SPEED Serial Adaptors

User guide

Part number: 5500034-20
Date: 10 September 2008

Navigating around this manual

FCC Note

The products described in this manual have been found to comply with the limits for a Class A digital device, 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 instructions in this Guide, 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/her own expense.

EN 55022: 1998, Class A Note

Warning: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

CE

Caution: The products described in this manual are approved for commercial use only.

About this manual

Purpose of this manual

This manual tells you how to install, configure and use the Perle SPEED PCI serial adaptor cards, associated drivers and utilities.

Who this manual is for

This manual is aimed at users who want to add extra serial ports to their system using SPEED PCI serial adaptor cards. This manual requires a working knowledge of using personal computers and associated operating systems, as well as experience in installing host cards.

Warning

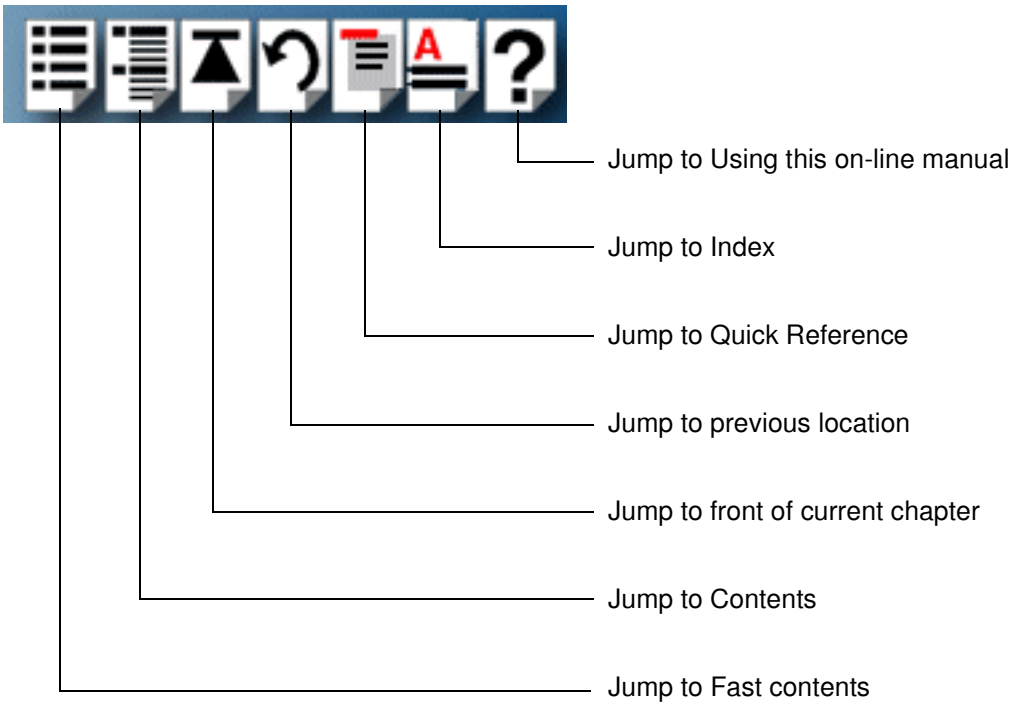
Dangerous voltages exist inside computer systems. Before installing host cards in your system, turn off the power supply and disconnect the mains lead.

Using this on-line manual

The following is a brief guide to using this manual on-line.

Document navigation

This manual features document navigation hypertext buttons in the header area as shown in the next picture;



Hypertext jumps

You can also navigate around this manual by clicking on any cross reference or text in blue for example, **Hypertext jumps**.

> Note
>
> The **Fast Contents**, **Contents** and **Index** entries are all hypertext jumps into this manual.

Revision history

Date	Part number	Description
October 1999	5500034-10	First issue of new SPEED user manual. Includes details of drivers, utilities and installation under the SCO OpenServer and Windows NT operating systems.
November 1999	5500034-11	Minor content update to include details of MODEM ports.
December 1999	5500034-12	Content update to include details of drivers, utilities and installation under the Windows 95 and 98 operating systems.
January 2000	5500034-13	Content update to include details of drivers, utilities and installation under the Windows 2000 operating system.
March 2000	5500034-14	Update of driver installation section for Windows 95 and 98 operating systems.
May 2000	5500034-15	Update of manual to include installation under the SCO UnixWare operating system.
August 2000	5500034-16	Update of manual to include installation under the Linux operating system and some additional SCO UnixWare error messages.
November 2001	5500034-17	Update to include new contact page and re-branding.
October 2005	5500034-18	Added support information for SCO Openserver 6.
March 2007	5500034-19	Added instructions for a new Windows 2000/XP/Server 2003/Vista installation process. There are now three Windows drivers to support 32-bit, 64-bit x64, and 64-bit Itanium operating systems/processors.
September 2008	5500034-20	Updated the Windows sections to include Windows Server 2008.

Fast Contents

Contents

CHAPTER 2 INSTALLING DRIVERS AND HOST CARDS 17

Chapter 1 Introduction

You need to read this chapter if you want to...

You need to read this chapter if you want an introduction to the Perle SPEED serial adaptor cards, driver software and utilities.

This chapter provides introductory information about the Perle SPEED PCI serial adaptor cards, driver software and configuration utilities.

This chapter includes the following sections;

About the SPEED serial adaptor card

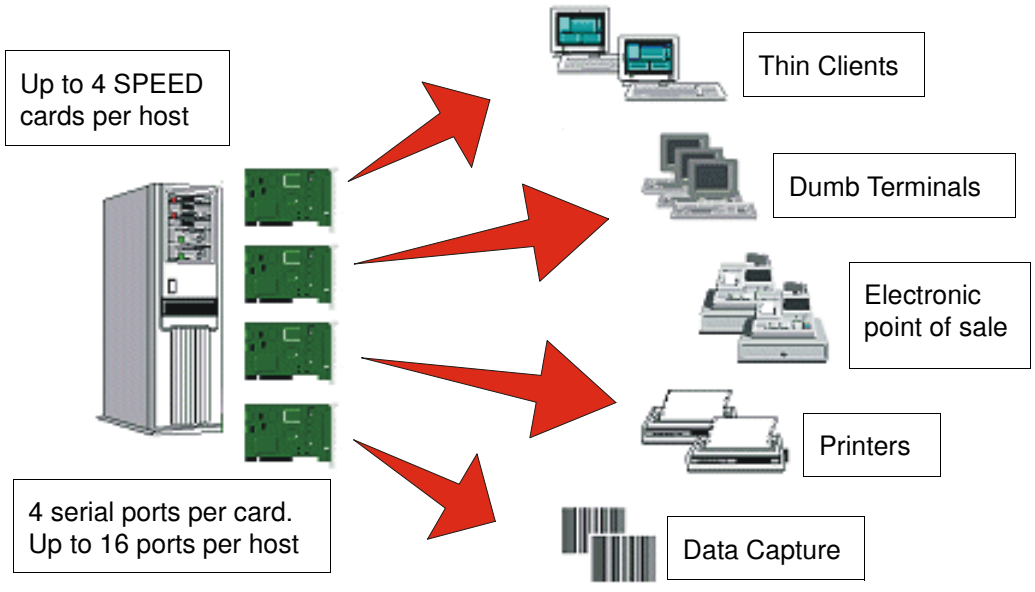
The SPEED product range are high performance, serial adaptor cards for PCI based host machines. Each card features four RJ45 ports, removing the need for spider or octopus cables. You can use up to four cards per host thus providing 16 ports per host.

The SPEED4 variant supports a full compliment of eight signal lines per port. The SPEED4+ includes enhanced modem support and significantly higher maximum port speeds.

Each serial port has three device nodes associated with it. Each node takes the form of a **special file** which you can access in the normal manner from operating system utilities and user applications. See also **Appendix A Serial Port Device Names** and your operating system manual for details of **special files**.

You use the SPEED when you want a robust entry level solution for the small office or point of sale applications. Typically you use SPEED because you want to add extra serial ports to an existing computer system rather than replacing it with the considerable cost that entails. Higher data rates and ESD protection in the SPEED4+ make it suitable for any modem or ISDN TA application.

> Note
>
> To use the SPEED serial adaptor cards you must first install the drivers supplied with the card and then configure each card as required prior to mechanical installation. The installation procedure varies for different operating systems. Please read **Before you start** on page **18** in **Chapter 2 Installing drivers and host cards** before commencing installation.



Chapter 2 Installing drivers and host cards

You need to read this chapter if you want to...

You need to read this chapter if you want to install SPEED serial adaptor cards and associated software.

This chapter provides information about installing and configuring SPEED serial adaptor cards in PCI format.

> Note
>
> The procedure for installing and configuring SPEED serial adaptor cards varies for different operating systems. Please read **Before you start** on page **18** before commencing installation.

This chapter includes the following sections;

Before you start

Before you install your SPEED host cards and software, note that the procedure for installing and configuring SPEED serial adaptor cards varies for different operating systems.

To install under a particular operating system, please refer to one of the operating system specific installation procedures listed below;

- **Installing under SCO OpenServer** on page **20**.
- **Installing under SCO UnixWare** on page **35**
- **Installing under Windows 95 and 98** on page **47**
- **Installing under Windows NT** on page **57**
- **Installing under Windows 2000/XP/Server 2003/Vista/Server 2008** on page **58**
- **Installing under Linux** on page **64**.

Down loading SPEED drivers from the Perle web site

You can install the SPEED driver and utility software from the Perle web site. To do this proceed as follows;

1. On your PC, start the Internet browser or FTP Client you want to use (for example, Netscape).
2. Within your Internet browser window or FTP client, select the software directory using the following URL;

   http://www.perle.com/downloads

   > Note
   > In the event of any problems contact your System Administrator or Internet Service provider for assistance.

3. Change to the software directory.

   The software directory is now displayed.

4. Download the zip files in this directory to a suitable location on your PC for example, **/tmp**.
5. Uncompress the files using a suitable utility.
6. You can now install the driver software using the correct procedure for your operating system. See **Before you start** on page **18**.

