

RocketModem™ i V.90

Hardware Installation Card

Product Overview

The RocketModem multimodem card is Hayes® compatible and contains four or six RJ11 modem ports, depending on the model, that can operate at speeds up to 56 Kbps.

RocketModem features for this model include:

- Four or six RJ11 modem ports
- Bootable diagnostic tests on diskette
- Individual software controlled modem reset capability

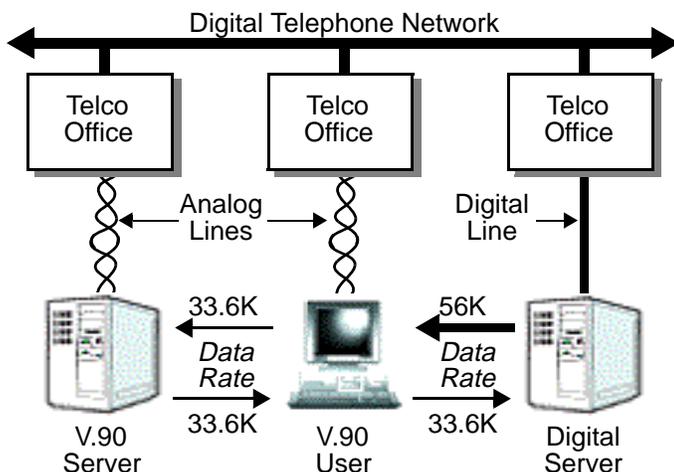
Note: See the Software Installation and Configuration Guide for information about installing software, the AT command set, and using the reset feature.

Characteristic	RocketModem Support
Supported standards	V.90, K56Plus, V.34, V.32turbo, V.32bis, V.32, V.22bis, V.23, V.21, Bell 212A, Bell 183
Error correction	V.42, MNP2-4, MNP10
Data compression	V.42bis, MNP5
Fax group	Group 3
Fax class	Class 1.0 and Class 2
Reset	Software controlled

Note: If the Control RocketModem is not among the modem models listed in your software applications modem list, you can select SupraFAXModem 288(336) for fax emulation and Zoom Telephonics Zoom V.34X for modem emulation.

Utilizing V.90 Technology

All V.90 modems are analog line devices. The following figure shows when you can and cannot achieve 56 Kbps.



- V.90 modems can *receive* data at rates up to 56 Kbps, provided the data is being transmitted by a digital modem on a digital (e.g., T1 or ISDN) line.
- V.90 modems can *send* data over analog (twisted pair) phone lines at a maximum rate of 33.6 Kbps—even if communicating with other V.90 modems.
- The actual data rate achieved depends on the age and condition of the analog phone lines, and may be lower than 33.6 Kbps.

European: Before Installing Hardware

CAUTION

Before installing this card, ensure that the power drawn by this card, together with the host and any auxiliary cards drawing power from the host, is within the rating of the host power supply. Equipment must be installed such that, with the exception of connections to the host, the clearance and creepage distances shown in the following table are maintained between the card and other assemblies that use or generate the voltages shown in the table. The larger distances shown in (brackets) apply where the local environment within the host is subject to conductive pollution or dry non-conductive pollution which could become conductive due to condensation (Pollution Degree 3 environments). Failure to maintain these minimum distances would invalidate the approval.

Note: Obtain advice from a telecommunications safety engineer for a host or other expansion cards fitted in the host using or generating voltages greater than 300 V (rms or dc).

Minimum Clearance	Creepage	Voltage
2.0 mm	2.4 (3.8) mm	Up to 50 Vrms or Vdc
2.6 mm	3.0 (4.8) mm	Up to 125 Vrms or Vdc
4.0 mm	5.0 (8.0) mm	Up to 250 Vrms or Vdc
4.0 mm	6.4 (10.0) mm	Up to 300 Vrms or Vdc

Installing the RocketModem

To install a single RocketModem, follow these steps:

Note: For best results we recommend installing RocketModem cards one at a time, to simplify the configuration process.

1. Turn your computer off and remove the system unit cover.
2. Select an available PCI slot and remove the slot cover.
3. Write down the serial number of the RocketModem.

Card	Model Number*	Serial Number*
1		
2		
3		
4		

* The tag is located on the back (non-chip) of the card.

4. Insert the RocketModem in the expansion slot. Make sure it is seated securely.
5. Reinstall the expansion slot cover screw.
Note: When powered up, the RocketModem generates significant heat. After you install and configure the RocketModem, make sure the system cover is closed and the ventilation fan is unobstructed. If you install more than one RocketModem, you may want to add an additional internal cooling fan.
6. Connect standard RJ11 (telephone) cables between the RocketModem ports and the phone line jacks.
7. Power up the computer and run the **Diagnostics** program to verify that the RocketModem is installed and working correctly. For instructions, see the *Using the Diagnostics* discussion in this card.
8. After the RocketModem has successfully passed diagnostics, install and configure the device driver for your operating system, using the *RocketModem Software Installation and Configuration Guide* or the **README** file released with the driver.

