Xircom

Global
ACCESS

RealPort™
Ethernet 10/100+Modem 56

User's Guide

November 1998

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Contents

Windows 95, 98, and NT Online Documentation

Additional information can be found in the Windows Help file HELPDOCS.HLP on the Windows 95/98/NT Installation Disk. After installation, this file can be accessed from the Xircom program group.

Windows 3.x Installation

Run the Windows 3.x Installation Program INSTALL.EXE from the Windows 3.x Installation Disk. For additional information see the Help file HELPDOCS.HLP on the same disk.

IBM OS/2

For IBM OS/2 information see the file HELPDOCS.HLP on the Windows 3.x Installation Disk.

Hardware Installation

Introduction

The Xircom RealPort™ Ethernet 10/100+Modem 56 Integrated PC
Card supports 10Mbps and 100Mbps Ethernet networks and
modem speeds up to 56Kbps using either V.90 or K56flex stan-
dards. It plugs into your computer's Type III or dual Type II PC
Card slot for LAN and modem connections. A mobile phone
connector is also provided.

Model REM56G-100BTX Integrated PC Card

Integrated Ethernet LAN, modem, and telephone pass-thru
connectors provide connectivity without extra cabling. Standard
RJ-45 Ethernet and RJ-11 telephone cables plug directly into the
Integrated PC Card. Two RJ-11 ports allow for both modem and
telephone handset connections, if local regulations permit.

> **For 100Mbps Ethernet operation, Category 5 (data grade)
> unshielded twisted pair (UTP) cabling is required.**

Software Supplied

Xircom drivers and other software are supplied on 3.5-inch 1.44
megabyte disks. Network operating systems supported include
Novell NetWare, Microsoft Windows 95, 98, NT, and 3.x/MS-DOS,
and IBM OS/2.

Additional Software and Documentation

Easy-to-use installation software is provided on the Xircom
installation disks. A suite of Windows utilities is also supplied.
Documentation is supplied in this User's Guide and in the Win-
dows Help file HELPDOCS.HLP on the installation disks.

Additional Features

The RealPort Ethernet 10/100+Modem 56 is a Type III PC Card conforming to the Personal Computer Memory Card International Association (PCMCIA) standard. In compatible environments it also supports HotSwap, suspend/resume power management, full-duplex Ethernet transmission (at 10Mbps only), and Advanced Look-Ahead Pipelining.

Optional Digital Wireless Connection Kit (Worldwide)

The Xircom GSM Connection Kit™ (for digital wireless systems in Europe, Asia, and the Americas) enables data transmission from your mobile phone using the RealPort Ethernet 10/100+Modem 56. Popular mobile phones using the following standards are supported: GSM 900, 1800, 1900; DCS 1800; and PCS 1900. Visit the Xircom website at www.xircom.com for additional information.

Optional Analog Cellular Kit (U.S. and Canada only)

The Xircom Cellular Connection Kit™ (for analog cellular systems in the U.S. and Canada) enables data transmission by cellular phone using the RealPort Integrated PC Card. Visit the Xircom website at www.xircom.com for additional information.

Driver Installation and Configuration

- For **Windows 95, 98,** and **NT** see Chapters 2 and 3 in this User's Guide. Additional information can be found in the file HELPDOCS.HLP on the Windows 95/98/NT Installation Disk or, after installation, in the Xircom program group.
- For **Windows 3.x/MS-DOS**, run the program INSTALL.EXE from the Windows 3.x Installation Disk.

Hardware Installation

Package Contents

- Xircom RealPort Ethernet 10/100+Modem 56 (Model REM56G-100BTX)
- RJ-11 telephone line cord
- User's Guide and Quick Installation Card
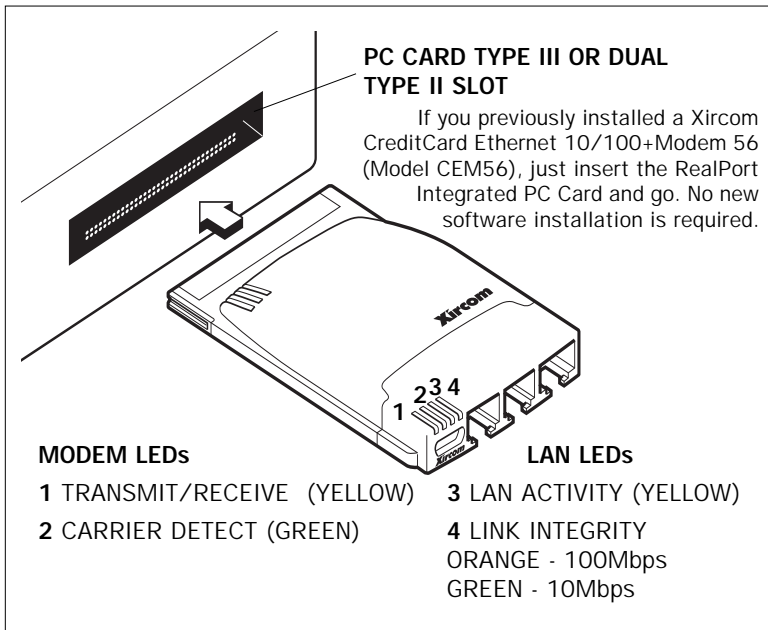- Software and online documentation on 3.5-inch diskettes

Other Requirements

1 For connection to a **100Base-TX Ethernet network**, a Category 5 (data grade) unshielded twisted pair (UTP) network cable terminating in a male RJ-45 connector and connected to a 100Mbps hub or switch.

2 For connection to a **10Base-T Ethernet network**, a network cable terminating in a male RJ-45 connector and connected to a 10Mbps hub or switch.

3 For **modem** operations: an analog telephone line, RJ-11 modular telephone cable (supplied), and if needed, RJ-11 adapter for the local telephone system. Communications software is also required for modem and fax operations.