Installing under SCO OpenServer

This section tells you how to install host cards, software drivers and utilities under the SCO OpenServer operating system and includes the following;

General installation procedure for SCO OpenServer

The general procedure for installing and configuring host cards, drivers software and associated utilities for the SCO OpenServer operating system is as follows:

1. Install any PCI host cards you require into your system. See **Installing a PCI host card** on page **69**
2. Install the SPEED SCO OpenServer drivers and utilities onto your system using the procedures described in **Installing device drivers and utilities** on page **22**.
3. If required, remove any host cards you want from your system. See **Removing host cards** on page **70**.
4. Using the **Port Configuration tool**, configure the serial ports you have added to the system. See **Configuring SPEED serial ports** on page **28**.

Your system can now use the serial adaptor cards you have installed. If required, you can reconfigure serial ports following initial installation.

Installing device drivers and utilities

To install the SPEED device drivers and utilities for the SCO OpenServer operating system proceed as follows;

1. Login to your system as super user.
2. Load the CDROM into your system CD drive.
3. At the command prompt, make a directory for your installation by typing:

   mkdir /cdrom

4. Mount the CDROM file system using the following commands:

   mount -f ISO9660 -r/dev/cd0 /cdrom

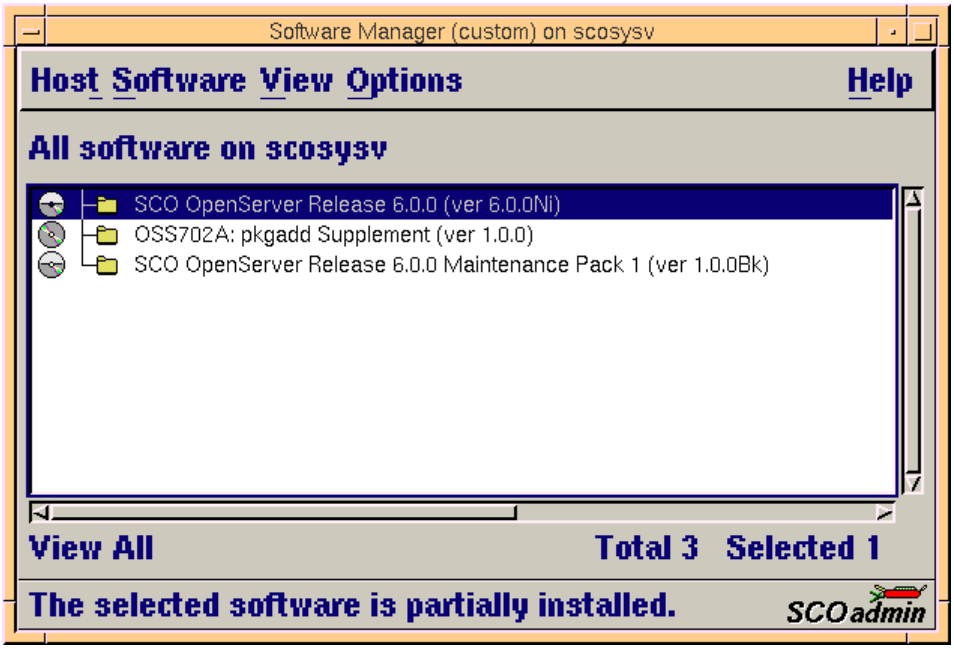
   > Note
   > The example above shows the directory name as **/cdrom**, You can either use this name or use another directory name to suit your requirements. For example, **/mnt**.

5. In the SCO OpenServer desktop, double click on the System Administration folder.

   The System Administration window is now displayed.

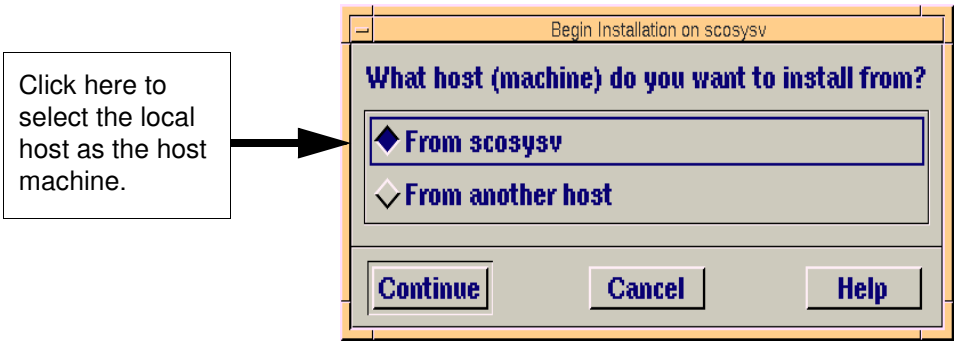
6. In the System Administration window, double click on the software manager icon.

   The Software Manager window is now displayed.



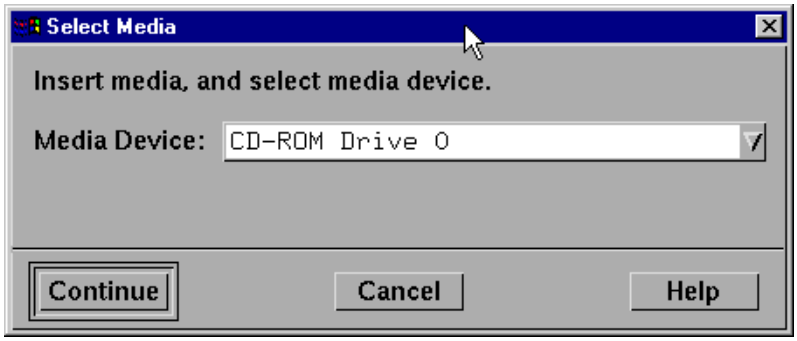
7. In the Software Manager menu, click on **Software > Install New**.

   The Begin Installation window is now displayed as shown in the next picture.



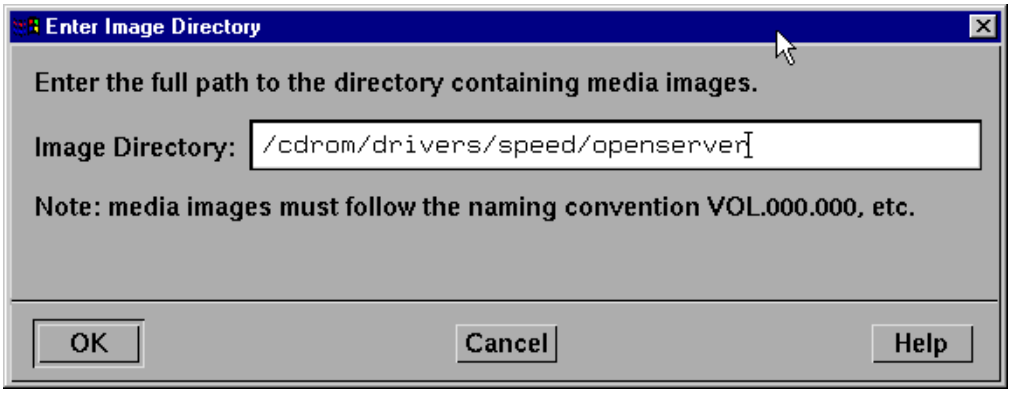
8. In the Begin Installation window, select the local host as the machine to install from by clicking on the **From localhostname** button and then click on **Continue**.

   The Select Media window is now displayed.



9. In the Select Media window, using the **Media Device** selector choose the **Media Images** option then click on **Continue**.

   The Enter Image Directory window is now displayed.



10. In the Enter Image Directory window, enter the following in the Image directory field;

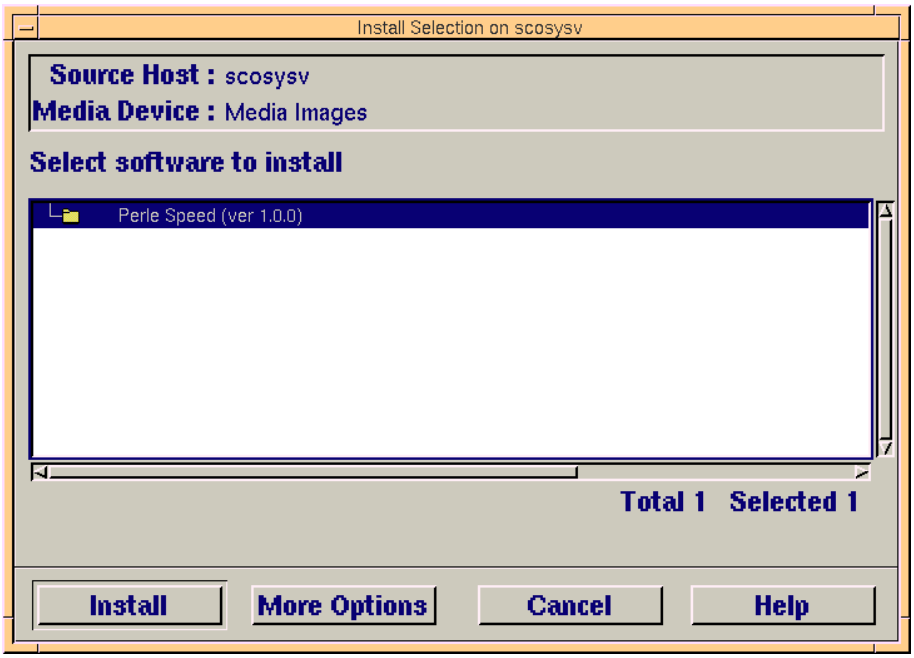
    /cdrom/drivers/speed/openserver (SCO OpenServer 5)

    /cdrom/drivers/speed/openserver6 (SCO OpenServer 6)

> Note
>
> The example and picture above show a directory name including **/cdrom**, You can either include this name in the path or use another directory name to suit your requirements. For example, **/mnt**.

