

# Dual Serial I/O Card™ and Ruggedized Dual Serial I/O Card™

*PC Card with Two Serial COM Ports  
for Windows-based Mobile Computers*

## User's Guide



**Limited Warranty**

Socket Communications Incorporated (Socket) warrants this product against defects in material and workmanship, under normal use and service, for the following periods from the date of purchase:

PC Card and fixed cables: Lifetime (Three years if not registered)

Removable cables: 90 days

Incompatibility is not a defect covered by Socket's warranty. During the warranty period, Socket will, at its option, repair or replace the defective product at no charge when furnished with proof of retail purchase, provided that you deliver the product to Socket or to an authorized Socket Service Center.

The returned product must be accompanied by a return material authorization (RMA) number issued by Socket or by Socket's Authorized Service Center. If you ship the product, you must use the original container or equivalent and you must pay the shipping charges to Socket. Socket will pay shipping charges back to any location in the contiguous United States. This warranty applies only to the original retail purchaser and is not transferable.

Socket may, at its option, replace or repair the product with new or reconditioned parts, or refund to Customer the purchase price paid for the defective product, and the returned product becomes Socket's property. Socket warrants the repaired or replaced products to be free from defects in material or workmanship for ninety (90) days after the return shipping date, or for the duration of the original warranty period, whichever is greater.

This warranty does not cover the replacement of products damaged by abuse, accident, misuse or misapplication, nor as a result of service or modification other than by Socket.

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

This product may contain fully tested, recycled parts, warranted as if new.

For warranty information, phone (510) 744-2700.

**February 2000**

**Document # 6410-00032 H**

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Please be aware that the products described in this manual may change without notice.

This manual has been prepared with the greatest care regarding its contents. However, in the event that it contains omissions, errors or any other misinformation, feel free to contact SOCKET COMMUNICATIONS at:

**Socket Communications, Inc.**  
37400 Central Court  
Newark, CA 94560

You are also welcome to call Socket Communications at (510) 744-2700, or you may FAX inquiries to (510) 744-2727.

If you have technical questions, call Socket's technical support department at: 510-744-2720.

Other than the above, Socket Communications can assume no responsibility for anything resulting from the application of information contained in this manual.

Socket Communications requests that you refrain from any applications of the Socket Dual Serial I/O Card that are not described in this manual. Socket Communications also requests that you refrain from disassembling the PC Card. Disassembly of this device will void the product warranty.

You can track new product releases, software updates and technical bulletins by visiting Socket's web page at <http://www.socketcom.com>.

## Regulatory Compliance

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. This equipment is also CE EN55022 and C-TICK compliant. 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 harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his or her own expense.

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 may try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna of the radio or television.
- Increase the distance separating the equipment and the receiver.
- Connect the equipment to an outlet on a different branch circuit than that of the receiver.
- Consult the dealer or an experienced radio/TV technician for help.

The user may find the following booklet helpful:

*How to Identify and Resolve Radio-TV Interference Problems*

This booklet is available from the U.S. Government Printing Office, Washington, D.C. 20402.

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# Quick Start

## How to Avoid Reading the Manual

The Dual Serial I/O Card works in the PC Card slot of notebooks, handheld PCs and pen tablets powered by Windows 9x, Windows CE v2.x or higher, Windows NT 4.0 and DOS. The card might not work with some third party Card Services software. For the latest software drivers for the Dual Serial I/O Card, including software for Windows 2000-based notebooks, visit Socket's web site at: [www.socketcom.com/download.htm](http://www.socketcom.com/download.htm)

## Windows 9x Installation

With **Windows 98**, the first time you insert the Dual Serial I/O Card you will see the **Add New Hardware Wizard** screen. Click **Next>**. On the next screen, click **Search for the best driver for your device** and click **Next>**. Insert the *Dual I/O Installation Disc* into your CD drive. Make sure **CD-ROM drive** is checked and click **Next>**. A screen should report the location of the DUALIO.INF driver. Click **Next>**. When you see a screen reporting that Windows has finished the installation, click **Finish**.

With **Windows 95**, the first time you insert the Dual Serial I/O Card you will see the **Update Device Driver Wizard** screen. Insert the *Dual I/O Installation Disc* into your CD drive and click **Next>**. On the next screen, click **Other Locations...** and specify your CD drive. Windows will report that it found the driver for the "Socket Dual I/O." Click **Finish**.

## Windows NT 4.0 Installation

To run the Dual Serial I/O Card on Windows NT 4.0 requires a current copy of Card Services software from Softex. To download a free copy of this software plus installation instructions, visit this web address: [www.socketcom.com/sftxfn.exe](http://www.socketcom.com/sftxfn.exe).

## Windows CE 2.x Installation

Establish an active connection between your Windows CE device and a desktop PC. Use the Windows CE device's serial connection cable. Insert the *Dual I/O Installation Disc* into the CD drive of your desktop PC. Click **Start/Run** on your desktop PC and type **D:\WINDOWS CE\SETUP** (use the drive letter of your CD) and follow the directions on your screen. When you see **Application Downloading Complete**, tap **OK**.

This will update the Windows registry and install an applet called "DualIO" which tells you which COM ports are assigned to the card's physical ports.

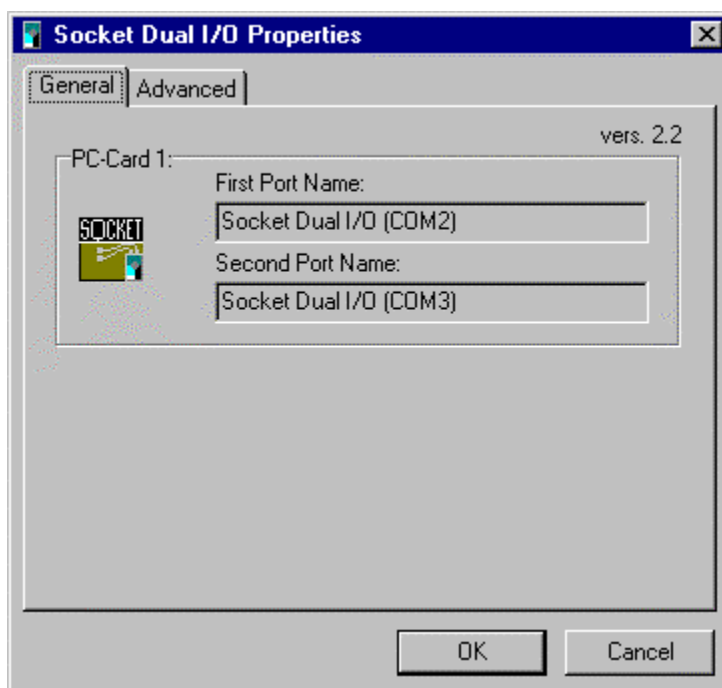
## DOS Installation

To install the Dual Serial I/O Card to run with DOS, refer to the ENABLER.TXT file on the *Dual I/O Installation Disc*.