The two RJ-11 ports on the RealPort Integrated PC Card are identical: use one to connect the modem to the telephone line, the other for an approved telephone set. *Some countries prohibit or restrict use of two RJ-11 connections.*

PC CARD TYPE III OR DUAL TYPE II SLOT

If you previously installed a Xircom CreditCard Ethernet 10/100+Modem 56 (Model CEM56), just insert the RealPort Integrated PC Card and go. No new software installation is required.

MODEM LEDs

1 TRANSMIT/RECEIVE (YELLOW)

2 CARRIER DETECT (GREEN)

LAN LEDs

3 LAN ACTIVITY (YELLOW)

4 LINK INTEGRITY
ORANGE - 100Mbps
GREEN - 10Mbps

Inserting the RealPort Integrated PC Card
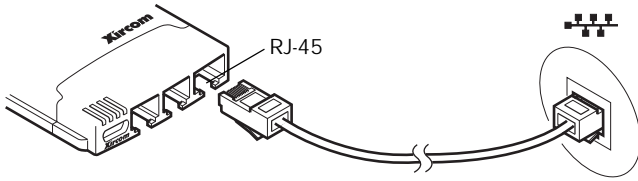
RJ-45

Connecting to the LAN (RJ-45)

DO NOT PLUG AN RJ-11
CONNECTOR INTO THE
RJ-45 SOCKET.
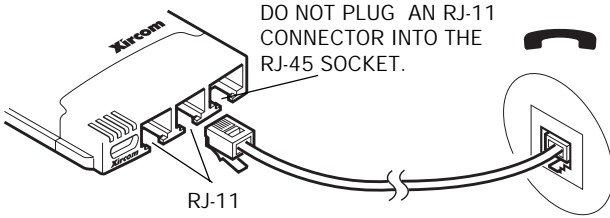
RJ-11

Connecting Modem to the Telephone Network (RJ-11)

RJ-11 connectors are identical: use
one for modem link, one for an
approved telephone. **Some
countries prohibit or restrict use of
a second RJ-11 connection.**
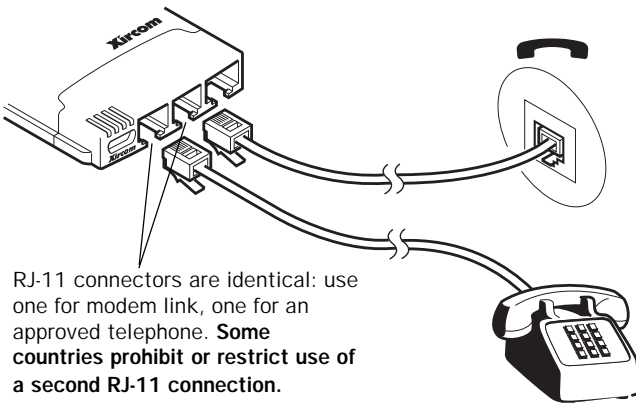
Connecting an Optional Approved Telephone (RJ-11)

GSM 900, 1800, 1900;
DCS 1800; PCS 1900;
AMPS Analog Cellular
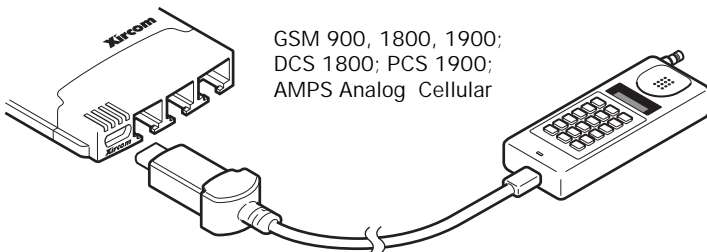
Connecting to a Wireless Handset for Data Transmission

Windows 95 and 98 Installation

Use these instructions for a first-time installation under Windows 95 and 98. For additional information, see the Help file HELPDOCS.HLP on the Windows 95/98/NT Installation Disk.

> **If you have previously installed a Xircom CreditCard Ethernet 10/100+Modem 56, just insert the RealPort Integrated PC Card. No new installation is required.**

1 With the computer ON and Windows 95 or 98 running, insert the RealPort Ethernet 10/100+Modem 56 into the PC Card slot.

2 The RealPort PC Card will be detected as a "Xircom Ethernet 10/100 + Modem 56." (If not detected, see troubleshooting later in this chapter.)

- **Windows 98 and 95 Version 950b (OSR2) and later:** Computer detects card and displays Update Device Driver Wizard.

- **Version 950/950a:** Computer detects card and displays Xircom Ethernet 10/100 + Modem 56. Select Disk provided by hardware manufacturer, click OK.

3 Insert the Xircom Windows 95/98/NT Installation Disk and follow the prompts to complete the installation.

4 Windows 95 or 98 will recognize the modem and network functionality of the RealPort PC Card.

5 If prompted for Windows 95 or 98 networking files, click OK at the Insert Disk screen.

6 At the Copying Files screen, specify the path to Windows 95 or 98 files (usually **c:\windows\options\cabs**), click OK.

7 If prompted to restart, choose No. Proceed to step 8.

Xircom Utilities

8 Use Start/Run to execute A:\SETUP.EXE from the Xircom diskette. Xircom utilities and online documentation will be installed in a program group on your hard disk.

9 Remove the Xircom diskette and reboot the system.

Power-Saving Modes

The Xircom RealPort Ethernet 10/100+Modem 56 adapter has three modes that can be used to reduce power consumption by disabling a function that is not being used: Network-only, Modem-only, and Network & Modem (default).

To specify a power-saving mode, select Network from Control Panel, select the Configuration tab, select Network of Xircom Ethernet 10/100 + Modem 56 and click Properties, select the Advanced tab, and select a mode in the Function(s) property that matches your requirements.

Troubleshooting Guidelines

Additional information on Windows 95 and 98 can be found, after running the Xircom program SETUP.EXE, in the Xircom program group.

Troubleshooting Network Installation

Review this section if any of the following problems occur:

- The Xircom RealPort Ethernet 10/100+Modem 56 is not detected during installation.

- After installation there is an exclamation point (!) on the Network of Xircom Ehternet 10/100 + Modem 56 entry listed under Network Adapters in Device Manager.