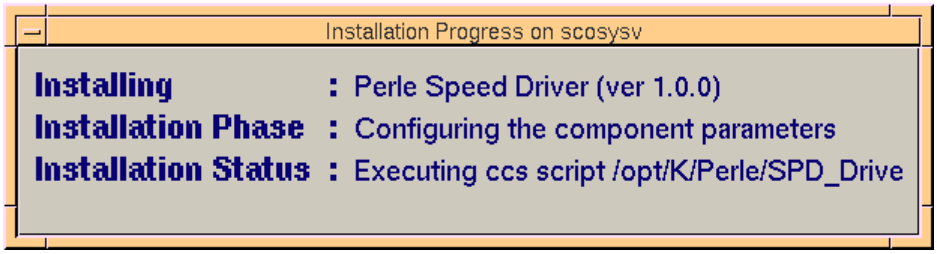
11. In the Enter Image Directory window, click on **OK**.

    The Install Selection window is now displayed.

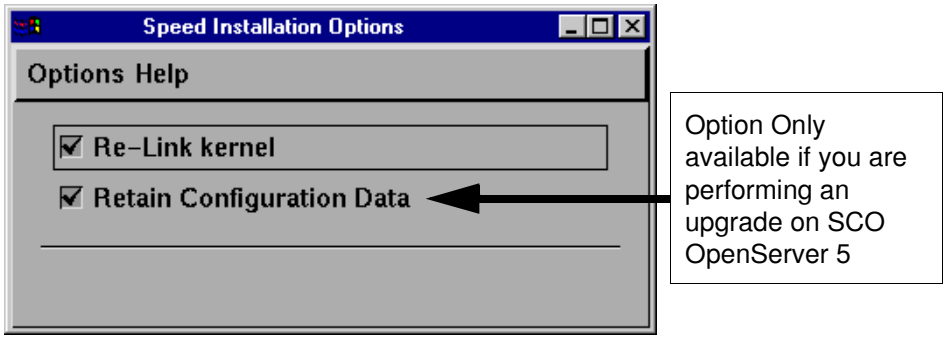


12. In the Install Selection window, click on the **Install** button.
13. In the pop-up window, click on the **Continue** button to continue the installation process

    The following progress message is now displayed.



    The Speed Installation Options window is now displayed.



14. If required, in the Speed Installation Options window, select the **Re-Link kernel** option.

> Hint
>
> If you are installing more then one driver, you can de-select this option until you have installed all the drivers and utilities you require to save time.

15. (SCO OpenServer 5 only) If you wish to retain the existing configuration from a previous device driver installation, in the Speed Installation Options window, select **Retain Configuration Data**.

16. In the Speed Window Installation menu, click on **Options > Close** to close the window and continue the installation process.

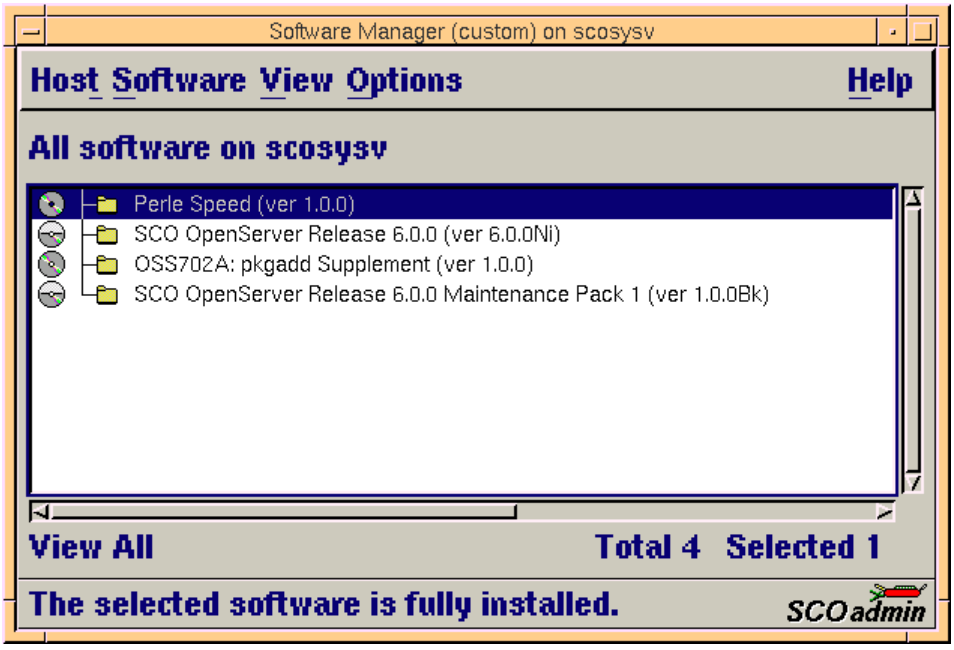
    If you select **Re-link kernel**, a message window is displayed at the end of the driver installation prompting you to re-boot the system.

17. In the message window click on **OK** to continue the installation process.

    The following message is now displayed upon completion of the installation process.

18. In the message window, click on OK to close the window.

    The software manager window is now updated to show the driver you have installed as shown in the next picture.



19. In the Software Manager window, click on the **Host > Exit** menu option to close the window.
20. Shut down your system and turn the power off.

You can now continue with the rest of the installation process see **General installation procedure for SCO OpenServer** on page **21**.

Serial port naming conventions

Each serial port has three device nodes associated with it. Each node takes the form of a file which you can access from operating system utilities and user applications. Details of these nodes are shown in the next table.

Device name	Function	Description	Location
ttyz1	Normal communications port for local “tty” devices.	Indicates normal communications port behaviour.	/dev
ttyZ1	Modem port.	Indicates that a port open will not complete unless DCD is present.	/dev
ttyz1p	Transparent print port.	Indicates that device should only be used for transparent print.	/dev

Configuring SPEED serial ports

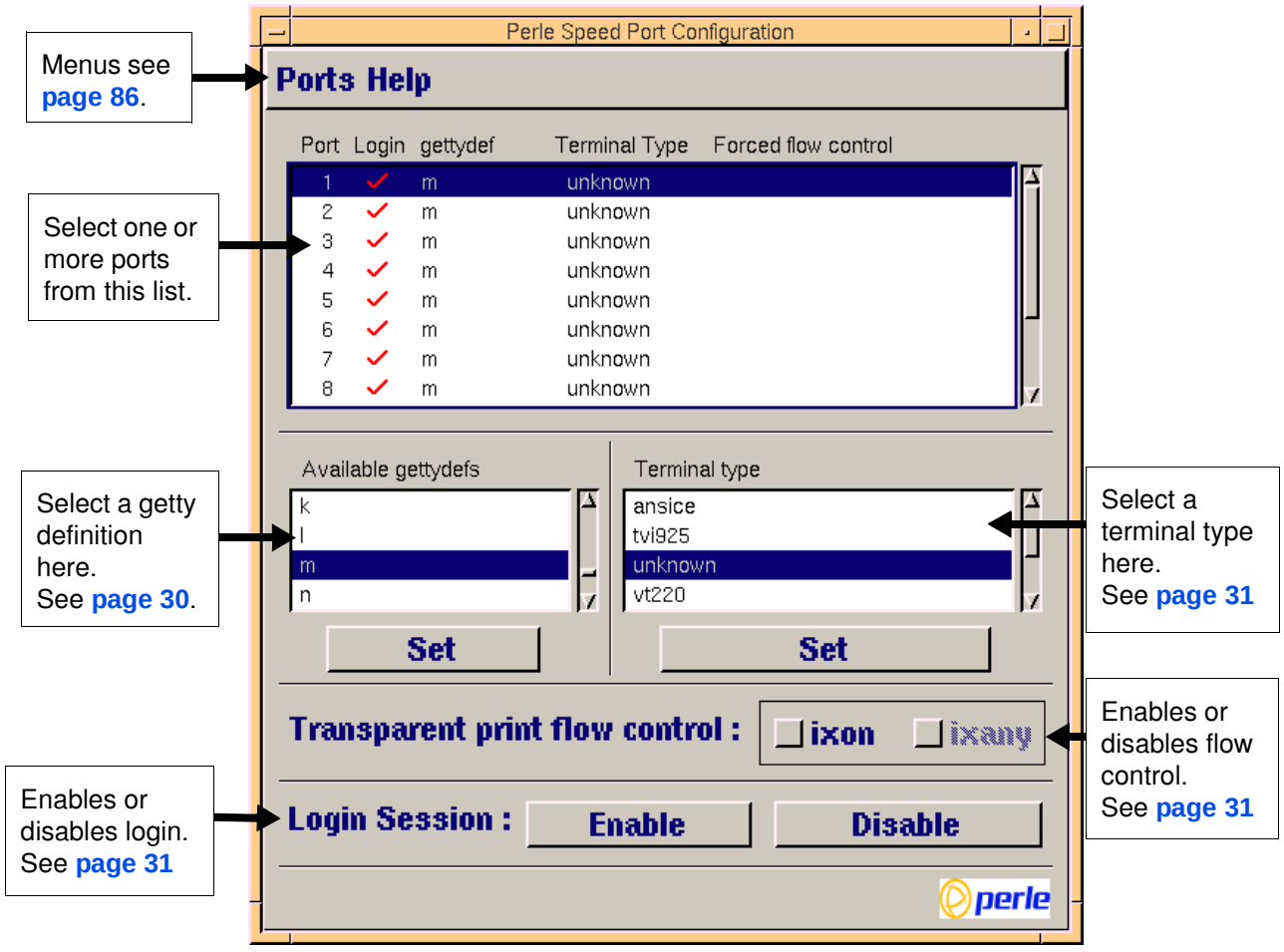
The Port Configuration utility allows you to configure the extra SPEED serial ports you have added to your system. To do this proceed as follows;

> Note
>
> If you want to perform transparent printing from any of the terminals attached to your system, you need to check the contents of the **printcap.spd** file to see if the terminal type you are using is supported. To do this proceed as follows;
>
> 1. Using a text editor, go to the **/etc** directory and open the file called **printcap.spd**
> 2. Check the contents of the **printcap.spd** file to see if the terminal type you are using is supported. See **page 94** in **Appendix B Transparent Printing** for the syntax of the entries in this file.
> 3. If the terminal type you are using is not supported, add an entry for the new terminal type (including the type, transparent print ON and transparent print OFF strings) to the **printcap.spd** file (**page 94**). See the user guide for your terminal for details of the entries required.
>
> You can now configure the ports you want using the Port Configuration utility.