## Determining Which Port is Which

When you insert the Dual Serial I/O Card, the connector labeled “Port A” is usually assigned the first available COM port (e.g., COM2), and the connector labeled “Port B” is assigned the next one (e.g., COM3).

To confirm the COM port assignments under Windows 95 or Windows 98, run the Socket Dual I/O applet. Click **Start**, select **Settings** and click **Control Panel**. This will display the **Control Panel** group. Double click the Socket Dual I/O icon. You will see a screen similar to:



**First Port Name** refers to the connector identified as “PORT A” on the card label. When the card is inserted in your notebook, PORT A is on the **right** side of the card.

If the card is not inserted when you run the applet, the applet will report “card is not installed” for both ports. If you insert a card when the applet is running, it will take a few moments for the card’s ports to be identified.

## 4 – Quick Start



# Chapter 1 Introduction

## How This Manual Is Organized

This manual is designed to help you install and operate Socket's Dual Serial I/O Card and Ruggedized Dual Serial I/O Card. The expression "Dual Serial I/O Card" by itself refers to both products.

This chapter, "Introduction," explains where to find information about your card. This chapter also describes the key features of the Dual Serial I/O Card and Ruggedized Dual Serial I/O Card and identifies the parts included in the package.

Chapter 2, "Hardware Setup," covers the hardware installation procedure. This is where you find out how to attach the serial cables to your Dual Serial I/O Card (the Ruggedized Dual Serial I/O Card has built-in cables), insert the card into your computer, and attach serial peripherals to the card's DB-9 connectors.

Chapter 3, "Software Setup," covers software installation with Windows 95, Windows 98, Windows NT 4.0, and Windows CE 2.x or higher. This chapter also describes how to verify which logical COM ports have been assigned to the Dual Serial I/O Card's physical ports.

Appendix A, "Specifications," provides technical specifications for the Dual Serial I/O Card and Ruggedized Dual Serial I/O Card.

Appendix B, "Windows COM Ports," provides some background information about Windows 95 and Windows 98 COM ports, including the assignment of interrupts and I/O addresses.

Appendix C, "Troubleshooting," gives advice for correcting the most common problems you may encounter while installing or using the Dual Serial I/O Card.

## Features

Thank you for purchasing the Socket Dual Serial I/O Card or the Ruggedized Dual Serial I/O Card. The card allows users of notebooks, handheld PCs and pen tablets based on Windows 95, Windows 98, Windows CE v2.x or higher, and DOS to communicate with peripherals that use the industry-standard RS-232 interface. Common serial peripherals include modems, printers, Digital Phone Cards, bar code scanners, GPS receivers and digital cameras. The Dual Serial I/O Card can also be used with monitoring and control equipment and with devices for data collection, measurement, calibration and testing.

Because the Dual Serial I/O Card uses fast 16550 type UARTs, it is able to handle high-speed modems efficiently.

Other features of the Dual Serial I/O Card include:

- Plug and Play and hot-swapping operation with Windows-based mobile computers
- Simultaneous operation of both communications ports
- Control Panel applet helps you identify which physical port has been assigned to which logical COM port
- Uses only one interrupt (IRQ) from your mobile computer
- Uses industry standard DB-9 connector
- The Dual Serial I/O Card has removable cables. The Ruggedized Dual Serial I/O Card has fixed cables that allows it to operate in harsh environments and tolerate high vibration.
- *Battery Friendly™* operation. The Dual Serial I/O Card consumes minimal power from its host computer — as little as 5 mA in standby mode. Conserving energy is especially important for mobile users who operate their computer on battery power, since low power means less time spent changing batteries and more time for productive activity.

**Note:** Socket does not recommend using the Dual Serial I/O Card with a mouse. If you have a mouse with a DB-9 connector, plug your mouse into your notebook's built-in serial port. If your mouse has a PS/2 connector, it can only be connected to your notebook's PS/2 mouse connector.

## 6 - Introduction

## What You Get in Your D-I/O Card Package

Your package should include either a Dual Socket Serial I/O Card or a Ruggedized Dual Socket Serial I/O Card.

The Socket Dual Serial I/O Card includes two removable interconnect cables, each with a male DB-9 connector at one end and a special PC Card connector at the other end. The Ruggedized Dual Serial I/O Card includes two integrated cables, each with a male DB-9 connector at the end. These cables cannot be removed. In other respects the products are identical.

You should remember which connector represents Port A vs. Port B. These ports are marked on the card label. When the card is inserted in a computer and the label is hidden, remember that Port A is on the **right** side of the card as you look down on it with the cables pointing towards you:





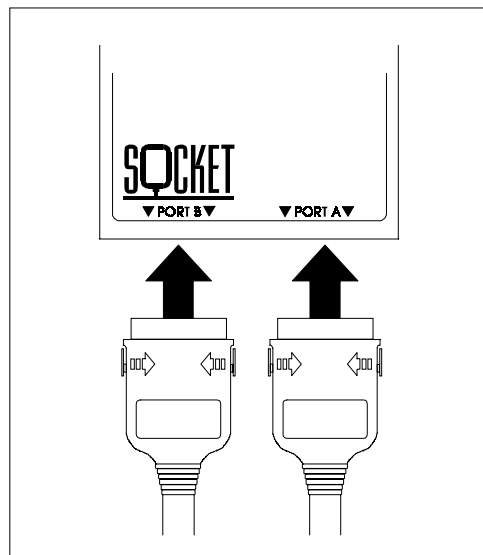
## Chapter 2 Hardware Setup

### Overview

To connect the Dual Serial I/O Card to your computer, simply insert the cables into the PC Card and insert the card into your computer's PC Card slot. You can then attach the DB-9 connectors to your serial peripherals.