- The RealPort Ethernet 10/100+Modem 56 appears to have installed correctly but you cannot access network resources.

Use the following steps to verify that the PCMCIA Card Socket controllers are enabled.

1 In the Control Panel, double-click the System icon.

2 Click the Device Manager tab.

3 Under PCMCIA Socket, make sure that the PCMCIA Card Socket device is installed and that it is enabled. Disabled devices are indicated with a red "X." To enable the PCMCIA Socket control- ler, go to Control Panel and double-click the PC Card (PCMCIA) icon. Follow the PC Card Socket Wizard instructions. Turn off the computer when prompted to do so, then turn it back on after a few seconds. DO NOT press Ctrl+Alt+Del or use the reset button to restart the computer.

An exclamation mark (!) on a device usually indicates a resource conflict.

To modify memory resources in Windows 98, you may need to reboot in "safe" mode (press F8 at "Starting Windows").

1 In Control Panel, double-click the System icon.

2 Click the Device Manager tab.

3 Highlight and double-click the Multifunction Parent Device entry listed under Multifunction Adapters (Xircom Ethernet 10/ 100 + Modem 56). In Windows 95 version 950b or later there may be a second entry under Modems listing the Multifunction Parent Device.

4 Select Properties, Resources. Remove the check mark from the Use Automatic Settings box. Highlight and double-click on the first memory range listed. Use the up or down arrow to adjust the memory range to 000D2000-000D3FFF. Click OK.

5 Double-click the second memory range listed. Use the up or down arrow to adjust the memory range to 000D4000- 000D4FFF. Click OK.

6 Click OK again. Close the Resource Properties windows. When prompted to confirm that resources have been adjusted manu- ally, select Yes. After the hour glass disappears (it may take a few seconds) verify that the exclamation mark is gone.

Any device attempting to use the same memory segments as another device will cause the card to fail initialization. Ideally there should be 12K of contiguous memory starting with the first 4K block following the video drivers, which typically load in the C0000-C7FFF range. This varies from computer to computer. The memory range identified for the Xircom card is any block in the C0000-E7FFF range. On many computers, use of the range D0000-DFFFF is optimal. Be aware that not all blocks of memory are available.

Failure to access to network resources may be due to Windows 95 or 98 network configuration issues.

1 In Control Panel, double-click the Network icon.

2 In the configuration window verify that the correct Network Clients are installed.

- To install a Microsoft Network Client, click Add. Double-click Client. Under the Manufacturers list, select Microsoft. Double-click Client for Microsoft Networks.
- To install a Novell Network Client, click Add. Double-click Client. Under the Manufacturer list, select Microsoft. Double-click Client for NetWare Networks.

3 In the configuration window verify that the correct Network Protocols are installed.

- To install the native Microsoft Network Protocol, double-click Protocols. Click Add. Under the Manufacturers list, select Microsoft. Double-click NetBEUI.
- To install the IPX/SPX compatible Protocol, double-click Protocols. Click Add. Under the Manufacturers list, select Microsoft. Double-click IPX/SPX compatible Protocol.

If necessary, consult your network administrator for additional information regarding client and protocol configuration details.

Troubleshooting Modem Installation

Review this section if any of the following problems occur:

- Modem initialization errors occur when attempting to dial-out using a communications application.

- Xircom CountrySelect software fails to detect the modem.

- Connection fails or other problems occur.

It may be necessary to define a modem type within your communications application. If the Xircom modem is not listed, choose a "Generic Hayes compatible" device.

If your computer is equipped with an infrared communications port, you may need to disable this port. These ports often use COM port resources required for other communications devices. Disable the infrared port both in the computer's CMOS or BIOS setup program and the Windows 95 or 98 Device Manager, as follows:

1 Some computers use a hardware setup utility to configure the infrared port in the BIOS. See your computer documentation.

2 To disable the infrared communications port in Windows 95/ 98, go to Device Manager tab under System in the Control Panel.

3 Double-click the Ports (COM & LPT) entry and the IR Serial Port entry. Remove the check mark under Device Usage. (Note: In Windows 95 version 950b or later check the Disable in this Hardware Profile option to disable the device.)

Use the Modem Diagnostics Tool to verify the computer-to-modem interface.

1 In the Modems option in Control Panel, click Diagnostics.

2 In Diagnostics properties, highlight the COM port associated with the Xircom modem and click the More Info button. This causes Windows 95 and 98 to send commands to and read responses from the modem and display information about the modem and its COM port. The Port Information box should display the following information:

- The IRQ and I/O address of the modem's COM port. These should match the physical configuration of the port or modem adapter.

- Modem responses to various AT commands. The Xircom modem may return ERROR for some AT commands that are not supported. This does not indicate a failure.

3 A log file can be useful to help identify modem problems by recording modem commands and responses. Windows 95 and 98 have slightly different procedures for creating and maintaining a log file:

- In **Windows 95**, go to Control Panel, Modems, Properties, Connection, Advanced. In the Advanced Connection Settings window, place a check mark in the Record a log file option box. A MODEMLOG.TXT file will be created in the C:\WINDOWS directory the next time the modem is used.

- **Windows 98** creates a log file by default in the Windows directory, using a filename based on the modem device identifier, with a .LOG extension, in this case "Xircom_Ethernet_10_100_modem56.log" (or a shortened version in MS-DOS). To continue adding information to the log file, place a check mark in the Append to Log option box in the Advanced Connection Settings window (in the path Control Panel, Modems, Properties, Connection, Advanced).

Windows NT 4.0 Installation

Follow the procedure below to install the RealPort Ethernet 10/100+Modem 56 under Windows NT 4.0. For additional information, see the file HELPDOCS.HLP on the Windows 95/98/NT Installation Disk. For unattended install instructions, see www.xircom.com.

PCMCIA Services Verification

1 Select Devices from the Control Panel.

2 Scroll down the Device list to the PCMCIA device. The Status should be Started and the Startup should be Boot. If this is not how PCMCIA is configured, then click Startup and set the Startup Type to Boot and click OK.