Starting the Port Configuration utility

1. In the command prompt, type **spdpcfg** and press the **Enter** key. Alternatively use the SCO OpenServer desktop as follows;
   a. In the SCO OpenServer desktop, open the **System Administration** folder.
      The System Administration window is now displayed.
   b. In the System Administration window, click on the **Speed** folder in SCO OpenServer 5 or the **Perle-Serial** folder in SCO OpenServer 6 to open it.
      The Speed window is now displayed
   c. In the Speed window, click on the **Speed Port Configuration** Icon.

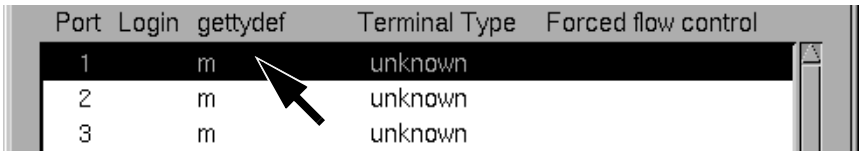
The Port Configuration window is now displayed as shown in the next picture.



Selecting ports

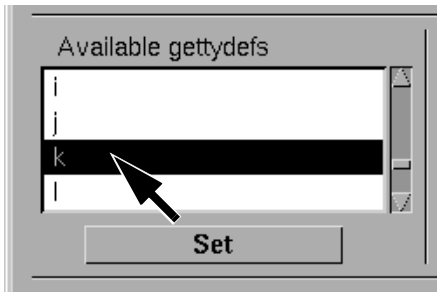
2. In the Port Configuration window, select the ports you want you want to configure by clicking on one or more items in the list of ports (example in next picture).

> Hint
>
> To select multiple items which follow each other in the list, hold down the **Shift** key and click on all the items you want.
>
> To select multiple items from anywhere in the list, hold down the **Ctrl** key and click on all the items you want.

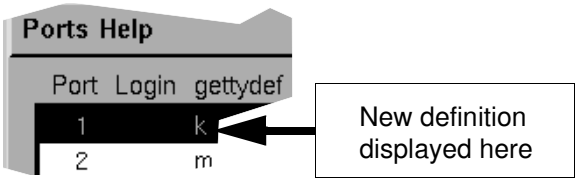


Selecting a getty definition

3. In the Port Configuration window, select the getty definition you want by double clicking on an item in the **Available gettydefs** list. Alternatively, click on the **Set** button.



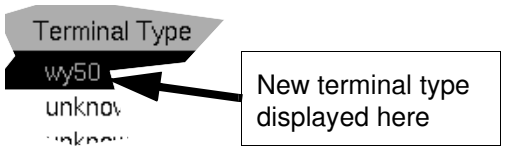
The list of currently selected ports is now updated to show the new getty definition.



Selecting terminal type

4. In the Terminal type list, double click on the terminal type you want for the currently selected ports. Alternatively, single click on the item you want in the Terminal type list and press the **Set** button.

   The list of ports is now updated to show the new terminal type



Enabling and disabling flow control

5. If required, in the Port Configuration window, click on the **ixon** button to enable flow control for Transparent printing.

   > Note
   > For information about transparent printing, see **Appendix B Transparent Printing**.

6. If required, in the Port Configuration window, click on the **ixany** button to enable sending of data on receipt of the next character (when flow control is enabled on the transparent print port).

Setting up a port login

7. In the Port Configuration window, click on one of the menu options shown in the next table to display the ports with the login status you want to change. For example, ports without logins enabled.

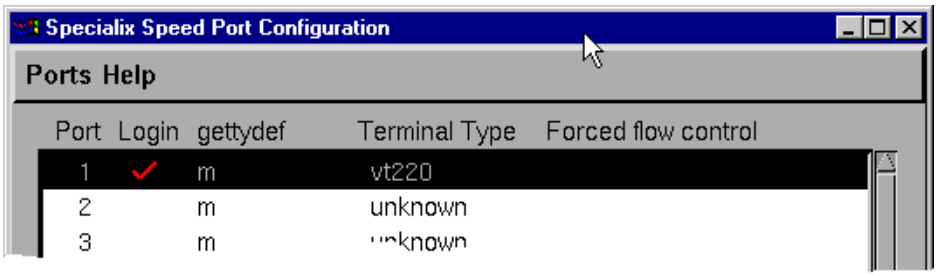
   These options allow you to filter on the type of ports you are looking for. This facility is helpful when you have a large number of ports installed.

To Display	Click menu option
All ports with logins enabled	**Ports > Logins**
All ports without logins enabled	**Ports > Unconfigured**
Display all ports	**Ports > All**

8. If required, in the Port Configuration window, select the ports whose logins status you want to change, then click on one of the following to change the login status;

Tc	Click on..
Enable logins for a port	**Enable** button
Disable logins for a port	**Disable** button

The selected ports in the list now are updated show their new login status. For example if you enable the login for a port, a tick is displayed along side the port as shown in the next picture.



9. Repeat steps **2.** to **8.** until you have configured all the ports you want.

Exiting the Port Configuration tool

10. In the Port Configuration menu, click on **Ports > Save & Exit**.

> Note
>
> To quit the Port Configuration tool without saving changes,
>
> - In the Port Configuration menu, click on **Ports > Quit**.

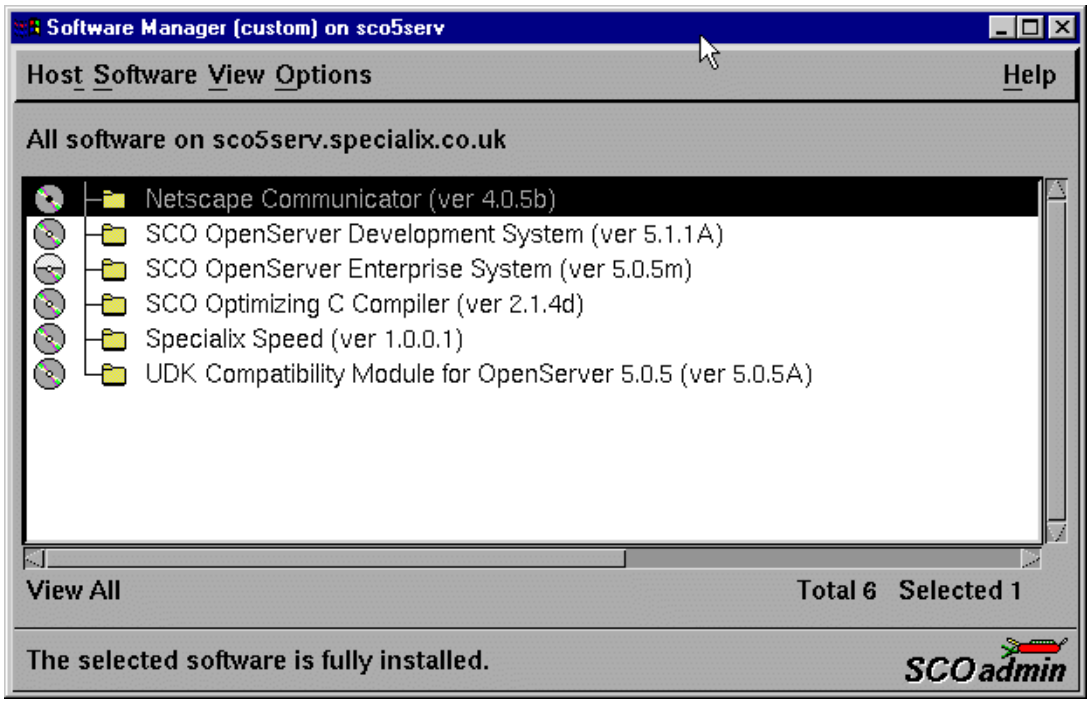
The Port Configuration tool now closes and saves any changes you have made.

Removing SPEED drivers and utilities from your system

To remove the SPEED device drivers and utilities for the SCO OpenServer operating system proceed as follows;

1. In the SCO OpenServer desktop, double click on the System Administration folder.
   The System Administration window is now displayed.

2. In the System Administration window, double click on the software manager icon.
   The Software Manager window is now displayed.



3. In the Software Manager window select the driver you want to remove.
4. In the Software Manager menu, click on **Software > Remove software**.
   A confirmation window is now displayed prompting you to confirm removal

5. In the confirmation window, click on the **Remove** button.

   The software is now removed and the following Kernel re-link message is now displayed as shown in the next picture.

   The Kernel re-link message window now closes and the removal continues. A message is displayed upon completion.

6. In the message window, click on **OK** to close the window.

   The software manager window is now updated to show the remaining software.

Installing under SCO UnixWare

This section tells you how to install host cards, software drivers and utilities under the SCO UnixWare operating system and includes the following;

General installation procedure for SCO UnixWare

The general procedure for installing and configuring host cards, drivers software and associated utilities for the SCO UnixWare operating system is as follows:

1. Install any PCI host cards you require into your system. See **Installing a PCI host card** on page **69**

> Note
>
> Once you have installed the SPEED drivers, if you add or remove any host cards the operating system will update the kernel accordingly using the **spdconf** program.
>
> **spdconf** is run automatically during boot up and checks to see if any host cards have been added or removed since the last time the system was powered up. If anything has changed the files which identify the ports, terminals and transparent printing are updated.

2. If required, install the SPEED SCO UnixWare drivers and utilities onto your system using the procedures described in **Installing drivers and utilities onto your system** on page **37**.
3. If required, remove any host cards you want from your system. See **Removing host cards** on page **70**.
4. Using the **Serial Manager** utility, configure the serial ports you have added to the system. See **Configuring serial ports** on page **40**.

> Note
>
> If you are running version 2 of the SCO UnixWare operating system you need to use the procedures described in **Configuring serial ports under SCO UnixWare 2** on page **45** to configure your serial ports.