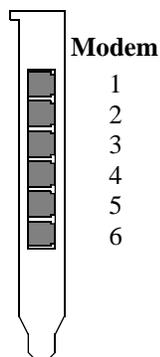
After you have successfully installed one RocketModem, you can install additional RocketModem cards by repeating this process.

Port Identification

The modem ports on the RocketModem mounting bracket are numbered as shown in the illustration at right. The port on the "top" edge of the card is modem Line 1, and the port at the "bottom" edge of the card, nearest the bus connector, is Line 6.

A four-modem version of the RocketModem card is also available. The four-modem version uses the same mounting bracket and connector block as the six-modem version, but Jacks 5 through 6 are blocked with blank plugs.

The four-modem model is not user-upgradeable to a six-modem model.



Using the Diagnostics

After you have installed one or more RocketModem cards in your computer, use the diagnostic program **RCKTMDM.EXE** to establish that the card is working, before installing the device driver.

The diagnostic program is an operating system-independent program that is distributed on a bootable diskette. You must boot the system from the diagnostic diskette in order to run the diagnostic program.

Follow these steps:

1. Insert the **Diagnostics** diskette in the floppy drive.
2. Power up the machine. The diagnostic program starts automatically on boot-up.

If your computer cannot boot from a floppy, boot up into native MS-DOS, then log on to the a: drive and execute **RCKTMDM.EXE**.

The diagnostic title screen displays. Note the release number and date. You may need this information if you contact Control technical support.

3. Press any key to continue.
A message about PCI-bus cards displays. If you have one or more PCI-bus RocketModem cards installed, the diagnostic recognizes them automatically and no entry is needed.
4. Press any key to continue.
A list of ISA-bus RocketModem models displays.
5. Select the letter that corresponds to the model you installed, select **NOT INSTALLED** if you have no ISA-bus RocketModems in the system, or select **X** to exit the diagnostic.

If you select an ISA-bus model, a list of valid I/O addresses (A through K) displays:

- a. Select the letter for the I/O address you used when installing the card. A list of valid IRQ interrupts displays.
- b. Select the letter for the IRQ you used when installing the card.

Note: Some drivers require an IRQ. If this is a new installation, the correct entry will be **I: NO IRQ**.

- c. The diagnostic program loops back to Step 5.
- d. If you have more than one ISA RocketModem installed, repeat this step until you have entered the information for all cards. When you are done, select **NOT INSTALLED** to exit this loop.

Note: Only the first card requires that the I/O address entered in Step 5a matches the physical DIP switch setting. For each subsequent card, select any unused I/O address.

The list of I/O and IRQ parameters you entered displays.

6. If the list is correct, press **Y**. If the information is not correct, press **N** to restart the diagnostic.
The diagnostic resets and reinitializes all modems.
7. After initialization completes, an option box displays at the bottom of the screen:
 - D to run the Diagnostic
 - T for Terminal Mode at 9600 baud
 - M for Terminal Mode at maximum baud
 - Q to QUIT

8. Press **D** to test the serial I/O and IRQ. (The **T** and **M** options are discussed under *Terminal Mode*, below.) The diagnostic tests each RocketModem card's serial I/O, IRQ, and telephone type, and displays the results.
9. Press any key to continue. If you have more than one card installed, the diagnostic repeats until all cards have been tested.
10. Press any key to continue. The diagnostic displays a summary of the test results.
11. Press any key to continue.
The diagnostic resets all modems and reinitializes all RocketModem boards.
12. Press **Y** to restart the diagnostic at Step 3 (for example, to enter Terminal Mode), or **N** to quit.
If you select **N**, remove the diagnostic diskette from the drive, then press the spacebar or Enter key to boot the system. **Do not use the CTRL-ALT-DEL reboot command.** Use of this command may result in CMOS errors on some systems.

Note: The Terminal Mode option is used to test modems by dialing out using AT commands. For an example of how to use this option, see Terminal Mode, later in this Installation Card.

Troubleshooting

If an ISA-bus modem card fails to initialize, check to make sure you have selected the correct I/O address and IRQ. If that does not solve the problem, try removing the card and reseating it in another slot.

If you have tried any "short cuts" in running the diagnostic, try rebooting your system from the floppy. The diagnostic **WILL NOT WORK** in a "DOS over Windows" session.

Terminal Mode

If you select either the **T** or **M** Terminal Mode option while running the diagnostic, the diagnostic starts a simple terminal emulation program. The **T** option selects terminal mode at 9600 baud, while the **M** option selects terminal mode at the maximum baud rate supported by your RocketModem model.

1. If there is more than one RocketModem installed, you are asked to select a card. Do so.
2. A numbered menu listing the ports on the selected card displays. You may also press **H** for help with AT commands, **R** to reset a single modem, **T** to reset all modems on the selected board, or **X** to exit.
3. Enter a port number to select a modem. The Terminal Mode screen displays.
4. Type AT commands to communicate with the modem.
5. When you are done, press Esc to return to Step 2.

For example, follow these steps to test two modem ports. This example requires that phone lines be connected to both Ports 1 and 2.

