value (10 ms) for most applications. Only change the scan rate if you are experiencing performance bottlenecks. If you go lower than 10 ms, it may affect overall system performance.

To adjust latency for time-critical applications, select a longer or shorter interval from the list, or type in the rate. This may require some experimentation to achieve the desired results.

In order to use a Scan Rate faster than 10 ms, the **Use IRQ** box must also be checked. For more information, see [Installation Without a Dedicated IRQ](#) on Page 17.

***Note:** To determine the maximum baud rate for your adapter, see the appropriate hardware document.*

Installation Without a Dedicated IRQ

By default, this driver runs without an IRQ selection (the **Use IRQ** box is unchecked). In this state the controller runs off the system timer. (This does not free up the IRQ, but simply informs the driver not to use it.)

To run with an IRQ, check the **Use IRQ** box on this screen.

If you are experiencing IRQ conflicts or need to make more substantial changes, see [Changing the IRQ](#) on Page 17.

Stay Resident

This driver is normally loaded into memory only when needed. If you check the **Stay Resident** box on this screen, the driver is forced to stay resident in memory, which can be useful for avoiding the loading and unloading process.

You must enable **Stay Resident** for a RocketModem board because it requires driver support in the resident memory in order to upload the firmware when the PC is powered up or after a board reset.

***Note:** If the Stay Resident option is checked, you may need to restart your PC before driver configuration changes take effect.*

Fast

The **Fast** checkbox on the Advanced Board Options window sets output queue reporting to be based on the software buffer alone. This option is selected by default as it produces faster throughput and better efficiency. Some specialized applications may need to know precisely (down to the millisecond) when data is actually sent out the port, in which case you may need to uncheck this option.

Changing the IRQ

If you experience IRQ conflicts or need to make more substantial changes beyond disabling IRQ use, follow these steps:

- Right-click **My Computer** and select **Properties**. The **System Properties** window appears.
- Select the **Device Manager** tab.
- Double-click on **Multi-function adapters**.
- Select the RocketPort/RocketModem and click **Properties**.

5. Select the **Resources** tab.
6. Select **Interrupt Request**.
7. Click the **Change Setting** button.
8. Use the **Value** control to adjust the interrupt. The range of available options is determined by the board type. If a PCI-bus adapter is installed, you cannot change the interrupt.

If all the Control boards in the computer are ISA-bus, your options are None, 3, 4, 5, 9, 10, 11, 12, or 15.

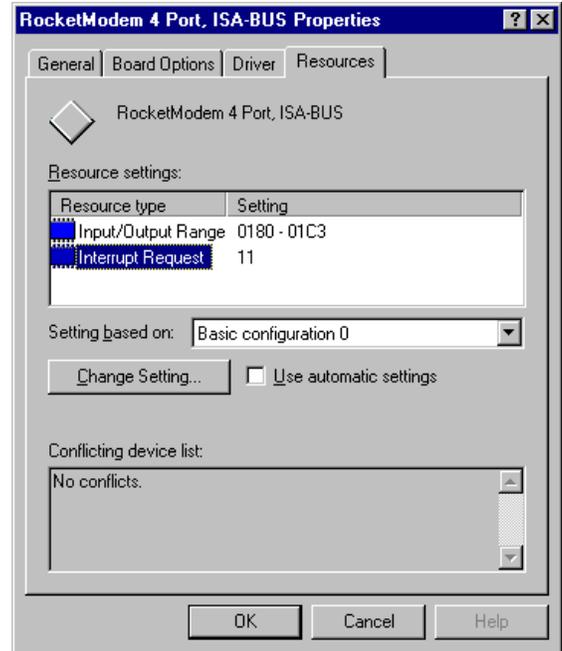
Pay attention to the **Conflict information** window, as it displays the names of other devices using the selected interrupt.

9. Make sure the **Use automatic settings** checkbox is clear (empty).
10. Click **OK** to return to the **Resources** tab.

Optionally, if it is an ISA controller, select **Basic Configuration 2** to run without an interrupt.

Optionally, if it is a PCI controller, you may be able to use the System Setup Utility to allocate IRQ lines between the ISA and PCI bus. If the PCI slot does not have an IRQ assigned to it, the driver uses the system timer for its service. Use of an IRQ is strongly recommended for port speeds of 115,200 and higher.

11. Click **OK** to exit the System Properties window.
12. Reboot the PC so that your changes take effect.



Adding Adapters

Adding PCI-Bus Adapters

To add more PCI-bus adapters to an installed and working RocketPort or RocketModem installation, simply shut down the computer and install the new cards. When the computer is powered on again, it recognizes the new boards and installs driver software for each port automatically.

Adding ISA-Bus Adapters

To add ISA-bus adapters to an existing installation, follow these steps:

1. Select **Start > Settings > Control Panel**.
2. Double-click the **Add New Hardware** icon. The Add New Hardware Wizard starts.
3. Click **Next** to continue.
4. Click **Next** to continue.
5. Click **No** to indicate the device is not on the list. You are asked if you want Windows to search for new hardware.
6. Click **No** to select hardware from a list, then click **Next**. You are asked to select the type of hardware to install.

7. Select **Multi-function adapters** and click **Next**. A list of board manufacturers and models appears.
8. Select **Control Corporation**. Then select the model of adapter you are installing.
9. Click **Next** to continue. The install wizard selects an available I/O address and IRQ setting.
10. Click **Next** to continue.
11. Click **Finish**.
12. Click **Yes** to shut down your computer. Turn off the power.
13. Set the I/O address DIP switches as described in the *Hardware Installation Card*.
14. Install the new adapter.
15. Power on the computer and use the bootable diagnostic to verify that the board is installed and operating correctly.
16. After the board passes diagnostics, remove the diagnostic disk from the drive and reboot the PC into Windows.
17. Reset the board basic configuration:
 - a. Access the **System Properties** window. (Either double-click on the Control Panel **System** icon, or right-click on the **My Computer** icon and select **Properties**.)
 - b. Select the **Device Manager** tab.
 - c. Double-click on **Multi-function adapters**.
 - d. Select the new RocketPort/RocketModem and click **Properties**.
 - e. Select the **Resources** tab.
 - f. Set "Setting Based on" to **Basic Configuration 1**.
 - g. Click **OK** to close the window. A warning message appears.
 - h. Click **Yes** to continue. Another message appears advising you to restart your computer.
 - i. Click **Yes**.
18. Shut down and restart the computer, so your changes take effect.

Installing Modems and Adding Serial Printers

After installing the hardware and driver for Windows 98/SE or ME, follow the instructions in this section to configure modem COM ports and serial printers.

Installing Modems

RocketPort adapters can support any asynchronous serial modem for use by any application that uses Telephone Application Programming Interface (TAPI). For information regarding port pinouts and signals, see the *Hardware Installation Guide*.

Note: *There is one exception to this rule: the RocketPort 8J, RocketPort PCI 8J, and RocketPort Plus Universal Plus 8J are not recommended for use with modems, as it lacks the full-range of control signals. All other RocketPort models work with modems.*

RocketModem boards are essentially RocketPort boards with built-in and dedicated modems. The serial ports are not accessible externally.

Installation Requirements

The RocketModem board must be configured with COM port names before you install a modem. If you are using an external modem supplied by another vendor, any COM ports attached to the modem must be configured with a valid COM port names before you install the modem.

Installing a Modem

The following instructions were developed using Control modem products. If you are using another brand of modem, note that some prompts and screen descriptions may differ from those shown.

Follow these steps:

1. Connect the modem to the desired port and power up the modem or install the RocketModem series card using the appropriate hardware document. (See [Hardware Installation Documentation](#) on Page 5 information on locating the appropriate hardware document.
2. Select **Start > Settings > Control Panel**.
3. Double-click the **Modems** icon. The Modem Properties window appears.

If you have no other modems installed, skip to [Step 6](#).