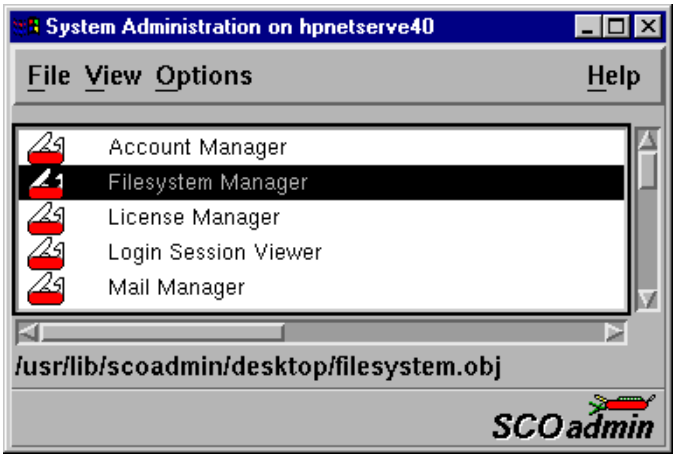
Your system can now use the serial adaptor cards you have installed. If required, you can reconfigure serial ports following initial installation.

Installing drivers and utilities onto your system

To install the SPEED device drivers and utilities for the SCO UnixWare operating system proceed as follows;

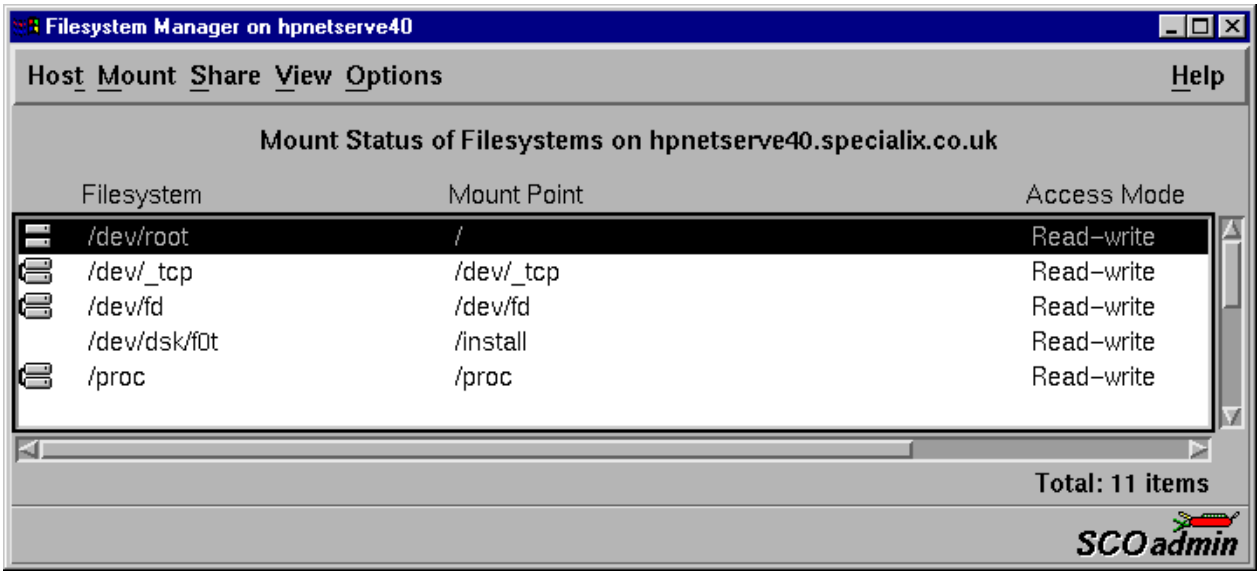
1. Login to your system as super user.
2. Load the CDROM into your system CD drive.
3. At the command prompt, type **scoadmin**.

   The System Administration window is now displayed.

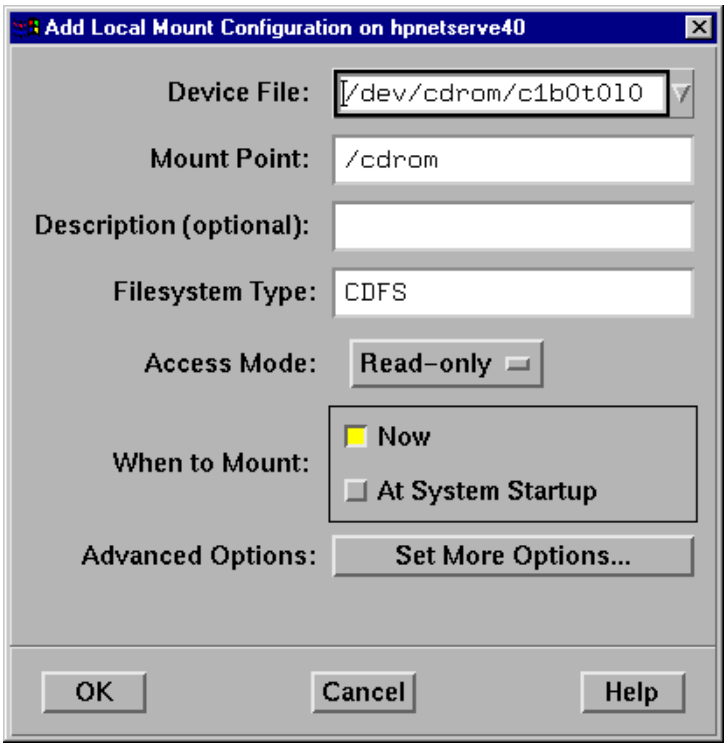


4. In the System Administration window, double click on the **Filesystem Manager** folder.

   The Filesystem Manager window is now displayed.



5. In the Filesystem Manager menu, click on **Mount > Add Mount Configuration >Local**.
   The Add Local Mount Configuration window is now displayed.

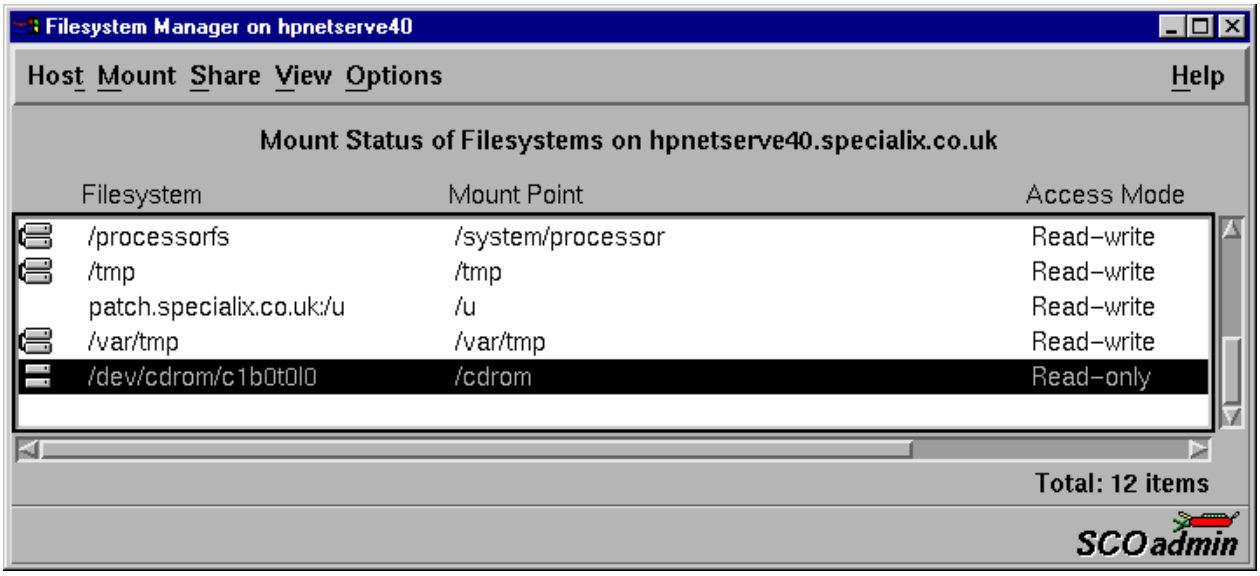


6. In the Add Local Mount Configuration window, set only the options detailed in the next table:

Option	Set to or enter....
Device File	Select **cdrom** or string containing cdrom
Mount Point	/cdrom
Access Mode	Select **Read-only**
When to Mount	Enable **Now** Disable **At System Startup**

7. In the Add Local Mount Configuration window, click on **OK** to accept the settings and close the window.

   The Filesystem Manager window is now updated to show the new mount as shown in the next picture.



8. Filesystem Manager menu, click on **Host > Exit** to close the window.
9. At the command prompt, type:
   pkgadd -d /cdrom/drivers/speed/unixware/spd.pkg spd
10. Press the **Enter** key.

    The system now installs the driver and displays a series of messages ending with a successful installation message.

Upon installation of the drivers, your SPEED cards are ready to use.

> Note
>
> A re-boot of your system is not necessary as the drivers for your SPEED card are dynamically loadable and will be loaded as soon as any software attempts to access the associated devices.

Configuring serial ports

The software provided with the SCO UnixWare operating system includes a utility called Serial Manager which allows you to configure the extra serial ports you have added to your system.

> Note
>
> If you are running version 2 of the SCO UnixWare operating system you need to use the procedures described in **Configuring serial ports under SCO UnixWare 2** on page **45** to configure your serial ports.