### Connecting the Cables to Your PC Card

The Dual Serial I/O Card has two identical removable cables, each with a DB-9 connector on one side and a flat connector on the other. (If you have the Ruggedized Dual Serial Card, the cables are permanently attached). Insert the flat part of each cable into the card connector marked either Port A or Port B.



*Inserting the Cables into the Dual Serial I/O Card*

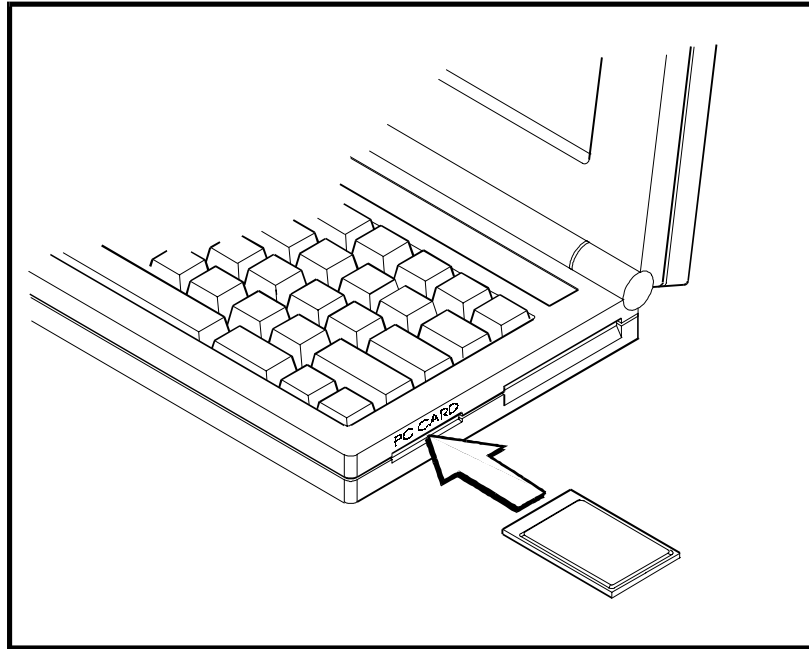
Each cable has a metallic strip on one side of the flat connector. This should be on the bottom of the cable when you insert it. The connector is keyed, so you will not be able to plug it in upside down. The cable connector should make a positive click when it is correctly inserted.

To remove the cable, depress the side tabs on the connector and pull it straight out. Pull the connector, not the cable.

## Connecting the PC Card to Your Computer

Plug the Dual Serial I/O Card into an available PC Card slot on your computer. PC Card slots are sometimes labeled “PC CARD,” “IC CARD,” or “PCMCIA.” You do not have to turn off power to your PC to insert the card.

When you insert the Dual Serial I/O Card, be sure that the top side is up. The top side has a colored label.



*Inserting the Dual Serial I/O Card into the PC Card slot*

The Dual Serial I/O Card should fit easily into place. If you encounter resistance, make sure the PC Card is aligned right-side up. Do not force the card into the PC Card slot. Some notebooks have upside-down PC Card slots. These will be prominently marked, and you should insert the Dual Serial I/O Card accordingly.

**Warning:** Do not remove the Dual Serial I/O Card from the PC Card slot by pulling on the cables. Always use the EJECT button near your computer's PC Card slot to release the Dual Serial I/O Card from the slot, and always hold the card by its case.

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## Chapter 3 Software Setup

### Overview

The Dual Serial I/O Card works with Windows 9x, Windows CE 2.x and higher, Windows NT 4.0 and DOS. A Control Panel applet makes it easy to determine what logical COM ports have been assigned to each physical serial port on the Dual Serial I/O Card.

To install the Dual Serial I/O Card to run with MS-DOS, refer to the ENABLER.TXT file on the *Dual I/O Installation Disc*. For the latest software drivers for the Dual Serial I/O Card, including software for Windows 2000-based notebooks, visit Socket's web site at: [www.socketcom.com/download.htm](http://www.socketcom.com/download.htm)

### Windows 98 Installation

With **Windows 98**, the first time you insert the Dual Serial I/O Card you will see the **Add New Hardware Wizard** screen. Click **Next>**:



On the next screen, click **Search for the best driver for your device** and click **Next>**. Insert the *Dual I/O Installation Disc* into your CD drive. Make sure **CD-ROM drive** is checked and click **Next>**. A screen should report the location of the DUALIO.INF driver. Click **Next>**. When you see a screen reporting that Windows has finished the installation, click **Finish**.

## Windows 95 Installation

With **Windows 95**, the first time you insert the Dual Serial I/O Card you will see the **Update Device Driver Wizard** screen. Insert the *Dual I/O Installation Disc* into your CD drive and click **Next>**. On the next screen, click **Other Locations...** and specify your CD drive. Windows will report that it found the driver for the “Socket Dual I/O.” Click **Finish**.

## Windows NT 4.0 Installation

To run the Dual Serial I/O Card on Windows NT 4.0 requires a current copy of Card Services software from Softex. To download a free copy of this software plus installation instructions, visit this web address:  
[www.socketcom.com/sftxfin.exe](http://www.socketcom.com/sftxfin.exe).

## Installation for Windows CE 2.x and Higher

Establish an active connection between your Windows CE device and a desktop PC. Use the Windows CE device’s serial connection cable. Insert the *Dual I/O Installation Disc* into the CD drive of your desktop PC. Click **Start/Run** on your desktop PC and type **D:\WINDOWS CE\SETUP** (use the drive letter of your CD) and follow the directions on your screen. When you see **Application Downloading Complete**, tap **OK**.

This will update the Windows registry and install an applet called “DualIO” which tells you which COM ports are assigned to the card’s physical ports.