Network Driver Installation

3 Shut off power to the computer (power down).

4 Insert the Xircom RealPort Ethernet 10/100+Modem 56 into the PC Card slot in the computer.

5 Power up the computer.

6 Select Network from the Control Panel.

7 Select the Adapters tab and click Add.

8 On the Select Network Adapters screen, click Have Disk. Insert the Xircom Windows 95/98/NT Installation Disk and verify that the specified path (for example: A:\) is correct. Click OK.

9 Select Xircom Ethernet 10/100 + Modem 56 and click OK.

10 At the Xircom Ethernet 10/100 + Modem 56 Setup screen, choose appropriate settings. Click OK.

11 At the Network screen click Close.

12 At the Network Settings Change screen, remove the Xircom diskette from the disk drive and click Yes. **Do not remove the RealPort Ethernet 10/100+Modem 56 from the PC Card slot.** The computer will shut down and restart.

Modem Setup

13 After restarting, select Modems from the Control Panel.

14 At the Install New Modem screen make sure that the *Don't detect my modem; I will select it from a list checkbox* is NOT checked. Click Next. NT will query the COM ports looking for the Xircom modem.

- If the Xircom modem is detected as a Standard Modem, choose Change. Re-insert the Xircom diskette, click Have Disk and type the path A:\NT40, then click OK. The Install New Modem Models dialog box will display with "Modem of Xircom Ethernet 10/100 + Modem 56" highlighted. Click OK to return to the previous screen. Choose Next.

The file MDMCEM56.INF in the directory \NT40 on the Windows 95/98/NT Installation Disk is the modem INF file required for installation under Windows NT 4.0.

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15 At the Install New Modem screen click Finish.

16 At the Modems Properties screen click Dialing Properties to set up dialing properties (not necessary if a modem had been previously installed). Click Close.

17 Use Start/Run to execute A:\SETUP.EXE from the Xircom diskette. Xircom utilities and online documentation will be installed in a program group on your hard drive.

Power-Saving Modes

The Xircom RealPort Ethernet 10/100+Modem 56 adapter has three modes that can be used to reduce power consumption by disabling a function that is not being used: Network-only, Modem-only, and Network & Modem (default).

Before using Modem-only with Network Services installed, be sure the *Network-disabled hardware profile* box is checked under My Computer, Properties, Hardware Profiles, Properties, Network. Otherwise Network Services may report errors based on its failure to find the Xircom network driver.

To specify a power-saving mode under **Windows NT 4.0**, select Network from Control Panel, Adapters, Xircom Ethernet 10/100 + Modem 56. Under Properties select a mode in Power-Saving Options/Function(s).

Troubleshooting Guidelines

Troubleshooting Network Installation

Windows NT 4.0 does not support plug and play resource assignment for the Xircom adapter. Default settings are specified by the installation files. If these settings do not work on your system, use the following general guidelines to assist you. Contact Xircom Customer Support if you are unable to resolve the issues.

Resource Conflict Symptoms

- After network installation the computer locks up on reboot.
- A Service Control message reports that a service or driver did not start.
- The Xircom card initializes properly, but another hardware device functions sporadically, the computer locks up randomly or exhibits very slow network performance.

These symptoms are probably due to a resource conflict between the Xircom card and another hardware device. Interrupt conflicts are the most common. Open the Event Viewer to review errors encountered during the boot process (Start, Programs, Administrative Tools, Event Viewer). Double-click the bottom error message to start reviewing. Identification of the device or service that failed to start may help in pinpointing where the conflict lies.

> **Error messages reporting that the driver failed to start because a device attached to the system is not functioning may not involve the Xircom card. For example, an error is sometimes displayed if a device not currently connected to the computer is still listed as an installed component.**

Two items frequently in conflict with the Xircom card are:

Sound cards Often use IRQ 5 and I/O Port addresses 220h and 330h

PCMCIA.SYS Installs at memory segment D000-D3FF but may not appear under NT Diagnostics

Possible Solutions

Remove the card and reboot NT 4.0 normally. Click OK at message stating that a Service or Services failed to start. Use the following steps to evaluate assigned resources and settings:

1 Under the Device applet in the Control Panel verify that PCMCIA status is Started and the Startup setting is Boot. If it is not change it to start on Boot and then restart the computer.

2 Start NT Diagnostics (Start, Programs, Administrative Tools).

3 Under the Version tab note the Service Pack level. The NT 4.0 version is displayed as follows:

```
MICROSOFT (R) WINDOWS NT (TM) WORKSTATION

VERSION 4.0 (BUILD 1381: SERVICE PACK X)
```

If no service packs have been applied on Version 4.0, (Build 1381:) is displayed. X is the service pack level, number 1 through 4. Service Packs integrate software upgrades to your current system and are available from Microsoft.

4 Select the Resources tab. By default the IRQ levels in use are displayed. Verify that the IRQ assigned to the Xircom card is not in use by any other device. This list is not inclusive and may not be completely indicative of resources in use.

5 Click the I/O Port button. Verify that the I/O Port Address assigned to the Xircom card is not shared by any other device. I/O Port 0x280 is usually available. This is displayed as:

```
0280 - 028E CEM56  BUS 0  TYPE ISA
```

For an I/O Port Address to be usable the entire I/O range must be available. For example, the above listed I/O range would be unusable if another device was using any I/O port within that range.

6 Click the Memory button. The Xircom card requires one 8K and one 4K memory block. With 0xD4000 selected under Network adapter properties the memory segments are:

```
000D4000-000D5FFF   CEM56   BUS 0   TYPE ISA
000D6000-000D6FFF   CEM56   BUS 0   TYPE ISA
```

Any device attempting to use the same memory segments will cause the adapter to fail initialization. It is recommended to have 12K of contiguous memory starting with the first 4K block following the video drivers, which typically load in the C0000-C7FFF range. This can vary from computer to computer. A memory range identified for the Xircom card is any block in the C0000-E7FFF range. On many computers, use of the range D0000-DFFFF is optimal. Not all blocks of memory are available.