4. If you have already installed another modem, the Modems Properties window appears. Click the **Add** button.



5. If necessary, select **Don't run the Hardware Installation Wizard**.

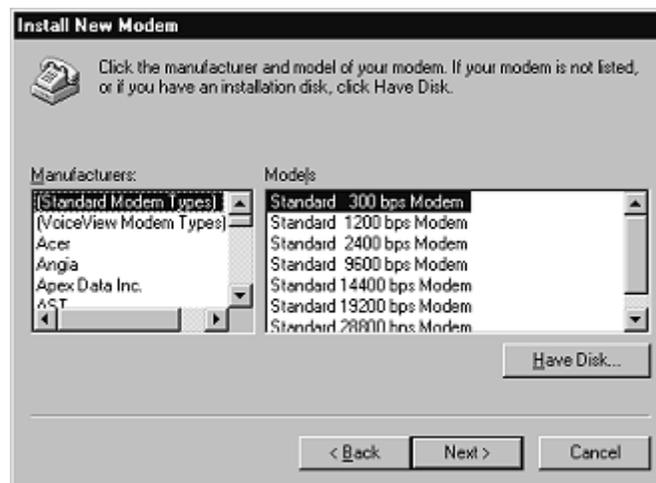


6. Check the **Don't detect my modem...** box and click **Next**.

Note: *Do not use the auto-detect feature. The Windows modem auto-detect function does not recognize ports above COM10, and it scans **down**, beginning with the highest detected COM port. This can produce extremely confusing modem-to-port numbering and naming sequences.*

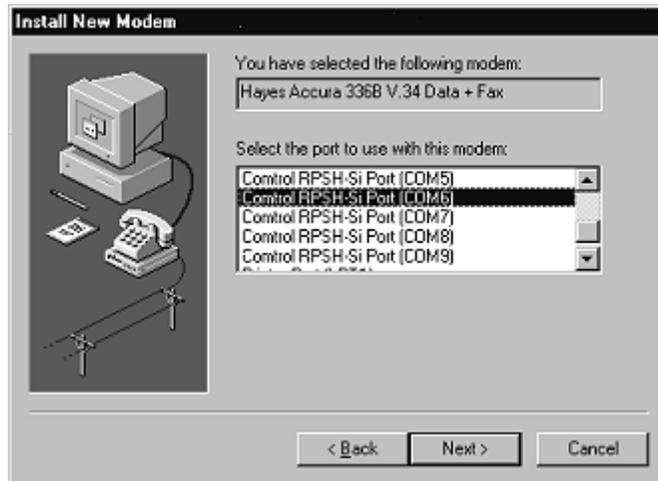
7. Select the appropriate manufacturer and model and click **Next**. If the correct manufacturer and model do not appear on the list, click **Have Disk** to install software from a manufacturer-supplied installation diskette or browse select a path where the installation files for the RocketModem are located.

Note: *Windows 98/SE and ME only support the Comtrol RocketModem II V.90 and Comtrol RocketModem III V.90 modems.*

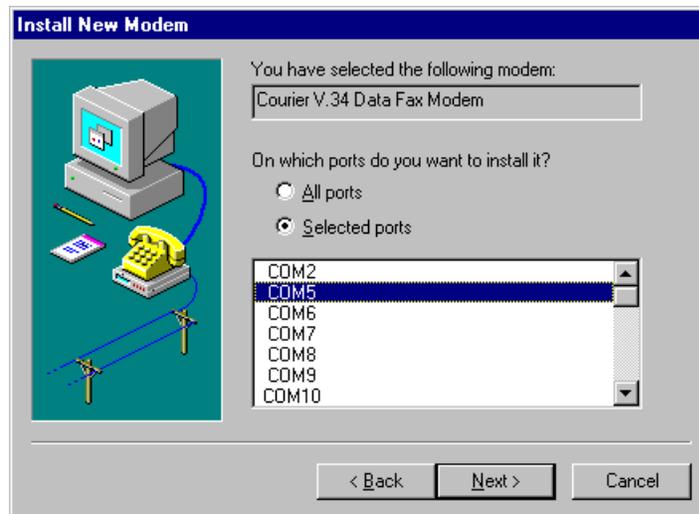


8. Select the port to which the modem is attached and click **Next**. The PC installs the modem software.

Note: *The ports listed as available for use with this modem may already be assigned to another device. If you are not sure which ports are available for the new modem, check the Diagnostics tab on the Modem Properties window to determine the available ports.*



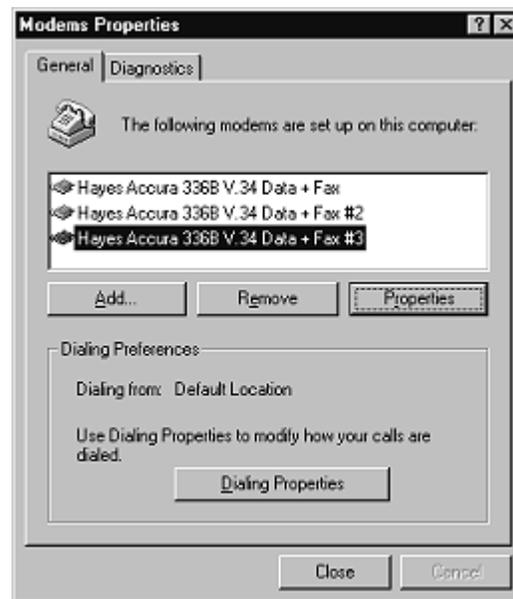
A list of all available COM ports appears:



9. Select the port on which you wish to install the modem. If you have multiple modems of the same type (for example, four RocketModem cards or Couriers), you can select more than one port and install all the modems at the same time.

10. Select **Finish**.

11. The Modems Properties window appears again. Depending on prior configuration, you may be asked to enter your country of use, area code, number dialed to get an outside line, and whether you have tone or pulse dialing.



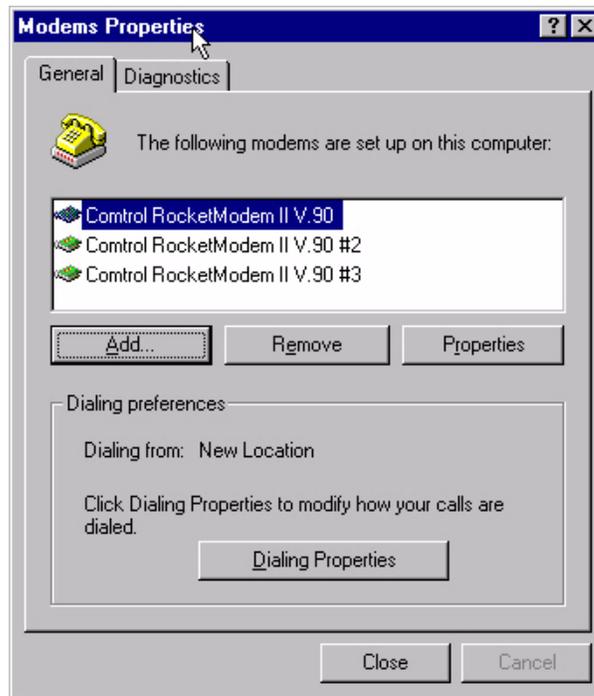
12. If you need to configure modem properties (maximum baud rate, data bits, parity, and so on), click the **Properties** button, make the needed changes, then click **OK** to return to this window.



***Note:** For help configuring modem properties, see the Windows Help System.*

13. If you need to configure dialing properties (country, area code, calling card number, and so on), click the **Dialing Properties** button, make the needed changes, then click **OK** to return to this window.
14. Repeat steps 4 through 13 for each of the remaining modems.

Subsequent modems appear in the list as modem_type #2, modem_type #3, etc.

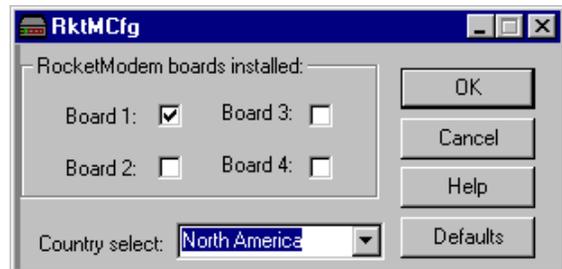


15. Click **Close** to exit the Modem Properties window.
16. Reboot the computer. The RocketModem configuration utility automatically runs on startup and uploads the RocketModem firmware.