## Hot Swapping

Windows 9x and Windows CE support hot swapping, which allows you to remove a PC Card and re-insert it without rebooting. Under Windows 9x and Windows CE, not all application programs will gracefully handle the sudden disappearance of a communications port. When you remove the Dual Serial I/O Card and re-insert it under Windows 9x or Windows CE, your COM Port assignments may change.


For example, if a PC Card modem running under Windows 9x occupies a slot as COM2 when you first plug in your Dual Serial I/O Card, Ports A and B of the Dual Serial Card could be assigned COM3 and COM4. However, if you remove both your PC Card modem and your Dual Serial I/O Card, and later plug back in only your Dual Serial I/O Card, the card could be assigned COM2 and COM3. It is possible in this case that the last application you ran using the Dual Serial I/O Card will not be able to find its serial peripheral until you set up your application again with the new COM port.

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## Removing the Dual Serial I/O Card

If you use Windows 9x or Windows CE 2.x, close any applications that are using the Dual Serial I/O Card before you remove the PC Card.

Before you remove the card, click the PC Card icon  in the Windows 9x system tray to bring up the “Stop Socket Communications Inc-Dual RS-232 Serial Port PC Card” button. Click this button and wait for the message “You may safely remove this device.”

## Using the Card with Windows 9x

The ports on the Dual Serial I/O Card operate the same as any other serial port under Windows 9x. Some applications may be restricted to specific port numbers and so may be unable to access one or both Dual Serial I/O ports depending on the port numbers they are assigned. Some DOS applications running under Windows 9x will not be able to access the Dual Serial I/O Card.

In Windows 9x, some programs can access new COM ports only after their “friendly names” are entered in the Windows 9x registry. Appendix B: *Win9x COM Ports*, explains how to do this.

Because Windows 9x assigns COM ports dynamically, the COM ports assigned to the Dual Serial I/O Card may not always be the same every time you insert the card. The COM port assignments are virtually assured to change if you alter the order in which you insert the Dual Serial I/O Card and a PC Card modem. A different COM port assignment may cause an application using the modem or the Dual Serial I/O Card to report that it can’t find its serial device.

If you have problems running the Dual Serial I/O Card, refer to Appendix C: *Troubleshooting*.

**Note:** *Socket does not recommend using the Dual Serial I/O Card with a mouse.*

## Windows 9x Port Assignments

When you insert the Dual Serial I/O Card into a Windows 9x notebook, the connector labeled “Port A” is usually assigned the first available COM port (e.g., COM2), and the connector labeled “Port B” is assigned the next one (e.g., COM3).

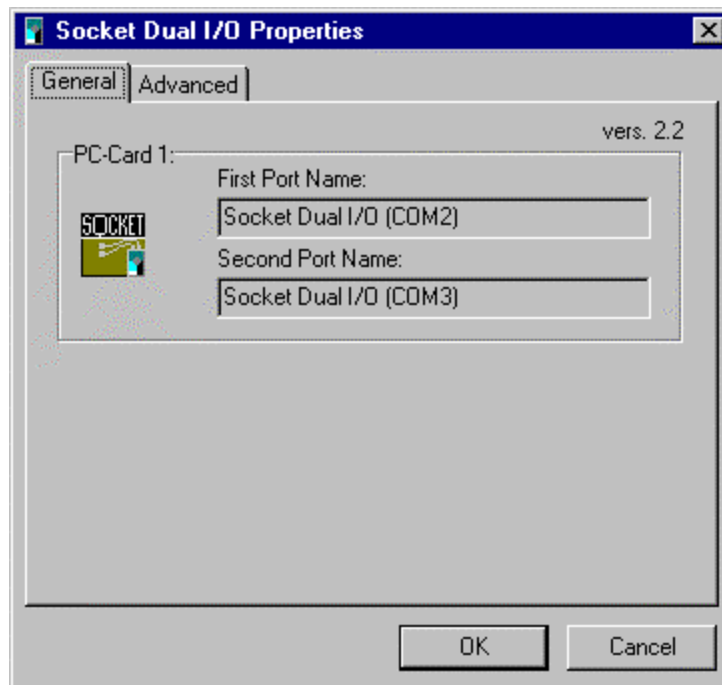
Depending on the configuration of your notebook, port assignments may not be sequential or contiguous. Socket’s Dual I/O applet allows you to confirm which physical ports have been assigned to which COM ports.

To confirm the COM port assignments under Windows 95 or Windows 98, run the Socket Dual I/O applet. Click **Start**, select **S**ettings and click **C**ontrol Panel. This will display the **Control Panel** group.

Double click the Socket Dual I/O icon:



You will see a screen similar to:



**First Port Name** refers to the connector identified as “PORT A” on the card label. When the card is inserted in your notebook, PORT A is on the **right** side of the card.

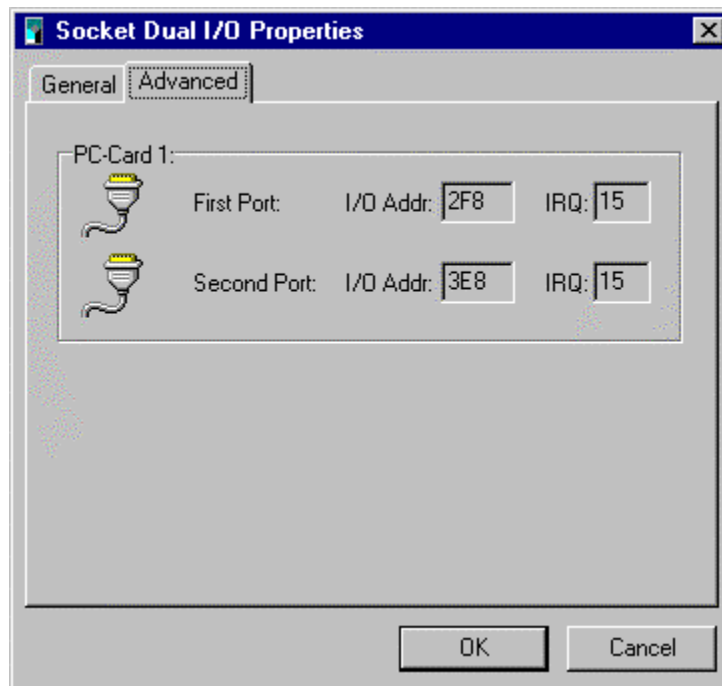
If the card is not inserted when you run the applet, the applet will report “card is not installed” for both ports. If you insert a card when the applet is running, it will take a few moments for the card’s ports to be identified.