7 Open the Network applet and select the Adapter tab. With the Xircom card highlighted, click Properties. Set the adapter resources to those that have been identified as available through the previous steps. The following resources have been found to work with most systems:

```
I/O PORT 0X280
MEMORY ADDRESS 0XD4000
INTERRUPT 10 OR 11
```

8 Click the OK button in the adapter configuration window and then click the Close button in the Network window. Windows NT will prompt to restart. Click the 'Yes' button.

Troubleshooting Modem Setup

Modem difficulties can usually be traced to interrupt, memory address or communications port conflicts. A modification to the Windows NT 4.0 default communication drivers or physical damage to card or cables can also be the source of problems.

Symptoms and Possible Causes

Windows NT or the Xircom CountrySelect software fails to detect a Xircom modem. These conditions can be caused by the lack of an available COM Port, by a resource conflict with another device, or by use of the wrong modem INF file during the installation.

Possible Solutions

1 Use the steps under Troubleshooting Network Installation to modify the interrupt and/or memory address for the Xircom card until no conflicts are reported.

2 If your computer has an infrared communications port, disable it. These ports often use COM port resources required for other devices. Most infrared ports may be disabled from within the computer's CMOS or BIOS setup program, or with a hardware setup utility is used. See your computer documentation.

3 It is possible, though unlikely, that the computer may not have an available COM port for the modem. You may need to disable a COM port device to free a port for the modem. Before you attempt this, consult the computer hardware manufacturer for information on the possible consequences.

4 For difficulties in connecting to specific sites such as your Internet Service Provider, or company remote access locations, verify with the support personnel at the respective locations that your client software and dial-in communications software are configured properly.

Appendix A. Support Services

Service and Support

Xircom offers an extensive family of service and support programs, including world-class phone support, software updates, plus 24-hour access to our BBS, World Wide Web, and other electronic facilities.

Warranty Service Procedures

For details on warranty coverage and service, see the Appendix entitled **Lifetime Limited Warranty**. If you think there is a problem or defect with your Xircom product, your point of contact will be

In the U.S.A.

Xircom's Customer Support department at **(805) 376-9200**.

Outside the U.S.A.

Contact your local Xircom supplier or Xircom regional office.

Software and Driver Updates

World Wide Web

To download drivers (subject to the terms of the Xircom Software License Agreement) from the Xircom website, go to:

www.xircom.com

Bulletin Board System (BBS)

Set your modem to its maximum speed, no parity, 8 data bits, 1 stop bit to connect at up to 56,000 bps in the U.S. and Europe, 33,600 bps elsewhere.

To download drivers, go to the Main Menu, select **F**ile Menu and **S**earch by filename or keyword (e.g., Windows 95) or **L**ist files by area. Follow the instructions to select and download current versions of Xircom *released* drivers (subject to the terms of the Xircom Software License Agreement).

Xircom Worldwide Access

Americas Customer Support

Xircom, Inc.

2300 Corporate Center Drive

Thousand Oaks, California 91320-1420

Direct Line to Customer Support

(805) 376-9200   Customer Support

(6 a.m. to 5 p.m. Monday through Friday U.S. Pacific time)

(805) 376-9100   Fax to Customer Support

Online or Automated Access (24 hours, 7 days a week)

(805) 375-5280   BBS (up to 56Kbps)

(805) 376-9130   BBS (up to 33.6Kbps)

cs@xircom.com   E-mail

www.xircom.com   World Wide Web

Europe, Middle East, and Africa Customer Support

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King Square, Veldkant 39

2550 Kontich, Belgium

Direct Line to Customer Support

+32/(0)70 233 307   Telephone English language

+32/(0)70 233 852   Telephone Dutch language

+32/(0)70 233 851   Telephone French language

+32/(0)70 233 850   Telephone German language

(9:00 to 18:00 Monday through Friday)

+32/(0)70 233 306   Fax to Technical Support

Online or Automated Access (24 hours, 7 days a week)

+32/(0)70 233 163   BBS (up to 56Kbps)

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+61 (02) 9911 7796   Fax

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3-10-5 Shibuya, Shibuya-ku

Tokyo 150-0002 Japan

+81-3-3407-1900   Customer Support

+81-3-3407-0180   Fax

Additional International Access

Contact your local reseller or distributor

www.xircom.com   World Wide Web

Please fill out and return the Registration Card supplied with the product. Your information will be entered into our support database.

Appendix B. Specifications

General Specifications

Ethernet:	IEEE 802.3 (10Base-T), 802.3u (100Base-TX), 10/20Mbps full duplex (10Mbps networks only)
Connectors:	RJ-45 (10Base-T Ethernet), BNC (10Base-2 Ethernet), RJ-11 (modem), RJ-11 (phone set pass-through), GSM/PCS 1900/cellular
Size:	85.6 mm x 54.0 mm x 10.5 mm (3.37 in x 2.13 in x 0.413 in)
Weight:	36 g (1.3 oz)
Temperature range:	
Operating:	0°C to 55°C (32°F to 131°F)
Storage:	-20°C to 65°C (-4°F to 149°F)
Humidity:	95% maximum noncondensing
Memory:	4 MB memory for dual V.90/K56flex support
Power:	+5 VDC, 490 mA typical
Approvals:	FCC Part 15, Class B, FCC Part 68, Industry Canada, CE Mark

Modem Specifications

Data modulation:	V.90/K56flex up to 56000 bps; V.34 from 33,600 down to 2400 bps; V.32terbo at 19200 and 16800 bps; V.32bis at 14400, 12000, 9600, and 7200 bps, uncoded at 4800 bps; V.32 at 9600 bps, uncoded at 4800 bps; V.23 at 1200/75 and 75/1200 bps; V.22bis at 2400 bps; V.22 at 1200 bps; Bell 212A at 1200 bps
Fax modulation:	V.17 at 14400, 12000, 9600, 7200, and 4800 bps; V.29 at 9600, 7200, and 4800 bps; V.27ter at 4800 and 2400 bps
Fax support:	Group 3, EIA/TIA Class 1
Error control:	V.42 Error Control, MNP Levels 2-4 Error Detection
Data compression:	V.42bis (4:1) or MNP Level 5 (2:1)
Diagnostics:	Power-up self tests of program RAM, data RAM, and nonvolatile memory.
Nonvolatile RAM:	1 user definable profile; 2 thirty-six digit telephone numbers; Adapter ID, serial number