RocketModem Reconfiguration

When you first install a RocketModem, the PC automatically launches the RocketModem Configuration program. To access this program after initial installation, follow these steps:

1. Select **Start > Programs > Control RocketPort RocketModem > RocketModem Config**. The RktMCfg window appears:
2. For each RocketModem installed, verify that the appropriate box is checked.



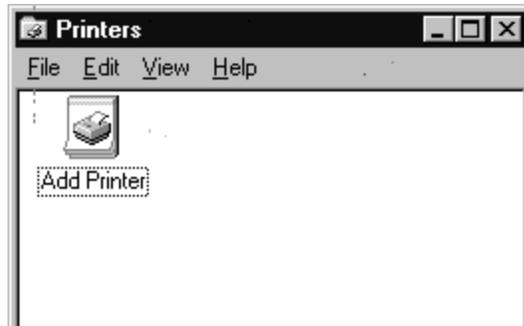
- Note:** Each RocketModem must be designated as a RocketModem on this screen in order for the Reset option ([Using RocketModem Reset \(rktreset.exe\)](#) on Page 44) to recognize the board.
3. Use the droplist to select the country or geographic region where the RocketModem will be used.
 4. Click **OK** to exit this program. Your changes take effect immediately. No reboot is necessary.
- Note:** This option simply identifies the adapter as a RocketModem and specifies the telco area where it will be used. You must also use the Windows Modems applet to install and configure the modem software. For more information, see [Installing Modems](#) on Page 21.

Adding Serial Printers

Follow the steps in this topic to add a serial printer to a RocketPort.

Note: *You may need the Windows 98/SE or ME CD-ROM in order to load drivers and complete printer installation. Make sure you have this CD on-hand before beginning the process.*

1. Connect the printer to the desired port. Use a DTE-to-DTE null modem cable unless the printer maker specifies otherwise.
2. Select **Start > Settings > Printers**.



3. Double-click the **Add Printer** icon. The Add Printer Wizard starts.



4. Click **Next**.

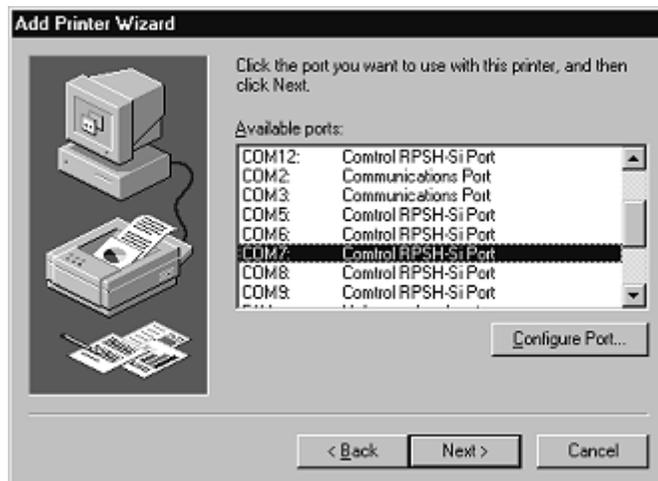
5. Select **Local printer**, then click **Next**.



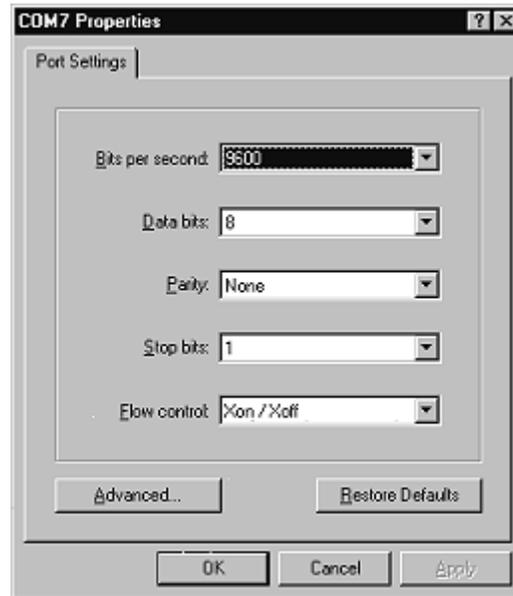
6. Select your printer make and model and click **Next**, or use the **Have Disk** option to load a printer driver from CD or diskette.



7. Select the COM port to which the printer is connected and click **Configure Port**.



8. Enter the baud rate, flow control, and other information as specified by the printer manufacturer, and click **OK**.



9. The port selection page appears again. Click **Next** to continue.



- Optionally, enter a custom name for this printer, and select whether this printer is the Windows default printer. Click **Next**.



- Select whether to print a test page and click **Finish**.

***Note:** You may be prompted to insert the Windows 98/SE or ME CD-ROM in order to load drivers. Do so and follow the on-screen instructions.*

- If the test page prints successfully, you are now ready to begin using the printer. No reboot is needed.

Changing Printer Port Configuration

If the printer does not successfully print the test page, it may be necessary to change the port baud rate, parity, and so on. If the Ports applet does not configure the port properly, you may have to use the **mode** command from a DOS prompt. Also, check the printer for DIP switches or other hardware configuration options.

Changing Printer Port Assignment

To change the port assigned to a printer, follow these steps:

- Select **Start > Settings > Control Panel** and double-click on the **Printers** icon.
- Right-click on the icon for the printer you want to change.
- Select the **Properties** option from the menu. The Properties window is displayed.
- Click the **Details** tab.

***Note:** The Properties window also gives you access to printer test and setup options that can be very helpful when debugging a serial printer installation.*

- Use the droplist to select the port you want to switch to. Remember to change your cabling accordingly.
- Click on the **OK** button. Any changes you make take effect immediately. No reboot is needed.

Control Tools

The following utilities are installed with this Control driver:

- [Test Terminal](#) (**wcom32.exe**) - Use this utility to troubleshoot communications on a port-by-port basis (see [Using Test Terminal](#) on Page 34).
- [Port Monitor](#) (**portmon.exe**) - Use this utility to check for errors, modem control, and status signals (see [Using Port Monitor](#) on Page 38). This utility also provides you with raw byte input and output counts.
- [RocketModem Reset](#) - Use this utility to reset individual RocketModems or all RocketModem boards to their default (power-on) states (see [Using RocketModem Reset \(rktreset.exe\)](#) on Page 44). This utility requires that RocketModems are installed and designated as RocketModem boards using the **RocketModem Configuration** option (see [RocketModem Reconfiguration](#) on Page 27) before you can use this utility.

Note: *If you are using a device driver for the Windows 98/SE or Windows ME operating system, you may need to download and install these utilities.*

Using Test Terminal

You can use the WCOM32 terminal program to open a port, send characters and commands to the port, and toggle the control signals.

Starting the Test Terminal

Follow these steps to start the Test Terminal:

1. Stop all applications that may be accessing the ports (for example, Remote Access Server (RAS), RRAS or any faxing or production software) before you start using Test Terminal. Test Terminal will be unable to open any port already in use by another application.

See the appropriate manuals for instructions on stopping these services or applications. Test Terminal cannot open a port when another application is controlling the port. When Test Terminal tries to open a port controlled by another application an error message appears.

Note: Remember to restart applications once you have completed your testing.

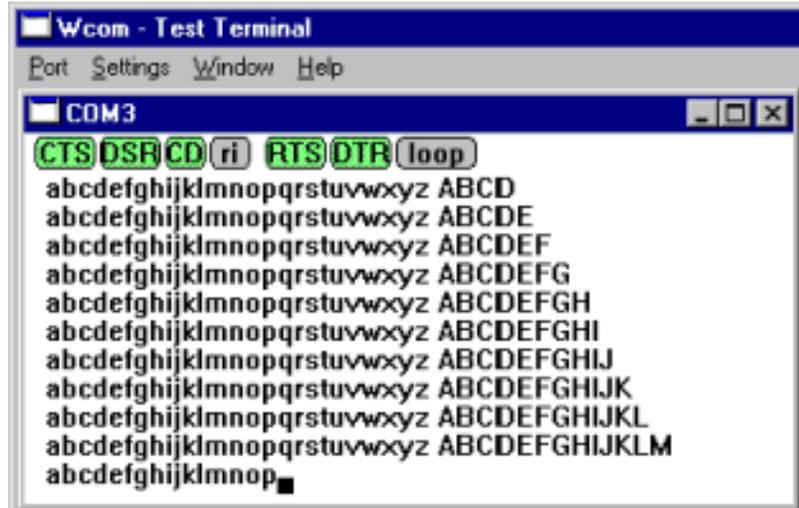
2. To start Test Terminal, select **Start > Programs > Control RocketPort RocketModem > Test Terminal (wcom32.exe)**. The Wcom - Test Terminal window appears:



3. Select **Port > Open Port** to display the list of possible COM port numbers.
4. Select the COM port you want to test.