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## Windows 9x IRQ & I/O Addresses

To determine the interrupt request (IRQ) assigned to the Dual Serial I/O Card and the I/O addresses assigned to each COM port, run the Socket Dual I/O Card applet. Click **Start**, select **Settings** and click **Control Panel**. This will display the **Control Panel** group. Double click the Socket Dual I/O Card icon. You will see the **Socket Dual I/O Properties** screen shown above.

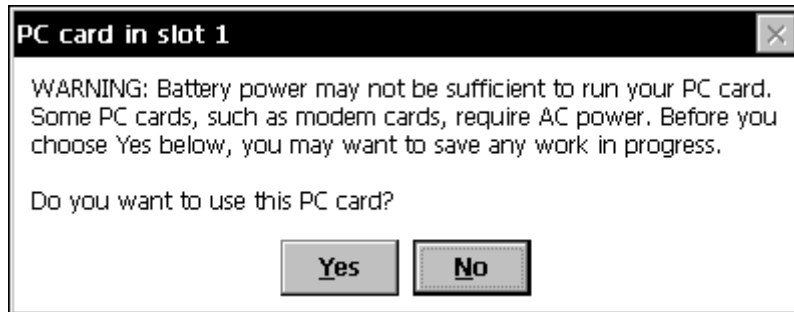
Click the **Advanced** tab. You will see a screen similar to:



This screen shows the different I/O addresses and the shared IRQ number assigned to the Dual Serial I/O Card.

## Using the Card with Windows CE 2.x

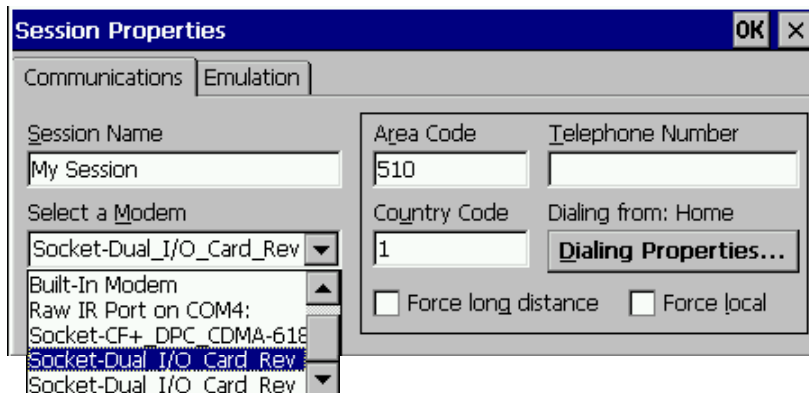
If you are using your H/PC or pen tablet without an AC power adapter, you will see this message when Windows CE 2.x detects the card:



If you intend to run the Dual Serial I/O Card without an AC power adapter, click **Yes**. The Dual Serial I/O Card can operate for extended periods using the power supplied by your computer's batteries. However, this mode of operation will reduce the time your H/PC or pen tablet can run on battery power and you should be careful to notice when Windows CE warns you that your batteries are becoming too weak.

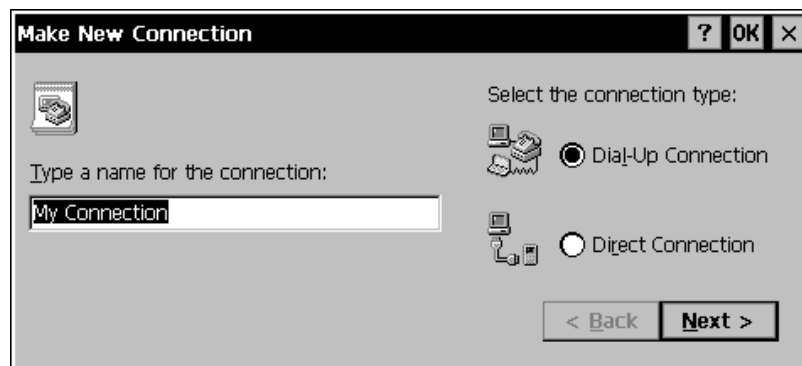
The ports on the Dual Serial I/O Card operate the same as any other serial port under Windows CE 2.x. You cannot use the Dual Serial I/O Card for an ActiveSync connection, but you can use it with the Terminal program, with a Dial-Up Connection in the Remote Networking program, or with third-party applications.

To use the Dual Serial I/O Card with the Terminal program, tap **Start**, select **Programs**, tap **Communication**, and select **Terminal**. Double tap the **Make a New Session** icon and from the **Session Properties** window tap the scroll arrow in the **Select a Modem** box. You should see a menu that includes **Socket Dual\_I/O\_Card** twice:



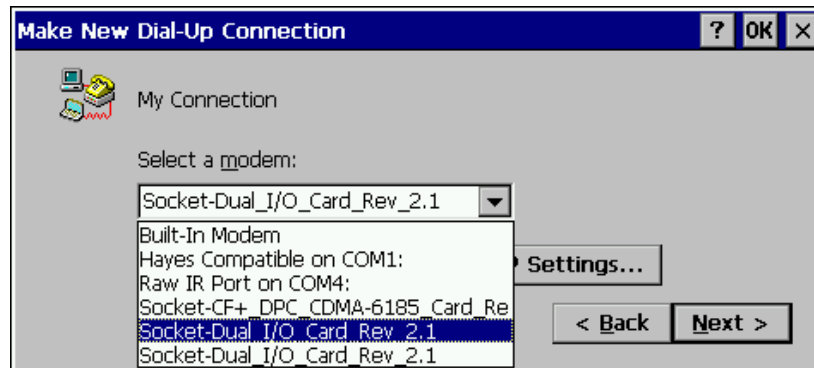
Because Windows CE does not display the difference between the two ports on the Dual Serial I/O Card, you must experiment to determine whether you have selected Port A or Port B. When you have selected the correct port, finish entering the appropriate parameters for this session.