Modem Specifications (continued)

Command set:	Hayes and Microcom compatible AT commands
Data interface:	PCMCIA Release 2.1 compliant, 68-pin connector
Analog interface:	RJ-11C modular telephone connector
DTE speeds:	1200, 2400, 4800, 7200, 9600, 14400, 19200, 37400, 57600, and 115200 bps

Appendix C. Lifetime Limited Warranty

Warranties

As the original purchaser, you receive these warranties from Xircom:

Hardware

Your RealPort Ethernet 10/100+Modem 56 (collectively, "Products"), will be free from defects in material and workmanship and will perform in substantial compliance with your user documentation accompanying the Products for as long as you own and properly use the Products.

Software

Software accompanying these Products (including driver, utility software, etc.) and the magnetic media containing the software are warranted to perform in substantial compliance with the specifications contained in your user documentation for two years from your purchase date. Our warranty does not cover or provide you with rights to upgrades or updates.

You are responsible for your choice of applications programs or related reference materials. Given the wide range of third party hardware and applications software products you might use our software with, you understand that Xircom does not warrant the compatibility or the uninterrupted or error free operation of our software.

Upon our confirmation of a covered defect or failure, at our option we will repair or replace the affected item or will refund your purchase price if repair or replacement is not possible or practical. At our option, replacement products or repaired items may be a new, refurbished, or functionally equivalent item. Our warranty on items serviced under warranty will be lifetime for **hardware** and, for **software**, 90 days from return to you of software/magnetic media or the remainder of the original warranty, whichever is longer. Repair, replacement, or refund are the exclusive remedies available to you from Xircom for products and software.

Your Obligations

Your warranty rights will be honored provided you

1 Read and follow your user documentation for installation, setup, software setup, and operating guidelines,

2 Use the Products and software only in suitable physical or operating environments as described in your user documentation and for purposes for which the Products and software are intended.

Warranty Service

If you think there is a problem or defect with your purchased item, your point of contact will be

In the U.S.A.

Xircom's Technical Support department at **(805) 376-9200**.

Outside the U.S.A.

Contact your local Xircom supplier or Xircom regional office.

Your Xircom contact will discuss your problem to confirm the defect. If warranty or return service is needed, you'll receive a *Return Material Authorization* (RMA) number. Replacement Product will be shipped when the original Product has been received by Xircom. (**U.S. only:** advance shipment of replacement Product is available with a credit card deposit.)

Ship your return Product prepaid, **with the RMA number clearly visible on the outside of the shipping package**, to:

From the U.S.A.

Xircom Service Department

2101 Corporate Center Drive

Thousand Oaks, CA 91320-1422

From outside the U.S.A.

Contact your local Xircom supplier or Xircom regional center for shipping instructions.

Returned Products may need to include, if requested by Xircom, all other components from your original package, including the Product and any cables, connectors, software diskettes, and user documentation. Be sure to enclose a copy of your purchase receipt or other proof of purchase confirming that you are the original purchaser.

Limitations

Our warranty is subject to the following limitations:

a We do not cover or accept liability for any injury, damage or failure caused by misuse, abuse, acts of Nature, accidents (e.g., dropping the Products or software diskettes), electrical mishaps, causes beyond our control, or claims by other than the original purchaser.

b We will not honor, and will consider our warranty voided, if there has been any (1) tampering with the Product's external label or serial number, (2) attempt to open the Product's case, or (3) attempted or actual repair by anyone other than an authorized Xircom technician.

Disclaimer

THIS LIMITED WARRANTY IS THE ONLY WARRANTY WE MAKE FOR THE PRODUCT AND SOFTWARE. TO THE EXTENT ALLOWED BY LAW, NO OTHER WARRANTY APPLIES, WHETHER EXPRESS, IMPLIED, OR STATUTORY, INCLUDING ANY WARRANTY OF MERCHANTABILITY, OF FITNESS FOR A PARTICULAR PURPOSE, OR OF NON-INFRINGEMENT. XIRCOM WILL NOT BE LIABLE OR RESPONSIBLE FOR ANY INCIDENTAL, CONSEQUENTIAL, OR SPECIAL DAMAGES (e.g., LOST PROFITS, LOSS OF OR DAMAGE TO ANY COMPUTER EQUIPMENT OR RELATED DATA).

Additional Rights

Some states or countries do not allow exclusion or limitation of incidental or consequential damages, or limitations on the length of an implied warranty, so the above limitations or exclusions may not apply to you. Our warranty gives you specific legal rights, and you may also have other rights which vary from state to state or country to country.

International Notice

Due to differing national regulations and approval requirements, certain Xircom products are designed for use only in specific countries, and may not function properly in a country other than the country of designated use. As a user of these products, you are responsible for ensuring that the products are used only in the countries for which they were intended.

For information on specific products, contact Xircom's nearest regional center:

Xircom Corporate (U.S.A.)	(800) 438-4526
Xircom Europe	+32/(0)3 450.08.11
Xircom Asia Pacific	+65 323 1511
Xircom Japan	+81-3-3407-0033

Unauthorized Applications

Xircom's products are not designed or authorized for use as a component in any life support, life safety, or other comparable application. Our products should not be used in any application where the failure or faulty performance of the product might create a risk of personal injury or death. Buyer assumes all risk of loss, damage or injury alleged to arise from the failure or faulty performance of a Xircom product in any unauthorized application. Buyer agrees to indemnify and hold harmless Xircom, and its officers, directors, employees, agents, representatives, and sales partners, from and against any and all claims, costs, damages, losses and expenses (including reasonable attorney fees) which arise from or are alleged to have been caused by any claim for personal injury or death connected with Buyer's use of a Xircom product in any unauthorized application, including claims which allege that Xircom has been negligent in connection with the design or manufacture of the product.