If the COM port does not exist or if it is currently being used by another program, a *Create File Error* message appears.

If the COM port is available, a terminal window appears:



Note: Notice the <loop> button in the terminal window. If this option is activated, it is green and uppercase (**LOOP**), the COM port internal loopback feature is activated, and the data is returned by the COM port hardware. If this option is deactivated, it is gray and lowercase (**loop**), the internal loopback is deactivated, and the data is sent out the COM port.

Testing a Control Device

The following procedure describes how to use two tests to check serial port connections. These tests are:

- **Send Test Data** - This test sends data out the transit line to the loopback plug which has transmit and receive pins that send the data back through the Receive line to the Test Terminal application. The Test Terminal displays the data received in the terminal window for that port. The **Send Test Data** only tests the transmit and receive signal lines and nothing else. The port window displays the alphabet incrementing by one letter for each line of data received until it reaches the uppercase letter Z and then it repeats until you stop the test. If this test fails, it indicates the port is not working.

Note: You can run this test on RS-232 and RS-422 (or RS-485) ports.

- **Loopback Test** - This test uses the Control supplied loopback plug to test all modem control signals (for example, RTS, DTR, CTS, DSR and CD) and the Transmit and Receive signals on ports configured for RS232 use. The Loopback test changes the state of the lines and looks for corresponding state change. If it successfully recognizes all of these changes, the port passes the test.

Note: You can run this test on RS-232 ports. This test will fail if the port is configured for use as either RS-422 (or RS-485) because RS-422 (or RS-485) does not have the modem control signals that are present in RS-232 that this test is designed for. This test cannot be used on RocketModem products as there is no loopback plug for the phone port on the modem.

Use the following procedure to test the serial ports on the Control device.

1. If Test Terminal is not already running, start Test Terminal. See [Starting the Test Terminal](#) on Page 34 for instructions.
2. Place a loopback plug on the COM port you are testing. Make sure all connectors are seated firmly and that the loop button is **off**.

Note: To build loopback plugs, see the latest *Hardware Installation* documentation. See [Hardware Installation Documentation](#) on Page 5 for more information on the location of this document.

3. Select **Port > Send Test Data**. The program sends out a repeating data stream.

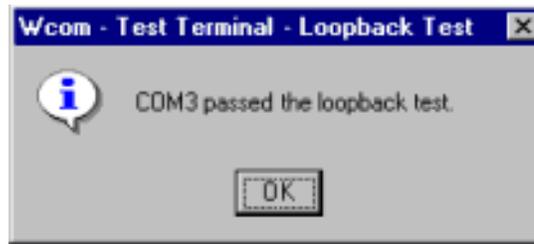
Note: To stop the data stream, select **Send Test Data** again.

- If the loopback plug is in place and the port is working correctly, the test data should be echoed back to the screen.
- If the loopback plug is **not** in place or the port is not working correctly, no data or garbled data is echoed back to the screen.

Note: If no characters appear, try putting the loopback plug on an adjacent port. It may be that you have the ports mixed up.

4. If further testing is required, select **Port > Loopback Test**.

If the loopback plug is in place and the port is working correctly, the system should return the message “Passed.”



If the loopback plug is not in place or the port is not working correctly, the system will return the message “Failed.”

5. If the port has failed in Step 4, and the RocketPort is equipped with an external interface box or fanout cable, click the **loop** button to switch the internal loopback feature **on**.
6. Repeat Steps 3 and 4. If the port now passes the tests, the fault may lie in the interface box or fanout cable. Contact Control technical support for more assistance.
7. If you are finished testing ports, close the Test Terminal and restart the applications.

Testing a RocketModem Adapter

Use the following tests to ensure that the RocketModem is functioning properly. If you report a problem to Technical Support they may request that you perform all of these tests. These tests assume Test Terminal is already running. See [Starting the Test Terminal](#) on Page 34 for instructions.

Note: Make sure the loop button is **off** for the following tests.

Test 1

The following test verifies that the ports for the RocketModem are functioning correctly.

1. Select **Settings > Port Settings**. This displays the current application settings on the Port Settings screen. The original factory setting are listed below:
 - **Baud Rate:** 115200
 - **Data Bits:** 8 bits
 - **Parity:** None
 - **Stop Bits:** 1
 - **Flow Control:** None

Note: Changing the values on this screen only lasts as long as the Test Terminal session remains open.

2. Click **OK** to exit the Communications Settings screen.

3. Enter **atz**. This should return an **OK**.

If you do not see **atz** on the screen, type **ate1** and press the **Enter** key, then type **atz** and press the **Enter** key again. If the screen displays **atz** and **OK**, proceed. If it does not, contact [Technical Support](#).

4. Enter **at&f&w0&w1** to restore the original factory settings for the selected port.

Note: *This command does not work on RocketModem II. Enter **at&f** for RocketModem II.*

5. Select **Port > Open Port > COMx +1**.
 - a. Repeat steps 1 through 4.
6. Repeat step 5 for all remaining ports.
7. Enter **at&v**. This should display the modem configuration.

Test 2

The following test initiates a call from the modem to an ordinary telephone.

1. Connect the modem to a phone line.
2. Enter **atdtphonenumber**.
Where *phonenumber* is the phone number of an ordinary telephone.
If the telephone is near you, you should hear it ring.
3. Enter **+++ath** to hang up.

Test 3

The following test initiates a call from one modem to another modem.

1. Connect two modems to phone lines.
2. Open two Test Terminal sessions.
3. Select **Windows > Tile** to display both Test Terminal sessions side by side.
4. Enter **atdtphonenumberofdestinationcomx** in the screen for the first modem.
Where *phonenumberofdestinationcomx* is the phone number for the second modem.
The screen for the second modem should display **RING**.
5. Enter **ATA** in the screen of the second modem. The modem should answer.
6. Check the connection speed.
7. Send typed characters from one modem to the other. The text should appear in the screen for the modem you are sending the text to. If data is transferred, the test is complete.
8. Enter **+++ath** to hang up.

Testing Terminal Modem Control Signals

This test assume Test Terminal is already running. See [Starting the Test Terminal](#) on Page 34 for instructions.

The terminal window displays the modem control signals as gray or green lights at the top of the window. The first four are inputs:

cts dsr cd ri

The lights are green if they are turned on, or gray if off. The text on the light also changes from uppercase (CTS), which is on, to lowercase (cts), which is off.

Note: *Ring Indicator (RI) is available on the RocketPort Plus, the RocketPort Universal PCI and the RocketPort Plus Universal PCI Quad/Octacable adapters*

The next two lights are outputs: **RTS DTR**

Note: *The signal lights behave differently on the RocketPort and RocketModem. The signal light behavior for these two products are described as follows:*

- **RocketPort** - If you have a loopback plug connected and you click on one of the outputs, the corresponding signal is sent to the input and the input lights should toggle accordingly.
- **RocketModem** - You can use RTS and DTR to send flow-control signals to the modem. However, this does not register on the input lights.

The right-most light is the loop indicator: **loop**

If this light is on, the COM port internal loopback feature is activated and any information or code entered in the terminal window loops back through the COM port circuitry. If this light is off, the COM port internal loopback is deactivated, and any information or code entered in the terminal window is sent out of the port.

Using Port Monitor

The Port Monitor program (**portmon.exe**) offers a summary of all RocketPort and RocketModem statistics in one spreadsheet view. You can also use it to verify operation of all RocketPort and RocketModem ports from a single window.

The Port Monitor display follows the familiar spreadsheet model: each COM port is a horizontal row, and each vertical column displays a variable or value for the respective COM port. For definitions of the abbreviations used, see the [Port Monitor Variables](#) on Page 42.