To use the Dual Serial I/O Card to make a Dial-Up Connection with the Remote Networking program, tap **Start**, select **Programs**, tap **Communication**, and select **Remote Networking**. Double tap the **Make New Connection** icon and from the **Make New Connection** window highlight the **Dial-Up Connection** button:



**Note:** You cannot use the Dual Serial I/O Card for a Direct Connection.

Tap **Next>** and you will see the **Make New Dial Up Connection** screen:



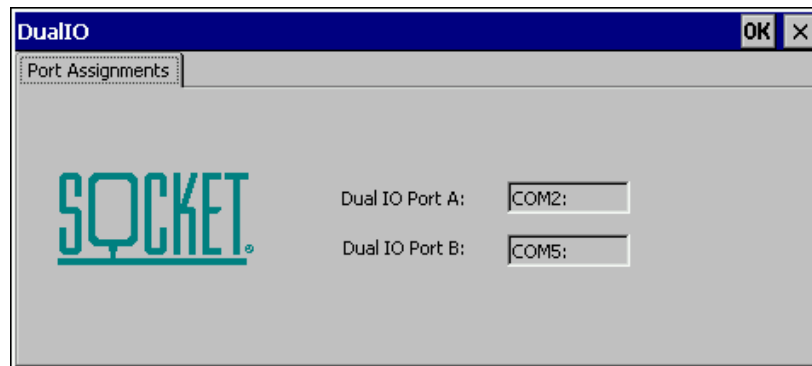
You should see a menu that includes **Socket Dual\_I/O\_Card** twice. Because Windows CE does not display the difference between the two ports on the Dual Serial I/O Card, you must experiment to determine whether you have selected Port A or Port B. When you have selected the correct port, finish entering the appropriate parameters for this session.

## Port Assignments for Windows CE 2.x

To confirm the COM ports assigned to the Dual Serial I/O Card by Windows CE on an H/PC or pen tablet, run the DualIO applet. This applet is set up automatically when you install the Dual Serial I/O Card. Tap **Start**, select **S**ettings and tap **C**ontrol Panel. This will display the **Control Panel** group. In the **Control Panel** group, double tap the DualIO icon:



You will see a screen similar to:



**Dual IO Port A:** refers to the connector identified as “PORT A” on the card label. When the card is inserted in your H/PC or pen tablet, PORT A is on the **right** side of the card as you look down on the computer with the serial cables pointed towards you. If the Dual Serial I/O Card is not inserted when you run the applet, the program will report “Not Found” for both ports.

# Appendix A Specifications

## General

### *Physical Characteristics:*

#### **I/O PC Card**

<b>Dimensions:</b>	3.37 in x 2.13 in x 0.197 in (85.6mm x 54.0mm x 5.0mm)
<b>Weight:</b>	1 oz (28.4 gm)

#### **Interconnect Cables**

<b>Length:</b>	
<b>Standard Card:</b>	12 in (305mm)
<b>Ruggedized Card:</b>	16 in long (406mm) fixed
<b>Removable Cable Weight:</b>	1.1 oz (31.2 gm) each
<b>Serial Connector:</b>	9-Pin D Shell Male

### *Environmental Conditions:*

<b>Operating Temperature:</b>	0°C to +55°C
<b>Storage Temperature:</b>	-20°C to +65°C
<b>Relative Humidity:</b>	10% to 90% non-condensing

### *Power Consumption (supplied by host):*

<b>Minimum:</b>	5 mA (25 mW)
<b>Typical:</b>	
<b>One port:</b>	13 mA (65 mW)
<b>Both ports:</b>	21 mA (105 mW)

### *Interface Standards:*

<b>I/O PC Card Interface:</b>	PCMCIA Release 2.0, Type II, JEIDA 4.1 Compliant
<b>Serial Communications:</b>	Asynchronous RS-232

### *Software Included:*

<b>Windows 95 and 98:</b>	INF file
<b>Windows NT:</b>	Setup program
<b>Windows 95, 98 and NT:</b>	Control Panel applet
<b>Windows CE 2.x:</b>	Setup program, Control Panel applet
<b>MS-DOS:</b>	Direct enabler
<b>Media:</b>	CD ROM

<b>OS Support:</b>	Windows 9x, Windows CE 2.x or higher, Windows NT, MS-DOS
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**Compatibility:**

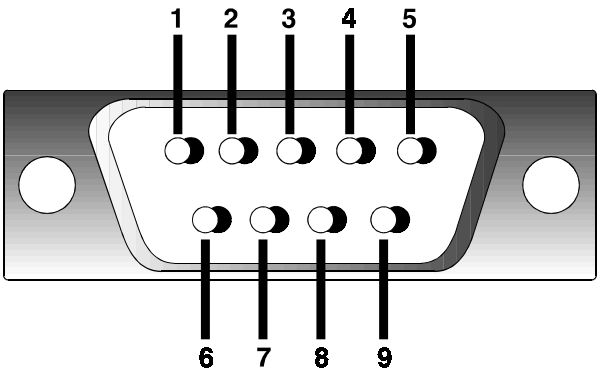
**Port A:** COM 1, 2, 3, 4 or any I/O address  
**Port B:** COM 2 (2F8), COM 3 (3E8) or COM 4 (2E8)

**Programmable Characteristics:**

**Character length:** 5-, 6-, 7- or 8-bit  
**Parity:** Even, odd or none  
**Baud rate generation:** Up to 115.2K baud  
**UART Type:** 16C550

**Pin Assignments for both DB-9 Connectors:**

Pin Number	Function
1	Data Carrier Detect
2	Receive Data
3	Transmit Data
4	Data Transmit Ready
5	Ground
6	Data Set Ready
7	Request to Send
8	Clear to Send
9	Ring Indicator





# Appendix B Windows COM Ports

## Overview

Windows 9x and Windows CE 2.x make COM port assignments whenever a PC Card is inserted, a capability referred to as “hot swapping.”