Appendix D. Regulatory Agency Notices

FCC Regulations - Part 15

Declaration of Conformity (DoC)

Xircom, Inc. declares that the equipment described in this document is within the requirements of the Code of Federal Regulations listed below:

Title 47 Part 15, Subpart B, Class B for a digital device.

This declaration is based upon compliance of the Xircom RealPort Ethernet 10/100+Modem 56 model REM56G-100 to the above standards. Xircom has determined that model REM56G-100 has been shown to comply with the applicable technical standards if no unauthorized change is made in the equipment and if the equipment is properly maintained and operated.

These units are identical to the units tested and found acceptable with the applicable standards. Records maintained by Xircom continue to reflect that units being produced under this Declaration of Conformity, within the variation that can be expected due to quantity production and tested on a statistical basis, continue to comply with the applicable technical standards.

Authorized Signature:

R.W. Bass

Vice President, Operations

Xircom, Inc.

2300 Corporate Center Drive

Thousand Oaks, California 91320

U.S.A.

FCC Rules and Regulations - Part 15

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

The Xircom RealPort Ethernet 10/100+Modem 56 complies with the FCC Rules for a Class B digital device. As required by FCC Rules and Regulations, the following Class B information is provided for the guidance of the user.

WARNING: This equipment has been tested and found to comply with the limits for Class B digital devices pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance

with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and the receiver.

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications to the digital device not expressly approved by Xircom Inc. could void the user's authority to operate the equipment.

It is suggested that only shielded and grounded cables be used with the equipment to ensure compliance with FCC rules.

Note

> When the Ethernet 10Base-2 (B2) adapter cable supplied with model REM56G-100BC, or as a separately purchased accessory, is connected to the RealPort Ethernet 10/100+Modem 56, the unit complies with FCC Part 15 Class A requirements for office use. As required by FCC Rules and Regulations, the following information is provided for the guidance of the user.

WARNING: This equipment has been tested and found to comply with the limits for Class A digital devices pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause interference to radio communications. Operation of this equipment in a residential area is likely to cause interference, in which case the user will be required to correct the interference at his own expense.

Changes or modifications to the digital device not expressly approved by Xircom Inc. could void the user's authority to operate the equipment.

It is suggested that only shielded and grounded cables be used with the equipment to ensure compliance with FCC rules.

FCC Regulations - Part 68

To comply with the Federal Communications Commission (FCC) Rules and Regulations, Parts 68, these instructions must be followed:

1 Your modem must not be connected to a party line or coin-operated telephone.

2 If a problem occurs on the telephone line, your modem must be disconnected from the telephone line until it has been determined that your modem is not the cause of the problem.

3 All repairs to your modem must be made by Xircom, Inc. Unauthorized or unorthodox repair methods can alter the modem's radio frequency emissions and other characteristics sufficiently to void your authority to operate the modem over a public telephone network.

4 If requested, you must be prepared to provide the telephone company with the following information:

Equipment Manufacturer:	Xircom, Inc.
	2300 Corporate Center Drive
	Thousand Oaks, CA 91320-1420 U.S.A.
Model:	REM56G-100
FCC Registration Number:	See the unit.
Ringer Equivalency Number:	See the unit.

This equipment complies with Part 68 of the FCC Rules. On the back of the RealPort Ethernet 10/100+Modem 56 is a label that contains, among other information, the FCC Registration Number and Ringer Equivalency Number (REN) for this equipment. You must, upon request, provide this information to your telephone company.

The REN is useful to determine the quantity of devices you may connect to your telephone line and still have all those devices ring when your telephone number is called. In most but not all areas, the sum of the RENs of all devices connected to one line should not exceed five (5.0). To be certain of the number of devices you may connect to your line, as determined by the REN, you should contact your local telephone company to determine the maximum REN for your calling area.

If your telephone equipment causes harm to the telephone network, the telephone company may discontinue your service temporarily. If possible, they will notify you in advance. But if advance notice is not practical, you will be notified as soon as possible. You will be informed of your right to file a complaint with the FCC.

Your telephone company may make changes in its facilities, equipment, operations or procedures that could affect the proper functioning of your

equipment. If they do, you will be notified in advance to give you an opportunity to maintain uninterrupted telephone service.

If you experience trouble with this telephone equipment, please contact Xircom, Inc. at (805) 376-9200 for information on obtaining service or repairs. The telephone company may ask that you disconnect this equipment from the network until the problem has been corrected or until you are sure that the equipment is not malfunctioning.

There are no user serviceable parts contained in this equipment.

This equipment may not be used on coin service provided by the telephone company. Connection to party lines is subject to state tariffs.

The Telephone Consumer Protection Act of 1991 makes it unlawful for any person to use a computer or other electronic devices, including fax machines, to send any message unless such message clearly contains in a margin at the top or bottom of each transmitted page or on the first page of the transmission, the date and time it is sent and an identification of the business or other entity, or other individual sending the message and the telephone number of the sending machine or such business, other entity, or individual. (The telephone number provided may not be a 900 number or any other for which charges exceeds local or long-distance transmission charges.)

In order to program this information into your fax software, you should refer to the manual of the Fax software being used.

Canadian Department Of Communications

Industry Canada (IC) Notice

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de Classe B prescrites dans le règlement sur le brouillage radioélectrique édicté par le Ministère des Communications du Canada.

Note

When the Ethernet 10Base-2 (B2) adapter cable supplied with model REM56G-100BC, or as a separately purchased accessory, is connected to the RealPort Ethernet 10/100+Modem 56, the unit complies with Class A requirements for office use. As required by IC Rules and Regulations, the following information is provided for the guidance of the user.

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de Classe A prescrites dans le règlement sur le brouillage radioélectrique édicté par le Ministère des Communications du Canada.