Port Monitor can also produce statistics and reports that can help you verify the operation of the COM ports and connected peripherals. Some immediate feedback includes:

- The state of the modem control and status signals
- Open ports
- Raw byte input and output counts obtained from the driver
- Port errors

The available statistics include:

- Instantaneous characters per second (CPS) calculations
- Minute, hour, and day CPS averages and peaks
- Carrier detect (CD) signal runtime and transition count

Reports can be automatically generated on an hourly and/or daily basis, and can cover all ports collectively or a separate report for each port. You can also set how often the values are recalculated, fine-tuning thoroughness against system efficiency, and automatically run external batch files to perform additional processing and analysis.

Starting Port Monitor

To run Port Monitor, select **Start > Programs > Control RocketPort RocketModem > Port Monitor**.

The Port Monitor window displays:

Device	Oper	CT	DS	IC	D	RT	DT	TxTotal	RxTotal	TxCPSInst	RxCPSInst
COM3	Off	Off	Off	Off	Off	Off	Off	0	0	0	0
COM4	Off	Off	Off	Off	Off	Off	Off	0	0	0	0
COM5	Off	Off	Off	Off	Off	Off	Off	0	0	0	0
COM6	Off	Off	Off	Off	Off	Off	Off	0	0	0	0
COM7	Off	Off	Off	Off	Off	Off	Off	0	0	0	0
COM8	Off	Off	Off	Off	Off	Off	Off	0	0	0	0
COM9	Off	Off	Off	Off	Off	Off	Off	0	0	0	0
COM10	Off	Off	Off	Off	Off	Off	Off	0	0	0	0

Note: To change the appearance of the screen, see the following discussion.

Once the monitor window displays, Port Monitor is active and collecting data. If any cumulative data has been saved from previous sessions, it is automatically brought in and used.

Port Monitor continues to run and collect data until you terminate it, at which point all accumulated data is automatically saved for use in the next session.

Changing Screen Appearance

While Port Monitor is running, there are a number of commands and controls that change the appearance of the screen.

Port Monitor Screen Commands

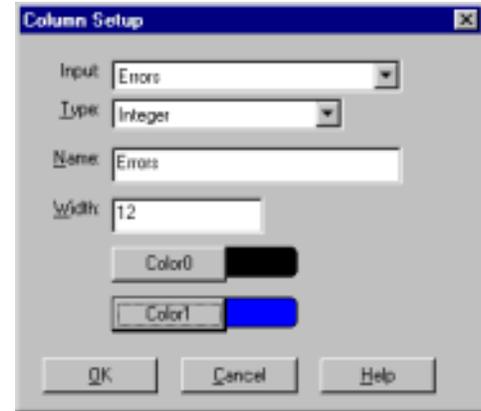
Desired Change	Procedure
Change the monitor window font.	Select Font from the Edit menu.
Change width of a single column.	Left-click on the column separator (vertical) line and drag it to the desired width.
Change column placement.	Left-click in the middle of the column you want to move and drag it to the desired location.
Remove a column.	Right-click on the column you want to remove and select Remove from the pop-up menu.
Clear all fields and reset them to null values.	Right-click on the upper left cell in the table and select Reset from the pop-up menu.*
Clear any single field <i>except</i> the upper left cell.	Right-click on the field to be cleared and select Reset from the pop-up menu.*
Add a column.	Right-click on the column now occupying the desired location and select Add from the pop-up menu. You are prompted to name the variable you want to display, as well as other information. (See <i>Column Setup</i> , below.) After you click OK , the column is inserted in the selected location and the existing column is moved to the right.
Change other properties of a column.	Right-click on the column and select Properties from the pop-up menu. (See <i>Column Setup</i> , below.)

* *The Reset command does not clear raw data from the calcs.dat file. It simply resets the selected display fields to their null values. For more information regarding calcs.dat see [Port Monitor Files](#) on Page 41.*

Column Setup

When you select **Add** or **Properties** from the column pop-up menu, the Column Setup window appears:

- Use the **Input** droplist to select the variable displayed in the column.
- Use the **Type** droplist to select the way in which the value displays: either as an integer, as an on/off state, as an integer with a kilo, mega, or giga suffix, or as an hh:mm:ss time stamp. This defaults to the appropriate type for the selected Input variable.
- Use the **Name** variable to change the column heading name.
- Use the **Width** variable to specify the column width in characters.
- Use **Color0** to set the column character color when the value is zero.
- Use **Color1** to set the column character color when the value is not zero.
- When done, click **OK** to save your changes and return to Port Monitor.



Report Configuration

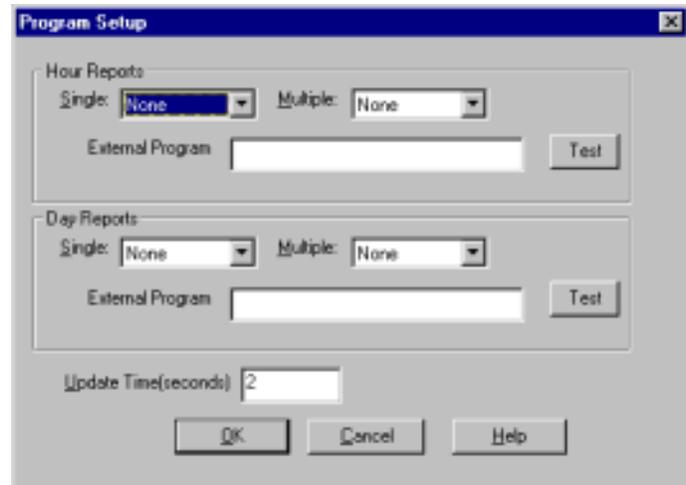
To configure reports, select **Config** from the **Edit** menu.

The **Single** report options cover all ports and are overwritten each time the reports are generated. The **Multiple** report options generate a separate report for each port, and each report file is appended each time the report is generated.

For **Hour** reports, use the Single and Multiple droplists to select whether you are generating single or multiple reports, or both. For each report type, select from the following types of data to include:

- **None**: no report is generated.
- **Hour Data**: only variables with “Hour” in the name are included.
- **All Data**: all variables are included.
- **View Data**: only variables that appear on-screen are included.

Enter a command to run another program after the hourly reports have been generated in the **External Program** field. The **External Program** field acts as a command line interface and automatically issues the specified command after each hourly report is generated. For example, you can issue a command to run a batch file that performs custom report processing. Click the **Test** button to immediately execute the command.



For **Day** reports, the single and multiple droplists behave the same, but your choices are:

- **None:** no report is generated.
- **Day Data:** only variables with the words “Day” or “Raw” in the names are included.
- **All Data:** all variables are included.
- **View Data:** only the variables that appear in the Port Monitor window are included.

Likewise, enter a command to run another program after the daily reports have been generated in the **External Program** field.

The **Update Time** option allows you to set the rate at which Port Monitor gathers the port information and performs calculations. There is a trade-off between Port Monitor efficiency and response time. If you are using Port Monitor to view the port activity on the screen, you may want to set the update time to 1 or 2 seconds, so that the screen is updated frequently. If you are concerned about how Port Monitor uses CPU resources, set this to a higher value, (6 to 20 seconds) in order to decrease the time required by the program to perform the calculations and update the screen.

If Port Monitor is left active to generate reports, minimizing or reducing the display area of the program will help reduce the CPU overhead of updating the screen.

Port Monitor Files

Port Monitor creates and uses the following files:

- **portmon.vew**
- **calcs.dat**

The default column layout is saved in **portmon.vew**. If you have been experimenting with the appearance of the monitor screen, you can use the File menu **Save** option to save your customized layout in another **.vew** file. You can retrieve this file later by using the File menu **Open** option, or you can use the Edit menu **View Default** option to retrieve **portmon.vew** and restore the default view.

All Port Monitor calculations are saved at program exit and on the hour in a binary file named **calcs.dat**. You can halt Port Monitor execution without losing accumulated data.