Some applications can take full advantage of hot swapping and can use a serial device even if its COM port, I/O address and IRQ number all change while the application is running. For other applications, changing COM port assignments can create problems. This chapter discusses key issues concerning the way Windows 9x and CE 2.x handle serial PC Cards.

## A COM Port Primer

A COM port is a symbolic name that Windows 9x and Windows CE 2.x use to reference a physical serial port. A physical serial port must be allocated system resources that do not conflict with those of another port. System resources required by the Dual Serial I/O Card include I/O addresses, an interrupt request (IRQ) number, and a small amount of memory.

The default relationship between COM port names and system resources for Windows 9x are shown in this table:

Logical Name	I/O Address	IRQ
COM1	3F8	4
COM2	2F8	3
COM3	3E8	4 (if available)
COM4	2E8	3 (if available)

(For Windows CE 2.x, I/O addresses and IRQ numbers are not relevant to most users.)

Windows 9x and Windows CE 2.x support hot swapping, which means they can assign COM port names, I/O addresses and IRQ numbers to PC Card serial ports as soon as they are inserted. When a card is removed, the resources allocated to it are made available for the next card. As long as IRQs and I/O ports are available, it should always be possible to add a new PC Card COM port to Windows 9x or Windows CE 2.x by simply plugging in the card.

## Registering a COM Port

With Windows 9x, some applications will not recognize COM ports unless a “friendly name” for the COM port exists in the Windows registry. You can cause Windows 9x to register this friendly name by running the Direct Cable Connection program.

With the Dual Serial I/O Card inserted:

1. Click **Start**, **R**un..., and enter **c:\windows\directcc**  
(Under Windows 9x, you can also click **Start**, select **Programs**, pick the **Accessories** group, and select **Direct Cable Connection**.)
2. If the first screen displays the **Change...** option, select it.
3. On the next screen, make sure **Guest** is selected. Click **N**ext.
4. On the next screen, click **I**nstall New Ports.
5. You should see the **Configuring Ports** screen.
6. When the new ports have been configured, click **F**inish to exit.

Any application that previously did not recognize your new COM ports should now see them.

## Interrupts

The Dual Serial I/O Card requires a single interrupt (IRQ). Because unused interrupts are scarce in most notebooks, this ability to operate two ports on a single interrupt can be a significant advantage with Windows 9x. With Windows CE 2.x, interrupts are rarely a problem.

If your notebook does not have an unused interrupt, you must free one up before you can use the Dual Serial I/O Card. If this is the case, you may have to ask your notebook’s manufacturer for assistance in finding out how to disable a notebook function you don’t use (e.g., IrDA) so that you can reallocate the associated interrupt. For tips on finding interrupts, refer to Appendix C: *Troubleshooting*.

# Appendix C Troubleshooting

## Overview

The ports associated with the Dual Serial I/O Card should operate the same as conventional Windows COM ports. This chapter will help you resolve problems you may encounter.

## My Notebook Doesn't See the D-I/O Card

If your computer doesn't recognize the Dual Serial I/O Card, make sure that the card is properly seated in the PC Card slot. Do this by removing the card from the PC Card slot and re-inserting it.

## My Application Doesn't See the D-I/O Card

If your application expects to find a serial device on a specific COM port, make sure the Dual Serial I/O Card port assignments match your application's configuration. One way to see what COM port numbers have been assigned to the Dual Serial I/O Card is to run the Socket Dual I/O Card applet (DualIO for Windows CE 2.x) from the **Control Panel** program group.

Windows 9x and Windows CE 2.x assign PC Card COM port numbers dynamically, so you may have to reconfigure your application to look for the correct COM port. You can usually do this within your application via a menu called "Setup," "Communications," "Configuration," "Options," or combinations of these names. Some DOS programs running on Windows 9x won't work with the card.

## My COM Ports Keep Changing

With Windows 9x, when you insert the Dual Serial I/O Card *before* inserting a PC Card modem, your COM port assignments may not be the same as when you insert the Dual Serial I/O Card *after* inserting a PC Card modem. Insert serial PC Cards in the same order every time to avoid having to reconfigure your applications. Serial PC Cards include modem cards, combo modem/LAN cards, combo serial/LAN cards, Digital Phone Cards, GPS Cards, and single or dual serial cards.

Under Windows 9x, some applications will not recognize COM ports unless there is a "friendly name" for the COM port in the Windows 9x registry. To force Windows 9x to register this friendly name, run the Direct Cable Connection program.

To run the Direct Cable Connection program:

1. Click **Start**.
2. Select **Programs** and pick the **Accessories** group.
3. Select **Direct Cable Connection**.
4. If you see a **Change** option, select it.
5. With **Guest** selected, click **Next**.
6. Click **Install New Ports**.
7. You should see the **Configuring Ports** screen.
8. When the new ports have been configured, click **Finish** to exit.

Any application that previously did not recognize your new COM ports should now see them.

## My Mouse Works Erratically

Some mouse drivers behave erratically with PC Card serial ports. Socket recommends that you do not attach a mouse to your Dual Serial I/O Card. If you have a serial mouse, connect it to your notebook's built-in RS-232 port and connect your other serial devices to your Dual Serial I/O Card.

## How Can I Find a Free Interrupt?

Like any PC Card, the Dual Serial I/O Card requires one free interrupt request (IRQ) in order to operate properly. If your notebook has no free IRQ, you may have to consult your notebook manufacturer in order to determine how to disable a feature you may not be using (e.g., IrDA) in order to free up an interrupt.

In extreme cases where you can find no free IRQ, you may have to remove a PC Card from your notebook when you operate the Dual Serial I/O Card.