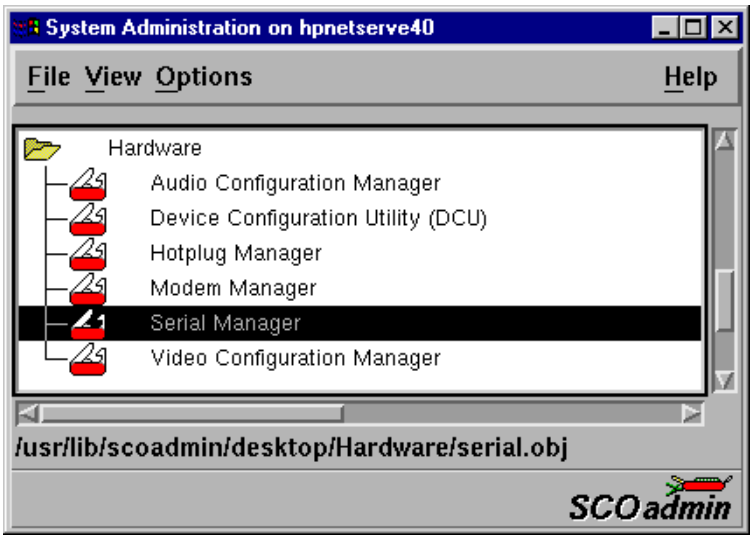
> Note
>
> On UnixWare 7.0, you must apply a patch file called **ptf7053** before using the Serial Manager. You can find the patch on the SCO web site at;
>
> **http://www.sco.com**

To configure serial ports with Serial Manager proceed as follows;

> Note
>
> If you want to perform transparent printing from any of the terminals attached to your system, you need to check the contents of the **printcap.spd** file to see if the terminal type you are using is supported. To do this proceed as follows;
>
> 1. Using a text editor, go to the **/etc** directory and open the file called **printcap.spd**
> 2. Check the contents of the **printcap.spd** file to see if the terminal type you are using is supported. See **page 94** in **Appendix B Transparent Printing**for the syntax of the entries in this file.
> 3. If the terminal type you are using is not supported, add an entry for the new terminal type (including the type, transparent print ON and transparent print OFF strings) to the **printcap.spd** file (**page 94**). See the user guide for your terminal for details of the entries required.
> 4. If you have made any changes then type **spdconf** in order to re-configure the print port settings.
>
> You can now configure the ports you want using the Serial Manager utility.

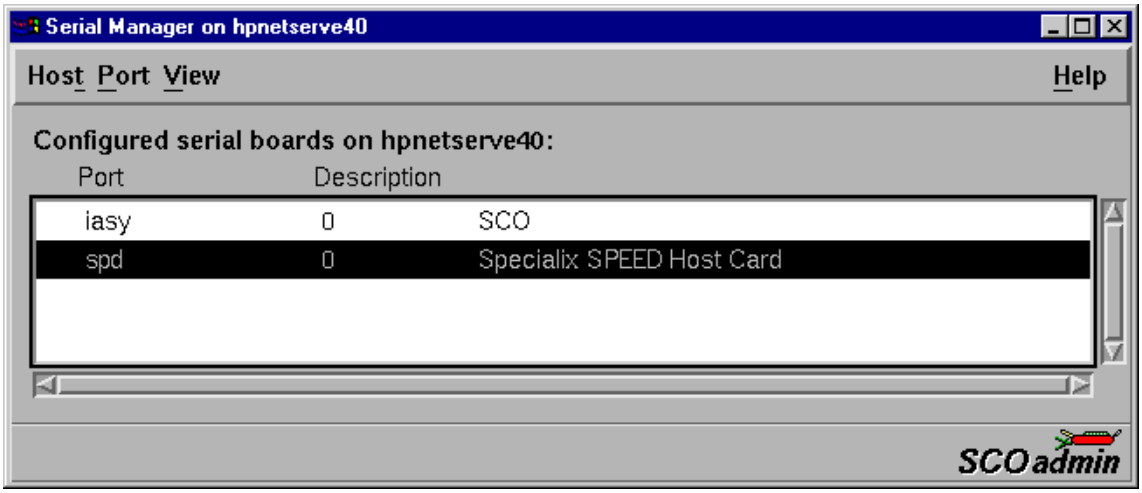
1. At the command prompt, type **scoadmin**

   The System Administration window is now displayed as shown in the next picture.



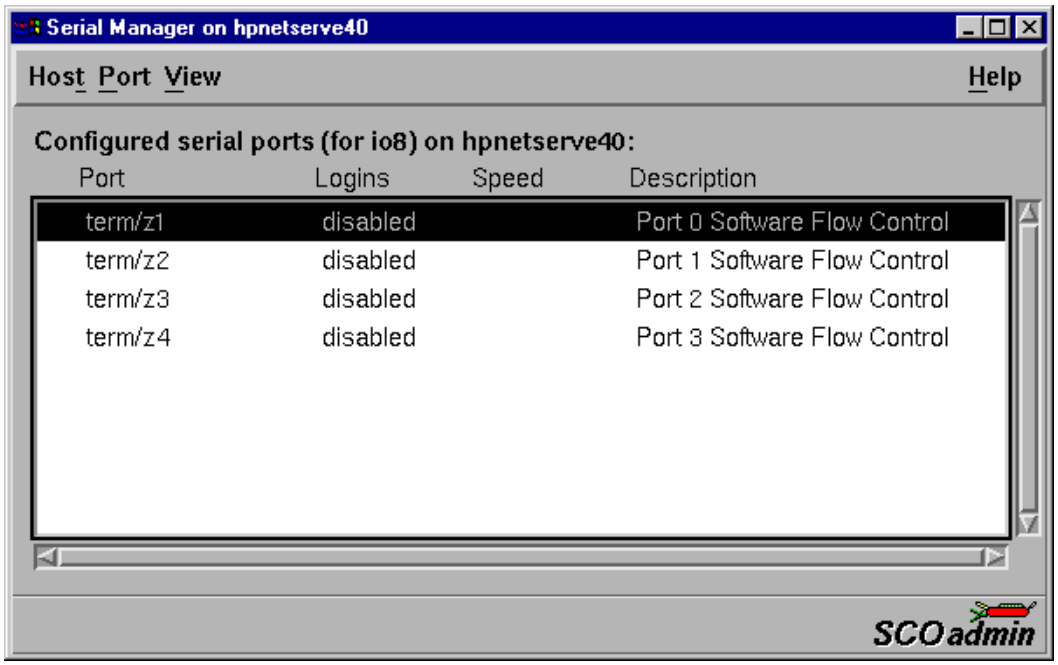
2. In the System Administration tool window, click on the Hardware folder and then select **Serial Manager**

   The Serial Manager window is now displayed showing the host cards (including SPEED) currently present on the system.

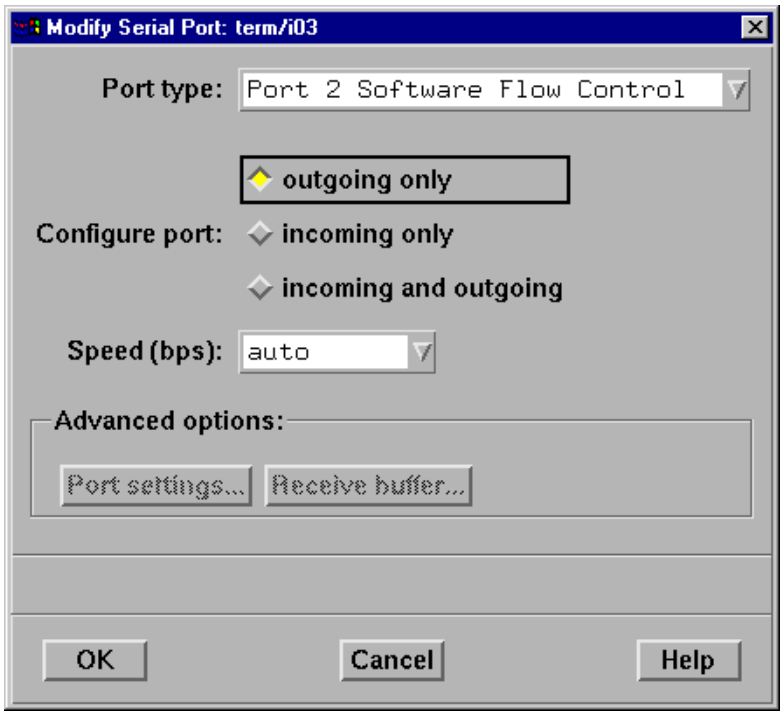


3. In the Serial Manager window, select the host card you want. Then in the Serial Manager menu, click on **View > Ports**.

   The Serial Manager window now displays the ports available for the selected host card as shown in the next picture.



4. In the Serial Manager menu, click on **Ports > Modify**.
   The Modify Serial Port window is now displayed.

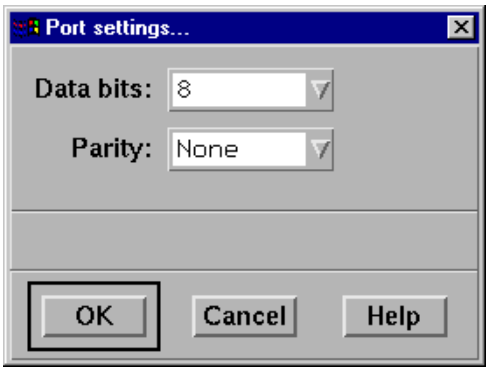


5. In the Modify Serial Port window, set the parameters shown in the next table

Parameter	Set to
Port Type	No change, should already be set to software flow control
Configure port	incoming only
Speed	the speed value you require

6. In the Modify Serial Port window, click on the **Port settings** button.

   The Port settings window is now displayed.



7. In the Port settings window, select the **Data bits** and **Parity** values you require and click on **OK**.
8. In the Modify Serial Port window, click on OK to accept the changes you have made and close the window.
9. Repeat steps **3.** to **8.** until you have configured the serial ports for all the host cards you require.
10. In the Serial Manager menu click on **Host > Quit** to quit Serial Manager and close the window.