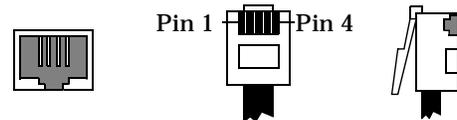
1. Select **Port 1**.
2. Enter **AT&F0** to initialize the modem to factory default parameters.
3. Enter **ATS0=1** to direct the modem to answer the phone on the first ring.
4. Press Esc to return to the port menu.
5. Select **Port 2**.
6. Enter **AT&F0** to initialize the second modem.

7. Enter **ATDxxx xxxx** (where **xxx xxxx** is the phone number of the line connected to the first modem). Watch and wait. The Port 2 modem should dial the Port 1 modem and you should eventually see the **CONNECT** message.
8. Press Esc.
9. Select **Port 1**. You should see **RING** and **CONNECT** messages.
10. Any keys you press while looking at Port 1 display when you look at Port 2. Likewise, any keys you press while looking at Port 2 display when you return to the Port 1 display.
11. To exit, on either of the ports enter the escape sequence **+++**. This enables you to enter **ATH** to hang up, or any other valid AT command string. If you do not hang up, you can return to the still-active connection by entering **ATO**.
12. To exit terminal mode and return to the port menu, press Esc.

Modem Cables

RocketModem ports use standard telephone-type unshielded twisted-pair cables with RJ11 modular connectors. These can be purchased anywhere commercial telephone products are sold.

If you choose to build your own cables, use the following information. When building cables, use Category 3 (or better) unshielded twisted-pair wiring.



The connector pinouts are as shown below:

RJ11 Pins	Signals
1 and 4	Not used
2	Ring
3	Tip

Safety Notices

Installation of inside wire may bring you close to electrical wire, conduit, terminals and other electrical facilities. Extreme caution must be used to avoid electrical shock from such facilities. Avoid contact with electrical current by following these guidelines:

- Use tools with insulated handles.
 - Do not place telephone wiring or connections in any conduit, outlet or junction box containing electrical wiring.
- Note:** Do not work on your telephone wiring at all if you wear a pacemaker. Telephone lines carry electrical current.
- Telephone wiring must be at least 6 feet from bare power wiring or lightning rods and associated wires, and at least 6 inches from other wire (antenna wires, doorbell wires, wires from transformers to neon signs), steam or hot water pipes, and heating ducts.
 - Before working with existing inside wiring, check all electrical outlets for a square telephone dial light transformer and unplug it from the electrical outlet.

Failure to unplug all telephone transformers can cause electrical shock.

- Do not place a jack where it would allow a person to use the telephone while in a bathtub, shower, swimming pool, or similar hazardous location.
- Protectors and grounding wire placed by the service provider must not be connected to, removed, or modified by the customer.

CAUTION: Do not touch telephone wiring during lightning!

Operating Conditions

This table illustrates RocketModem environmental conditions:

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

Hardware Specifications

The following table illustrates hardware specifications:

Description	Specification
Baud rate	300 to 56 Kbps
Bus interface	PCI
Card dimensions (meets PCI specifications)	10.8" by 4.2" (w x h)
Cards per system	4
Current consumption (+5V): RocketModem 4 RocketModem 6	1.7A max 2.3A max
Device driver control: Data bits Parity Stop bits	7 or 8 Odd, Even, None 1 or 2
Heat output: RocketModem 4 RocketModem 6	29 BTU/hr 39.2 BTU/hr
Interrupt (driver dependent)	None, 3, 4, 5, 9, 10, 11, 12, and 15
Mean time between failures: RocketModem 4 RocketModem 6	18.3 years 13.7 years
Modems per card	4 or 6
Modems per system	4 to 24
Power consumption: RocketModem 4 RocketModem 6	8.5 W 11.5 W
Telco connector	RJ11
Weight (card only): RocketModem 4 RocketModem 6	10 oz 12 oz

Electromagnetic Compliance

This table lists electromagnetic compliance certifications:

Electromagnetic Compliance	Status
Emission: CISPR-22/EN55022 Class A	Yes
Immunity: EN50082 (801-2 ESD, 801-3 RF and 801-4 FT)	Yes
Safety: EN60950	Yes
European CTR21 Compliant	Yes

Technical Support

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

Corporate Headquarters:

- email: support@control.com
- FAX: (651) 631-8117
- Phone: (651) 631-7654
- FTP Site: <ftp://ftp.control.com>
- Web Site: <http://www.control.com>

Control Europe:

- email: support@control.co.uk
- FAX: +44 (0) 1 869-323-211
- Phone: +44 (0) 1 869-323-220
- Web Site: <http://www.control.co.uk>

Control has a staff of technical support specialists available to help you.

First Edition, December 4, 1998
Copyright © 1998. Control Corporation.
All Rights Reserved.

Control Corporation makes no representations or warranties with regard to the contents of this reference product or to the suitability of the Control product for any particular purpose. Specifications subject to change without notice. Some software or features may not be available at the time of publication. Contact your reseller for current product information.

Trademark Notices

Control and RocketModem are trademarks of Control Corporation.

RocketPort is a registered trademark of Control Corporation.

Other product names mentioned herein may be trademarks and/or registered trademarks of their respective owners.