NOTICE: The Industry Canada (IC) label identifies certified equipment. This certification means that the equipment meets telecommunications network protective, operational and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirements document(s). The department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by a user to this equipment, or equipment malfunctions, may give the telephone communications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection, that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

Caution: Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

NOTICE: The Ringer Equivalence Number (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed 5.

REN: See back of unit.

Warranty and Repair Service Center:

Xircom, Inc.

2300 Corporate Center Drive

Thousand Oaks, CA 91320-1420

U.S.A.

Phone: (805) 376-9200

European Community - CE Mark

Declaration of Conformity

Xircom, Inc. declares that the equipment described in this document is in conformance with the requirements of the European Council Directive listed below:

73/23/EEC	Low Voltage Directive with Amendment 93/68/EEC
89/336/EEC	EMC Directive with Amendments 92/31/EEC and 93/68/EEC
98/13/EC	Telecommunications Terminal Equipment and Satellite Earth Station Equipment

This declaration is based upon compliance of the product to the following standards:

EN 55022 (CISPR 22B)	RF Emissions Control
EN 50082-1 (IEC 801-2, 3, 4)	Immunity to Electromagnetic Disturbance
Product Description:	RealPort Ethernet+Modem 56 Model REM56G-100

Authorized Signature:

R.W. Bass,

Vice President, Operations

Xircom, Inc.

2300 Corporate Center Drive

Thousand Oaks, California 91320 U.S.A.

Declaration of Conformity

Xircom, Inc. declares that the equipment described in this document is in conformance with the requirements of the European Council Directive listed below:

73/23/EEC	Low Voltage Directive with Amendment 93/68/EEC
89/336/EEC	EMC Directive with Amendments 92/31/EEC and 93/68/EEC

This declaration is based upon compliance of the product to the following standards:

EN 55022 (CISPR 22A)	RF Emissions Control
EN 50082-1 (IEC 801-2, 3, 4)	Immunity to Electromagnetic Disturbance
Product Description:	RealPort Ethernet+Modem 10Base-2 Ethernet Cable with 10/100BTX Passthrough, Model CABLE-ETH213

Authorized Signature:

R.W. Bass,

Vice President, Operations

Xircom, Inc.

2300 Corporate Center Drive

Thousand Oaks, California 91320 U.S.A.

European Union CTR 21 Compliance

For information about compliance of this product with the European Union Common Technical Regulation (CTR) 21 on connection of telecommunications equipment to the public switched telephone network (PSTN), see the insert supplied with the product.

Safety Notices

This card is intended for use with UL 1950/EN60950/IEC950 (or other NRTL) listed ITE computers that contain operator-accessible PC Card slots.

New Zealand Telepermit Compliance Notes

General

The grant of a Telepermit for any item of terminal equipment indicates only that Telecom has accepted that the item complies with minimum conditions for connection to its network. It indicates no endorsement of the product by Telecom, nor does it provide any sort of warranty. Above all, it provides no assurance that any item will work correctly in all respects with another item of Telepermitted equipment of a different make or model, nor does it imply that any product is compatible with all of Telecom's network services.

This equipment is not capable, under all operating conditions, of correct operation at the higher speeds for which it is designed. Telecom will accept no responsibility should difficulties arise in such circumstances.

This equipment shall not be set up to make automatic calls to the Telecom '111' Emergency Service.

Important Notice

Under power failure conditions, this telephone may not operate. Please ensure that a separate telephone, not dependent on local power, is available for emergency use.

Some parameters required for compliance with Telecom's Telepermit requirements are dependent on the equipment (PC) associated with this device. The associated equipment shall be set to operate within the following limits for compliance with Telecom's Specification:-

1 (a) There shall be no more than 10 call attempts to the same number within any 30 minute period for any single manual call initiation, and

(b) The equipment shall go on-hook for a period of not less than 30 seconds between the end of one attempt and the beginning of the next attempt.

2 Where automatic calls are made to different numbers, the equipment shall go on-line for a period of not less than 5 seconds between the end of one attempt and the beginning of the next attempt.

3 The equipment shall be set to ensure that calls are answered between 3 and 30 seconds of receipt of ringing.

Appendix E. Software License Agreement

Xircom grants you a non-exclusive license to use the copies of software programs supplied with this product on the following terms:

You may:

a Use the software program on any computer or network but only in conjunction with any Xircom hardware product;

b Permit any other individuals to use the software program either directly or on a computer network, but only if there is no more than one user for each Xircom hardware product in use in conjunction with such use;

c Make only those number of backup and archival copies of the software program in machine readable form as are essential to backup use of the software program, provided that you reproduce all proprietary notices on each copy.

You may not:

a Modify, translate, reverse engineer, decompile, disassemble, create derivative works based on, or copy (except for archival purposes) the program or the accompanying documentation;

b Rent, transfer, sublicense or grant any rights in the program or accompanying documentation (including any time-sharing arrangement) in any form to any other person without the prior written consent of Xircom;

c Remove any proprietary notices, labels, or marks on the program and accompanying documentation.

Failure to comply with any of the above restrictions will terminate this license. This is not a sale. Title and copyrights to the program and accompanying documentation and any copies remain with Xircom, except that title to software programs shipped by Xircom through an agreement with another manufacturer is owned and retained by the original manufacturer, and no title to the intellectual property contained in such programs is transferred hereunder. The human readable code of the software program (source code), including the source code of programs shipped by Xircom through an agreement with another manufacturer, is not sublicensed hereunder.

U.S. Government Restricted Rights

The SOFTWARE and documentation are provided with RESTRICTED RIGHTS. Use, duplication, or disclosure by the Government is subject to restrictions as set forth in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause at DFARS 252.227-7013, or subparagraphs (c)(1) and (c)(2) of the Commercial Computer Software-Restricted Rights at 48 CFR52.227-19, as applicable. Contractor/manufacturer is Xircom, Inc., 2300 Corporate Center Drive, Thousand Oaks, CA 91320-1420.

This Agreement is governed by the laws of the State of California.