Configuring serial ports under SCO UnixWare 2

spxadmport

SCO UnixWare 2 does not include the graphical user interface based Serial Manager utility. If you are running SCO UnixWare 2 on your computer, you need to run the **spxadmport** script from the command line to configure SPEED serial ports. You use this by typing a single line command which contains the information required for a given configuration task using the following syntax;

Syntax

/etc/spxadmport **command svctag** [**label**] [**owner]**

where;

Item	Description	Example
command	**add**, **enable**, **disable**, **remove** or **list.**	**remove**
svctag	device number from /dev/term.	**z1**
label	/etc/ttydefs entry (optional).	**9600**
owner	user ID assigned to the port (optional).	**root**

Procedure

To use the **spxadmport** script to configure your SPEED serial ports proceed as follows;

1. At the command prompt, type one of the commands detailed in the next table using the following syntax;

   /etc/spxadmport [**command**] [**svctag**] [**label**] [**owner**]

Command	Description	Example command
Add	Adds a serial port to the service monitor (spdmon) and enables the port for monitoring logins.	**/etc/spxadmport add z1 9600 root**
Enable	Enables a previously disabled port for monitoring.	**/etc/spxadmport enable**
Disable	Disables a port. Has the effect of disabling all further logins on this port.	**/etc/spxadmport disable z1**
Remove	Removes the selected serial port from the service monitor (spdmon).	**/etc/spxadmport remove z1**
List	Lists the currently defined services and/or port monitors.	**/etc/spxadmport list**
List p	Lists all logins configured.	**/etc/spxadmport list p**
List s	Lists all port services configured.	**/etc/spxadmport list s**

2. Press the **Enter** key.

The revised SPEED port configuration is now adopted by the system.

Removing SPEED drivers and utilities from your system

To remove the software drivers from your system under the SCO UnixWare operating system proceed as follows;

1. At the command prompt, type **pkgrm spd** and press **Enter**

The SPEED driver and associated utilities are now removed from your system.

Installing under Windows 95 and 98

This section tells you how to install host cards, software drivers and utilities under the Windows 95 and Windows 98 operating systems and includes the following;

General installation procedure for Windows 95 and 98

The general procedure for installing and configuring host cards, drivers software and associated utilities for the Windows 95 and 98 operating systems is as follows:

1. Down load the SPEED driver files into your PC from the CDROM or the Perle website. See **Down loading SPEED drivers from the Perle web site** on page **19**.
2. Install any PCI host cards you require into your system. See **Installing a PCI host card** on page **69**.
3. Install the SPEED Windows 95 and 98 drivers and utilities onto your system using the procedures described in **Installing device drivers and utilities** on page **49**.
4. If required, remove any host cards you want from your system. See **Removing host cards** on page **70**.

Your system can now use the serial adaptor cards you have installed. If required, you can reconfigure serial ports following initial installation. See **Configuring SPEED serial ports** on page **51**.

> Note
>
> To remove the SPEED Windows 95 and 98 drivers and utilities from your system, see **page 55**.

Installing device drivers and utilities

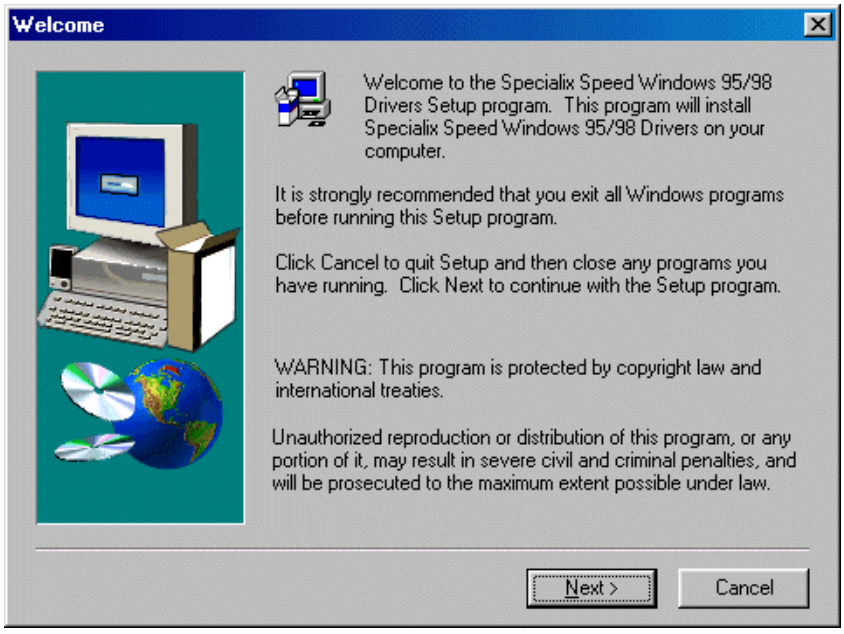
To install the SPEED device drivers and utilities for the Windows 95 or 98 operating systems proceed as follows;

1. Load the CDROM into your PC.

   The web browser window is now displayed automatically showing a virtual website for your Perle product (the browser application depend on your system).

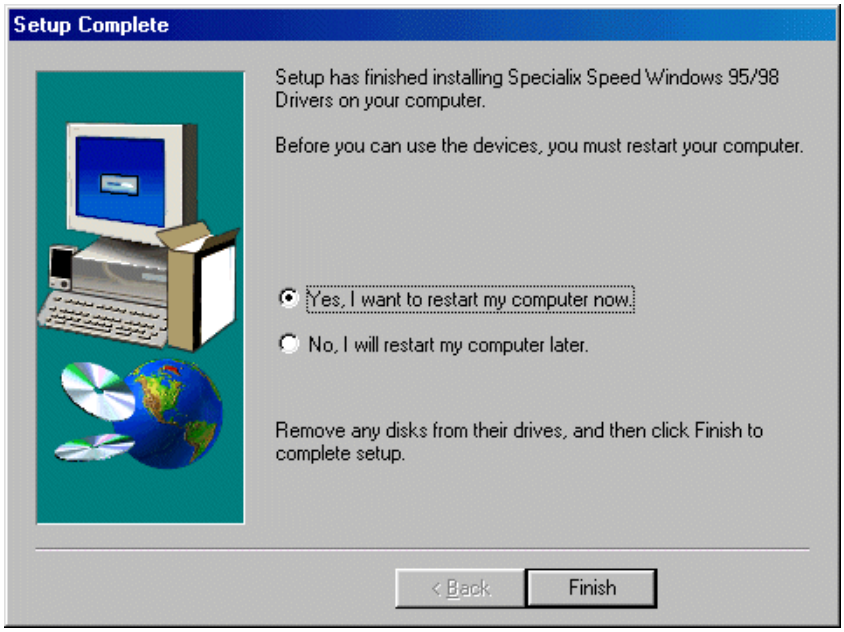
2. From the **\drivers\speed\win9x** directory, run the **setup.exe** file.

   A welcome window is now displayed



3. In the Welcome window, click on the **Next >** button.

   A progress message is displayed while installed devices are upgraded to use the new drivers, followed by the Setup Complete window as shown in the next pictures.



4. In the Setup Complete window click select the **Yes, I want to restart my computer now** option then click on **Finish** button to confirm your selection.

> Hint
>
> After the machine restarts, if windows cannot find a file whilst trying to install a device, a pop-up window is displayed asking you for the location of missing file. To remedy this;
>
> - In the popup window, select the windows system directory for example, **c:\windows\system**.
>
> Device installation should then be able to continue.

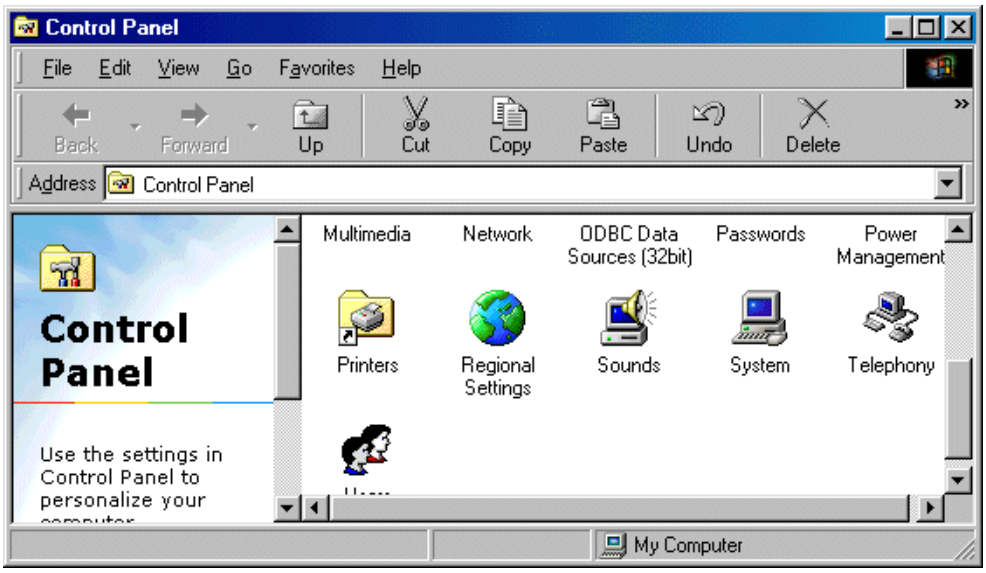
Installation of device drivers and utilities is now complete.

Configuring SPEED serial ports

> Note
>
> SPEED ports are normally configured as part of the installation process described in **Installing device drivers and utilities** on page **49**. The procedures described in this section are provided for information only.

To configure SPEED serial ports proceed as follows;

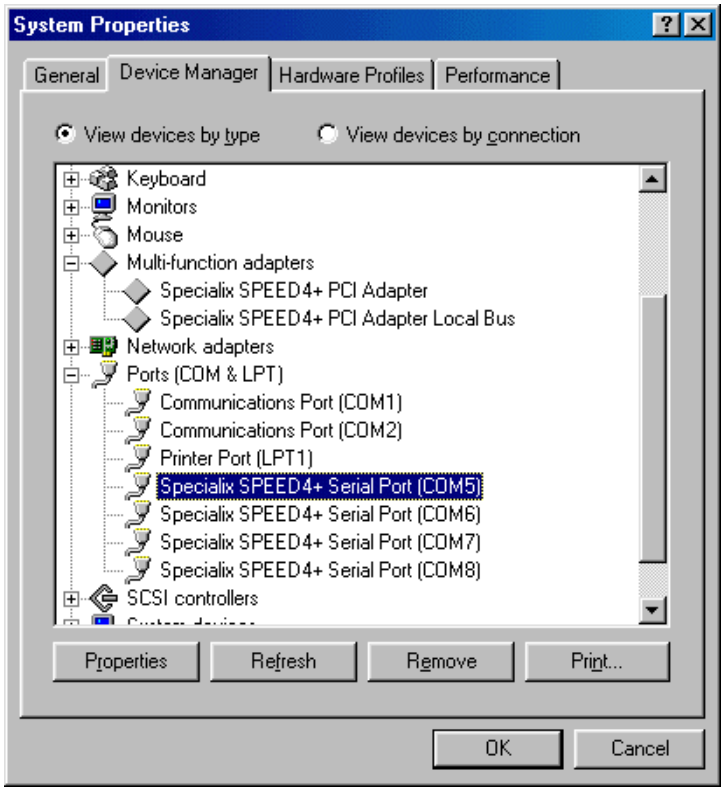
1. In the windows desktop, click on the **Start** button and select **Settings > Control panel**. The control panel window is now displayed.