Port Monitor also creates a **\REPORTS** directory. All hourly and daily reports are saved in this directory, under the following names:

- **hall.txt** — hourly single report
- **dall.txt** — daily single report
- **hcomx.txt** — hourly multiple reports, where *x* is the port number
- **dcomx.txt** — daily multiple reports, where *x* is the port number

Caution: *Since multiple reports append new data each time they are written, the multiple report files grow in size. It is up to you to delete them periodically.*

Some safeguards are built into the program to avoid filling up a hard disk drive due to growing report files. The monitoring program stops writing additional data to the multiple reports if they reach a size of 2 MB. Also, the program will not write out data files to the disk drive if the spare room on the drive is less than 2 MB in size.

To view or edit an hourly or daily report, use the **Edit Report** option on the **File** menu, or use a system tool such as Microsoft Notepad.

For more information, see the Port Monitor **Online Help**.

Port Monitor Variables

The following table lists Port Monitor variables.

Port Monitor Variable List

Variable	Description
Open	Open status, on if open, off if closed.
Cts	Input CTS pin status.
Dsr	Input DSR pin status.
Cd	Input CD (carrier detect) pin status.
Rts	Output RTS pin status.
Dtr	Output DTR pin status.
TxTotal	Total bytes transmitted.
RxTotal	Total bytes received.
TxCPSInst	Instantaneous average of transmit characters per second.
RxCPSInst	Instantaneous average of receive characters per second.
Errors	Total hardware receive errors (parity, framing, and overruns.)
TxMinCPS	Last minute average of transmit characters per second.
RxMinCPS	Last minute average of receive characters per second.
TxCPSMinAvMax	Peak TxCPSInst for the last minute.
RxCPSMinAvMax	Peak RxCPSInst for the last minute.
TxCPSHourAvMax	Peak TxMinCPS for the last hour.
RxCPSHourAvMax	Peak RxMinCPS for the last hour.
TxCPSDayAvMax	Peak TxMinCPS for the last day.
RxCPSDayAvMax	Peak RxMinCPS for the last day.
TxTotalRaw	Total number of transmit bytes raw data from the driver.
RxTotalRaw	Total number of receive bytes raw data from the driver.
TxMinCnt	Count of transmit bytes sent in last minute.
TxHourCnt	Transmit bytes count sent in the last hour.
TxDayCnt	Transmit bytes count sent in the last day.
RxMinCnt	Receive bytes count sent in the last minute.
RxHourCnt	Receive bytes count sent in the last hour.
RxDayCnt	Receive bytes count sent in the last day.
TxMinCntWrk	Transmit bytes count sent in this minute.
TxHourCntWrk	Transmit bytes count sent in this hour.
TxDayCntWrk	Transmit bytes count sent in this day.
RxMinCntWrk	Receive bytes count sent in this minute.
RxHourCntWrk	Receive bytes count sent in this hour.
RxDayCntWrk	Receive bytes count sent in this day.
TxCPSMinAvMaxWrk	Peak TxCPSInst for the current minute.
TxCPSHourAvMaxWrk	Peak TxMinCPS for the current hour.
TxCPSDayAvMaxWrk	Peak TxHourCPS for the current day.

Port Monitor Variable List (Continued)

Variable	Description
RxCPSMinAvMaxWrk	Peak RxCPSInst for the current minute.
RxCPSHourAvMaxWrk	Peak RxMinCPS for the current hour.
RxCPSDayAvMaxWrk	Peak RxHourCPS for the current day.
CDRuns	Carrier detect turn-on count.
CDDayRuns	Carrier detect turn-on count in the last day.
CDDayRunsWrk	Carrier detect turn-on count in the current day.
CDRunTime	Time in seconds carrier detect has been on.
CDHourRunTime	Time in seconds carrier detect has been on in the last hour.
CDDayRunTime	Time in seconds carrier detect has been on in the last day.
CDHourRunTimeWrk	Time in seconds carrier detect has been on this hour.
CDDayRunTimeWrk	Time in seconds carrier detect has been on this day.
StatusFlags	Bit flags, Open, CTS, DSR, CD, RTS, DTR
TxPkts	Raw count of total transmit packets sent.
RxPkts	Raw count of total receive packets sent.
OverrunErrors	Total count of receive overrun errors.
FramingErrors	Total count of receive framing errors.
ParityErrors	Total count of receive parity errors.
OverrunErrorsRaw	Total count of receive overrun errors, from the driver.
FramingErrorsRaw	Total count of receive framing errors, from the driver.
ParityErrorsRaw	Total count of receive parity errors, from the driver.

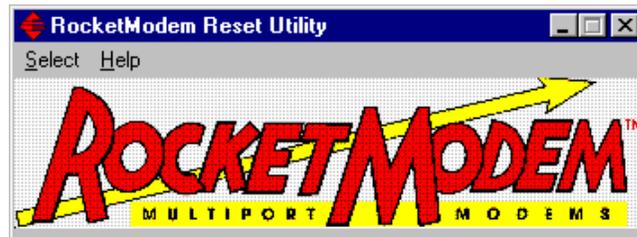
Using RocketModem Reset (rktreset.exe)

You can use the RocketModem Reset utility to reset individual or all RocketModem boards to their default (power-on) states. This utility requires that RocketModem II boards are installed and designated as RocketModem boards using the **RocketModem Configuration** option (see [RocketModem Reconfiguration](#) on Page 27) before you can use this utility.

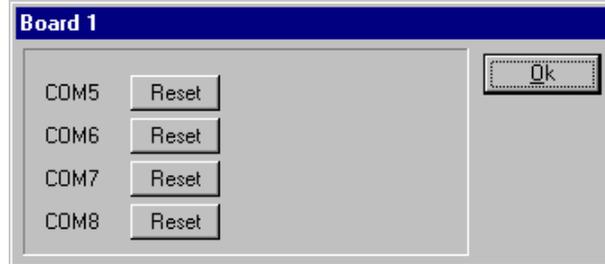
Note: *Reset is not implemented on all RocketModems. To determine whether your RocketModem supports reset, see the readme file.*

To reset a RocketModem, follow these steps.

1. Select **Start > Programs > Control RocketPort RocketModem > RocketModem Reset** from the Control program group. The RocketModem Reset Utility window appears.



2. Click on the **Select** menu option. A drop-down menu appears.
3. To reset all identified RocketModem boards in the server, select **Reset all** and skip to Step 6.
4. To reset individual modems, select the **Board** number.



5. Click the **Reset** button(s) for the modem(s) you want to reset.
6. When you are done, click **OK** to close the Board window and return to the RocketModem Reset Utility window. Repeat steps 4 through 6 as needed.
7. Select **Exit** or click the close button to quit the reset utility. You may now resume normal operations.

Troubleshooting and Technical Support

This section contains troubleshooting information for your Control device. You should review the following topics 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 the problem.

Troubleshooting

RocketPort / RocketModem Issues

If you are having trouble with a RocketPort or RocketModem, try the following.

Note: Most customer problems reported to [Technical Support](#) are traced to cabling or network problems.

1. If the unit does not have a power switch, disconnect and reconnect the power cord.
2. If you have an ISA-bus adapter, make sure that you set the I/O DIP switch correctly.
3. Verify that you are using the correct types of cables in the correct places and that all cables are connected securely.
4. Reboot the server.
5. 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.
6. Use the [Test Terminal](#) program (**wcom32.exe**) to troubleshoot communications on a port-by-port basis.

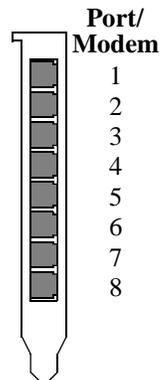
Note: Stop all applications that may be accessing the ports such as Remote Access Server (RAS), RRAS or any faxing or production software before you start using Test Terminal.

See the appropriate 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 appear.

Follow the instructions in [Starting the Test Terminal](#) on Page 34 and [Testing a Control Device](#) on Page 35 to test the serial ports. If both tests successfully complete and the ports are operating as expected, restart the applications.

7. Use the [Port Monitor](#) program (**portmon.exe**) to check for errors, modem control, and status signals. In addition, it provides you with raw byte input and output counts.
8. Remove and reinstall the driver.
9. Verify that you have obtained and installed all Microsoft service packs for your operating system.
10. Verify that you have the latest Control driver for your adapter and operating system. Current versions of all Control software can be downloaded at no charge from the Control web or ftp sites. See [Locating Current Drivers](#) on Page 5 for more information on locating and downloading the latest driver.
11. Verify that your application supports COM ports higher than COM4 or COM9.