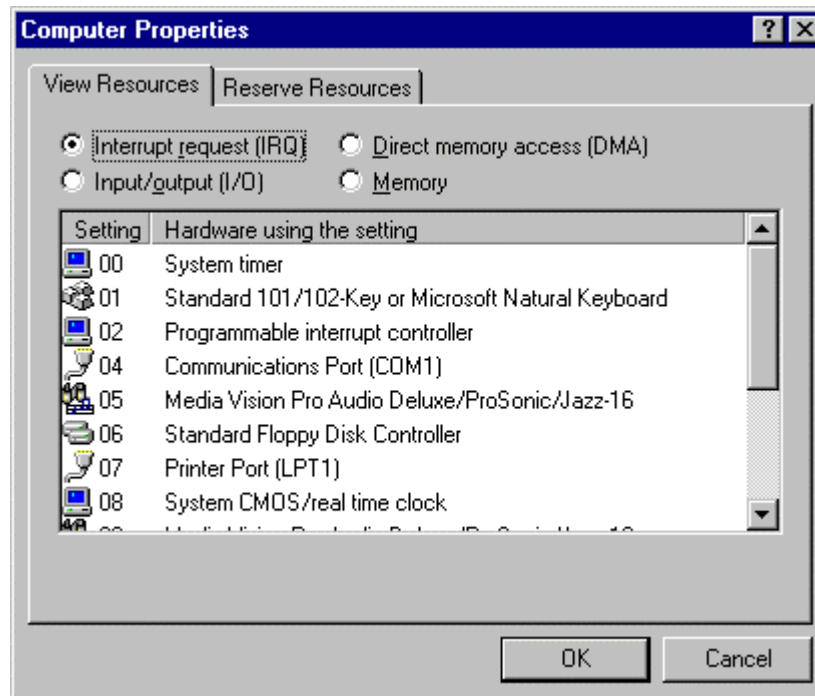
## Windows CE Says My Card Type Is Unknown

If you run the System program from the Control Panel group while the Dual Serial I/O Card is installed in a Windows CE 2.x H/PC or pen tablet, the entry next to **Expansion Slot** in the **System Properties** window will say **Socker\_Dual-I/O** if the card is recognized. This indicates the Dual Serial I/O Card is functioning properly. If Windows CE 2.x does not recognize the Dual Serial I/O Card's presence, the entry after **Expansion Slot** will be blank.

## How to Inventory Interrupts in Windows 9x

Under Windows 9x, you can check your notebook's interrupt assignments and availability by right clicking on **My Computer**, selecting **Properties**, and selecting the **Device Manager** tab.

Click the **Properties** button to see the current IRQ assignments. Make sure the **Interrupt request (IRQ)** button is checked:

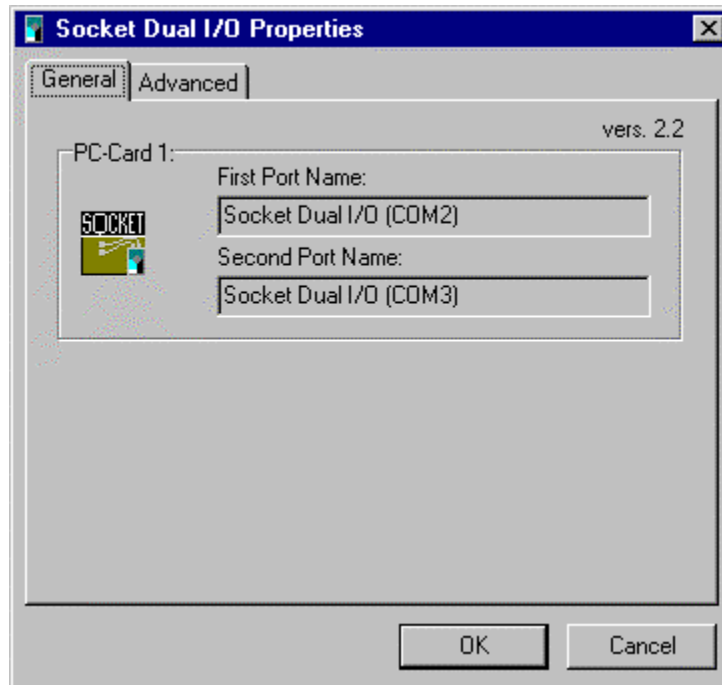


The first column shows the interrupt requests (IRQs) assigned to various devices on your notebook. There are a total of 16 IRQs, numbered 00 through 15. Scroll down the list to see if any numbers are unassigned. In the sample screen, COM1 is assigned IRQ 4. This is typical for the built-in COM port.

In the sample screen, note that IRQ 03 does not appear, indicating that it is available. If you were to insert a serial PC Card in this environment, Windows 9x would probably assign it IRQ 3. In the case of the Dual Serial I/O Card, IRQ 3 would be shared by the RS-232 ports A and B. If the only COM port listed were COM1, Port A and B would probably be assigned the "friendly names" COM2 and COM3 respectively.

## What Ports Was My D-I/O Card Assigned?

Under Windows 9x, you can see what COM ports have been assigned to the Dual Serial I/O Card by running the Socket Dual I/O applet from the **Control Panel**. If the Dual Serial I/O Card is properly installed and inserted, you should see the **Socket Dual I/O Properties** screen:



**First Port Name** refers to the connector identified as "PORT A" on the card label. When the card is inserted in your notebook, PORT A is on the **right** side of the card.

If the card is not inserted when you run the applet, the applet will report "card is not installed" for both ports. If you insert a card when the applet is running, it will take a few moments for the card's ports to be identified. To determine the interrupt request (IRQ) assigned to the Socket Dual Serial I/O Card and I/O addresses assigned to each COM port, click the **Advanced** tab on the applet.

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## If You Give Up

If you cannot resolve a technical problem with the Dual Serial I/O Card, contact Socket's technical support department. Before you contact Socket, make sure that you have the following information available:

- The serial number of your Dual Serial I/O Card
- The name and version number of your Windows operating system
- The manufacturer and model number of your Pocket PC, Handheld PC, pen tablet or notebook
- What you did to try to correct the problem

You can contact Socket any of the following ways:

- E-mail questions to **techsupport@socketcom.com**
- Phone Socket's technical support department at **510-744-2720**
- Send a question by fax to **510-744-2727**

Please refrain from disassembling the Dual Serial I/O Card. Disassembly of this device will void the product warranty.

You can contact Socket any of the following ways:

- E-mail questions to **techsupport@socketcom.com**
- Phone Socket's technical support department at **510-744-2720**
- Send a question by fax to **510-744-2727**

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