12. Verify that you are using the correct ports. The RocketModem 8 mounting bracket and port numbering scheme are shown in the illustration at right. The port on the “top” edge of the card is Modem 1, and the port at the “bottom” edge of the card, nearest the bus connector, is Modem 8.



13. The RocketPort 8J uses the displayed bracket and numbering scheme as the RocketModem 8.

The RocketModem 4 uses the same mounting bracket as the RocketModem 8 and RocketPort 8J, but Jacks 5 through 8 are blocked with blank plugs.

The RocketPort 4J uses four RJ45 jacks. The port at the “top” edge of the card is Port 1, and the port at the “bottom” edge of the card is Port 4.

14. If you are using an ISA-bus adapter, verify that the DIP switch on the adapter is set to an I/O address that matches the I/O address selection, and that there are no address or interrupt conflicts with other boards.
15. Use the Advanced Board Options to reset the Scan Rate and IRQ to the default settings.
16. Make sure the adapter is seated firmly in the expansion slot, and that the expansion slot screw is in place.
17. If your RocketModem model supports reset, use the RocketModem Reset utility ([rktreset.exe](#), Page 44) to reset the modem to its default (power-on) state.
18. Shut down the server, reboot from the **Diagnostic** diskette, and follow the on-screen instructions to test the hardware.
19. If you are unable to resolve the problem, see [Technical Support](#) on Page 48 for information on contacting Control.

Known Issues

In addition to the general tips listed above, we have identified a number of specific issues and conditions that affect adapter’s performance.

- All products

The Control Panel **Add/Remove Software** option can be used to remove the driver, *version 1.42 or later*. Earlier versions of the driver cannot be removed through this option.

If you need help removing an earlier driver from your system, see [Technical Support](#) on Page 48 for information on contacting Control technical support.

- All PCI-bus products

PCI-bus I/O addresses are *slot specific*. If you want to move a RocketPort or RocketModem from one PCI slot to another, you must use the Device Manager to remove the board first, then shut down the system, remove the adapter, and reinstall it in the new slot.

If you move or remove a PCI-bus adapter without first removing it in Device Manager, the system “thinks” the original board is still installed and you must edit the registry to correct this.

- RocketPort with 3COM/U.S. Robotics Modems

Symptom: Message displays, “The communication device attached to COMxx is not functioning.”

Solution: Most USB modems come from the factory set to “Load NVRAM defaults.” Reconfigure the modem to “Load Factory Defaults,” as the driver issues settings from the **mdm*.inf** file.

- RocketModem and 3COM/U.S. Robotics v.34 Modems

Symptom: When dialing in from a USR v.34 or v. Everything modem, a “clattering” noise develops on the line and the speed negotiation sequence locks up.

Solution: Follow these steps:

- a. Select **Start > Settings > Control Panel**.
 - b. Double-click the **Modems** icon.
 - c. Select a RocketModem and click **Properties**.
 - d. Select the **Connection** tab.
 - e. Click the **Advanced** button.
 - f. In the **Extra settings** field, enter **ATS210=12**
 - g. Click **OK** to save your changes and exit the Modems applet.
- RocketModem with Lotus Notes

When using RocketModem with Lotus Notes, Notes must be configured for “RING” instead of “RI.”

Driver Error Messages

The driver may display a blue screen error message if it determines a fault condition. The following lists some of the possible errors.

Driver Error Messages

Message	Condition	Solution
Interrupts Not Functioning	The driver tested and determined the interrupt (IRQ) is not functioning properly.	Change the IRQ or run without an IRQ.
IRQ Initialization	The driver could not use the interrupt specified.	Change the IRQ or run without an IRQ.
Hardware error-ctrl:## Addr:##, Irq:##	A hardware error was encountered while initializing the board hardware.	Change the I/O setting (if ISA, make sure you check/change the I/O DIP switch.
Number of Ports Mismatch	The actual number of ports on a board does not match the configuration.	Delete in Device Manager and reinstall with correct Control adapter selected.
Hardware Channel Init	A specific port could not be initialized at the hardware level.	Run the Diagnostic.

Before calling Technical Support

Control has a staff of support technicians available to help you. You should review *Troubleshooting* 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	Information
Adapter type	
Adapter serial number	
Driver part number and revision or version	
Server computer make, model, speed, and single/dual processor	
Other serial port adapters installed in the server and their COM port numbers	
Devices connected to the adapter	

Technical Support

If you need technical support, contact Control using one of the following methods.

Contact Method	Corporate Headquarters	Control Europe
FAQ/Online	http://support.comtrol.com/support.asp	
Downloads	http://support.comtrol.com/download.asp	
E-mail	support@comtrol.com	support@comtrol.co.uk
Web site	http://www.comtrol.com	http://www.comtrol.co.uk
Fax	(763) 494-4199	+44 (0) 1 869-323-211
Phone	(763) 494-4100	+44 (0) 1 869-323-220

Appendix A. Programming Information

Microsoft© provides technical support for communication calls, which the RocketPort or RocketModem series supports. This means most applications for the Windows 98/SE or ME operating system (or other 32 bit programs) operate on RocketPort or RocketModem ports without modification.

To assist you, Comtrol has created sample code (**PROG32.ZIP**), which is available on the WEB and FTP sites. For further examples, you can look at *Microsoft Windows 98/SE or ME Software Development Kit (SDK) Programming Reference* books.

For help programming COMM API, contact Microsoft technical support.

Windows 98/SE or ME Software Support

This driver uses the Microsoft COMM API and supports all protocols and applications that use the Windows 98/SE or ME COMM driver. These include but are not limited to:

- Hyperterminal
- Briefcase
- Microsoft Mail and FAX
- Microsoft Online/Exchange
- Dial-Up Networking
- PPP/SLIP
- Most Microsoft 16- and 32-bit API-supported applications.

Driver Limitations

The following are known driver limitations and are not implemented due to hardware constraints, operating system constraints, or lack of demand. The following are options used in the **SetCommState()** programming call.

- **fTXContinueOnXoff** - Not Implemented. Option to stop Tx Flow when RocketPort sends a Xoff.
- **fDSRSensitivity** - Not Implemented. This option ignores any received data while DSR is not active.
- **fRTSToggle** - Not supported by Windows 98/SE or ME.
- **Parity** - Only NONE/ODD/EVEN supported (No mark or No space).
- **StopBits** - Restricted to 1 or 2 (No 1.5).
- **ByteSize** - Restricted to 7 or 8 (No 5, 6).

The Windows 3.1 special RocketPort library calls are not supported in Windows 98/SE or ME (this was supplied for Windows 3.1 only as a means of opening ports above COM10.)

In Windows 98/SE and ME, the current solution is to rewrite the program as a 32-bit program and then use the special sequence `\\.COM11` in the **CreateFile()** call.

Device Control Block (DCB) Parameters

- **XonLim, XoffLim** - The RocketPort and RocketModem series does not handle flow control like traditional PC COM ports. Keep in mind the adapters have large hardware input/output buffers, and any control strategy based on buffer levels brings the following question: should the trip point be in reference to the hardware buffer, or the driver software buffer, or both? And if the hardware performs the flow control, you cannot consider the software buffer in the equation. You also need to balance this with efficiency.

RTS/CTS flow control is handled by the adapter on a hardware level. The RTS trip points are hardwired to about 7/8 full and empty in relation to the hardware input buffer of 1,024 bytes.

DTR/DSR flow control is handled at the software driver level. The DTR trip point is hardwired at the level at which the software input buffer becomes full (the hardware input buffer of 1,024 bytes still remains). The low level is **XonLim**, and is in relation to the drivers software buffer.

- **fOutX** - If set, this cause data transmission to halt upon reception of a XOFF character and resume when a XON character is received. The XON/XOFF characters are specified by **XoffChar** and **XonChar** parameters and may be changed by the application. The trip points are hardwired to 7/8 full and empty in relation to the hardware input buffer of 1,024 bytes.
- **fInX** - If set, when the receive buffer is near full, an XOFF character will be sent out to stop the incoming flow of data. When the receive buffer empties, the XON character is sent to resume incoming data. The **fInX** trip point is hardwired at the level at which the software buffer becomes full (same as DTR above).
- **fBinary** - *Leave this bit set on!* ASCII mode (this value at zero) enables the EOF character to be detected. After the EOF character has been detected, no more data is allowed to be read, and an overflow error is displayed if more data is received. While Non-Binary mode is supported, it should not be used.

Bypassing the Normal Windows 32 APIs

An application program cannot talk to the port driver directly, and must go through the normal API calls. In the Windows 98/SE and ME environments it is possible to write a VCOMM client to bypass the Win32 API layer, but this is not recommended and is not portable to the Windows NT environment.

Real Time Issues

By default, the driver runs in a polled interrupt fashion; the system is interrupted every poll period. The poll period default is 10 milliseconds (100 Hz). (In this instance the **Use IRQ** option is not selected in the **Advanced Board Options** dialog. See [Remapping Baud Rates](#) on Page 16 for more information on the **Use IRQ** option.)

What this means is that all Event processing is restricted to the poll period interval. This will only be a problem for some applications that require very precise synchronization with other hardware. In some cases, this may be worked around by polling the queue counts through **GetCommError()**.

Opening Ports Higher Than COM10

To open up COM ports higher than COM10 a special named format is used with **CreateFile()**: `\\\\.\\COM10` (when using the C language you need to double up the backslashes: `\\\\\\\\.\\COM10`). This works only for 32-bit programs running under Windows NT, 98/SE, or ME. 16-bit applications running under Windows NT, 98/SE or ME also have this restriction.

COMMTIMEOUTS: **GetCommTimeouts()** and **SetCommTimeouts()** Structure

These features are implemented in a standard part of the operating system and not in the port-driver, although it does rely on callback facilities built into the driver. These timeouts should be used to avoid getting stuck forever in a read or write operation when using the standard (non-overlapped) mode of operation.

Index

A

Adapters

- Adding ISA-bus adapters [18](#)
- Adding PCI-bus adapters [18](#)

Adding

- ISA-bus adapters [18](#)
- PCI-bus adapters [18](#)
- Serial printers [28](#)

Advanced configuration [15](#)

B

Baud rate

- Remapping [16](#)
- Using the Scan Rate option [17](#)

Bypassing

- Normal Windows 32 APIs [50](#)

ByteSize [49](#)

C

calcs.dat [41](#)

Calling

- Technical Support [48](#)

Changing

- IRQ [17](#)
- Printer port
 - Assignment [31](#)
 - Configuration [31](#)

COM port numbering [15](#)

COMM API [49](#)

COMMTIMEOUTS [51](#)

Control

- Contact information [48](#)
- Corporate headquarters [48](#)
- Downloads [48](#)
- E-mail [48](#)
- Europe [48](#)
- FAQ [48](#)
- Fax [48](#)
- Online support [48](#)
- Phone [48](#)
- Tools [33](#)
- Web site [48](#)

Configuration

- Advanced [15](#)

Customer support

- Contact information [48](#)
- Online support [48](#)

D

dall.txt [41](#)

Day report [41](#)

dcomx.txt [41](#)

Device Control Block (DCB)

- Parameters [50](#)

Disabling

- Device driver [7](#)

- Driver [7](#)

Driver

- Disabling [7](#)
- Error messages [47](#)
- Features [5](#)
- Installing [7](#)
- Installing new [8](#)
- Limitations [49](#)
- Removing [7](#)

E

E-mail support [48](#)

Error messages

- Driver [47](#)

Event processing [50](#)

Extracting

- Installation files [8](#)

F

Factory setting [36](#)

Fast option [17](#)

fBinary [50](#)

fDSRSensitivty [49](#)

fInX [50](#)

fOutX [50](#)

fRTSToggle [49](#)

fTXContinueOnXoff [49](#)

G

GetCommTimeouts() [51](#)

H

hall.txt [41](#)

Hardware Channel Initialization [47](#)

Hardware error [47](#)

hcomx.txt [41](#)

Hour reports [40](#)

I

Installation requirements

- Modems [21](#)

Installing

- Device driver [7](#)
- Modems [21](#)
- New device driver [8](#)
- Prerequisites
 - Windows 98/SE or ME [6](#)
- Running without dedicated IRQ [17](#)
- Software
 - ISA-bus [11](#)
 - PCI, Universal PCI, or CompactPCI bus [9](#)

Interrupts Not Functioning [47](#)

IRQ

- Changing [17](#)
- Conflicts [17](#)
- Initialization [47](#)

Running without dedicated IRQ [17](#)

ISA-bus adapters

Adding [18](#)

Issues

RocketModem [45](#)

RocketPort [45](#)

K

Known issues [46](#)

L

Library calls [49](#)

Limitations

Driver [49](#)

Locating

Current drivers [5](#)

Documents [5](#)

Loopback Test [35](#)

M

mdm*.inf [46](#)

Memory

Stay Resident option [17](#)

Modem

Control signals [38](#)

Installation requirements [21](#)

Installing [21](#)

Multiple report [40](#)

N

Number of Ports Mismatch [47](#)

O

Online support [48](#)

Opening

Ports higher than COM10 [51](#)

Output queue

Reporting [17](#)

P

Parity [49](#)

PCI-bus adapters

Adding [18](#)

Removing [7](#)

Port Monitor

[38](#)

Changing screen appearance [39](#)

Column setup [40](#)

Files [41](#)

Report configuration [40](#)

Starting [39](#)

Variables [42](#)

portmon.exe [38, 45](#)

portmon.view [41](#)

Product Overview [5](#)

PROG32.ZIP [49](#)

Programming information [49](#)

R

Real time issues [50](#)

Reconfiguring

RocketModem [27](#)

Remapping

Baud rates [16](#)

Removing

Device driver [7](#)

Driver [7](#)

PCI-bus adapters [7](#)

Reporting

Output queue [17](#)

Reports

Day [41](#)

Directory [41](#)

Hour [40](#)

Multiple [40](#)

Single [40](#)

Restore original factory settings [37](#)

Ring Indicator (RI) [38](#)

rktreset.exe [46](#)

RocketModem

Issues [45](#)

Reset [44](#)

Signal lights [38](#)

Statistics [38](#)

Stay Resident option [17](#)

Troubleshooting [45](#)

RocketPort

Issues [45](#)

Library calls [49](#)

Signal lights [38](#)

Statistics [38](#)

Troubleshooting [45](#)

S

sample code [49](#)

Scan rate [17](#)

Send Test Data [35](#)

SetCommTimeouts() [51](#)

Signal lights

RocketModem [38](#)

RocketPort [38](#)

Single report [40](#)

Starting

Port Monitor [39](#)

Test terminal [34](#)

Statistics

RocketModem [38](#)

RocketPort [38](#)

Stay Resident option [17](#)

StopBits [49](#)

Support

Online [48](#)

T

TAPI [21](#)

Technical Support

Before calling [48](#)
Contact information [48](#)
Online [48](#)

Telephone Application Programming Interface (TAPI) [21](#)

Test terminal

Described [34](#)
Starting [34](#)

Testing

Call from
 Modem to phone [37](#)
 One modem to another modem [37](#)
Control device [35](#)
RocketModem
 Adapters [36](#)
 Ports [36](#)
Serial ports [35](#)
Terminal modem control signals [38](#)

Tools

Port Monitor [38](#)
RocketModem Reset [44](#)
Test Terminal [34](#)
Used for troubleshooting [33](#)

Troubleshooting [45](#)

Driver error messages [47](#)
Known issues [46](#)
RocketModem issues [45](#)
RocketPort issues [45](#)
Tools [33](#)

U

Using

Port Monitor [38](#)
RocketModem Reset [44](#)
Test Terminal [34](#)
Tools for troubleshooting [33](#)

W

WCOM32 [34](#)

wcom32.exe [34, 45](#)

Web support [48](#)

Windows 98/SE or ME

 Installation prerequisites [6](#)

X

XoffChar [50](#)

XoffLim [50](#)

XonChar [50](#)

XonLim [50](#)