2. In the control panel window, double click on the **System** icon.

   The System Properties tabbed window is now displayed as shown in the next picture.

> Hint
>
> You can also display the **System Properties** tabbed window by right clicking on the **My Computer** icon on your desktop and selecting the **Properties** menu option.



3. In the System Properties tabbed window, click on the **Device Manager** tab.

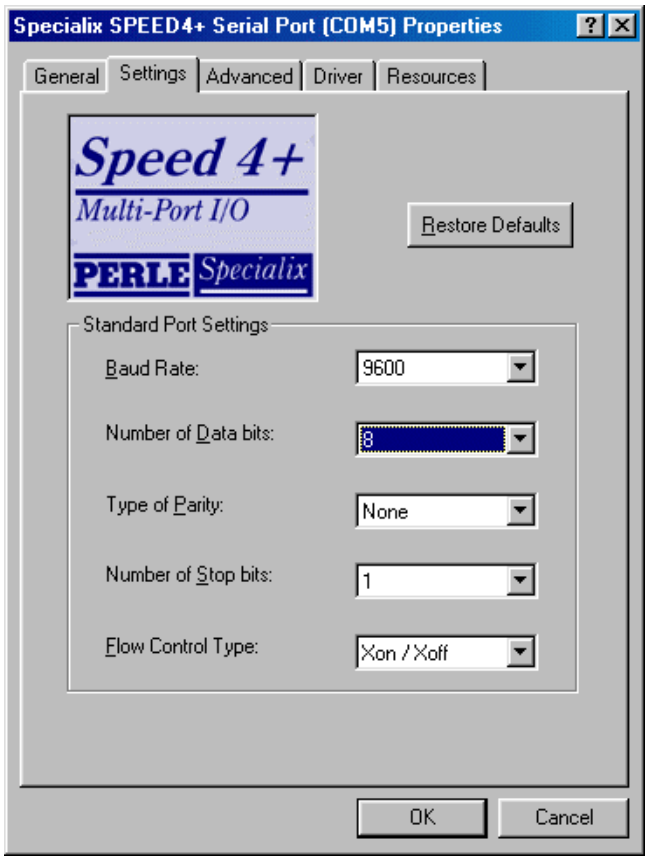
   The Device Manager page is now displayed.

4. In the Device Manager page, double click on the device whose properties you wish to view.

   The properties tabbed window for the selected device is now displayed.

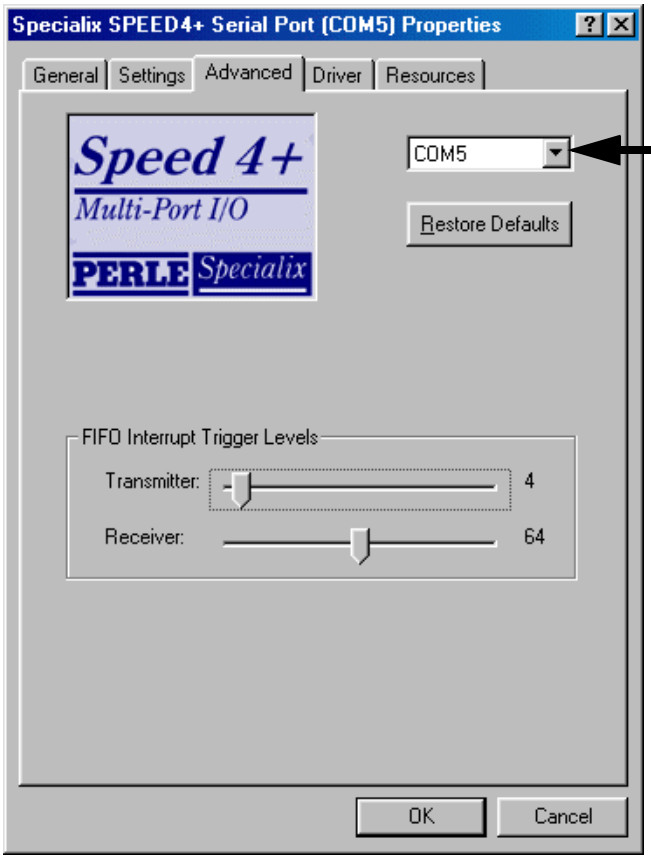
5. In the properties window, click on the **Settings** tab.

   The Settings page is now displayed.



6. In the Settings page, select the configuration values you want and either click on the **OK** button or click on the **Advanced** tab to display details of the device driver.

7. The Advanced page is now displayed as shown in the next picture:



Selects the port name for a given device.

Allows you to select the default port name or change it to any unused port name.

Default display is the currently assigned port name.

Caution

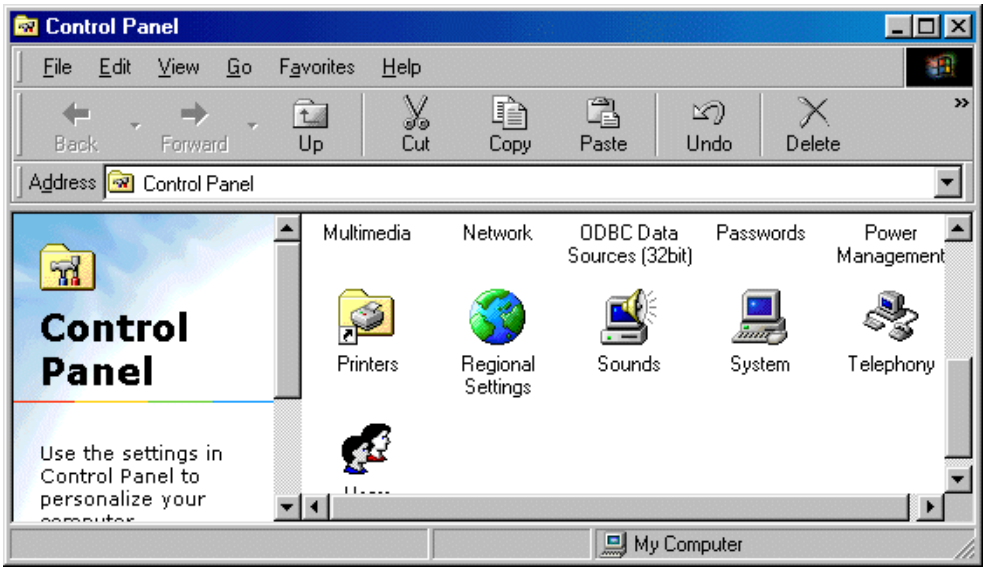
It is strongly recommended that you do not make changes to the FIFO trigger levels or com port name unless you have a valid reason to do so.

Re-configuration of ports is now complete.

Removing SPEED drivers and utilities from your system

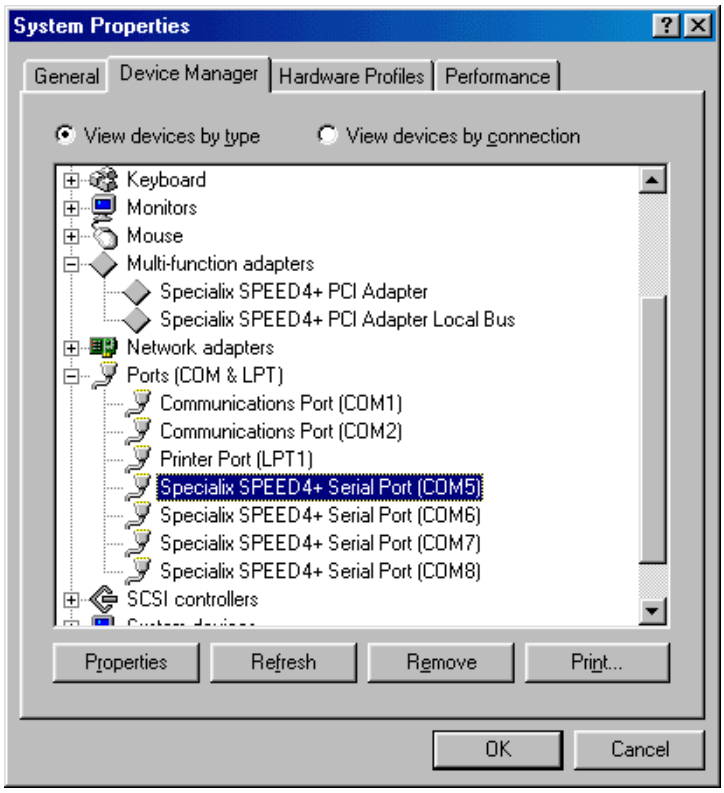
To remove SPEED drivers and utilities from your system proceed as follows;

1. In the windows desktop, click on the **Start** button and select **Settings > Control panel**. The control panel window is now displayed.



2. In the control panel window, double click on the **System** icon.

   The System Properties tabbed window is now displayed as shown in the next picture.



3. In the System Properties tabbed window, click on the **Device Manager** tab

   The Device Manager page is now displayed.

4. In the Device Manager page, click on the **View devices by type** button.

   The display is now updated to show installed devices by type.

5. In the Device Manager page, click on the device you wish to remove, highlighting it then press the **Remove** button.

The selected device is now removed from the system.

Warning

If you remove the devices but do not remove the hardware, the devices will be re-installed when you next re-boot the machine or run the Hardware Wizard.

Installing under Windows NT

The procedure for installing and configuring host cards, drivers software and associated utilities for the Windows NT operating system is as follows:

> Note
>
> The Perle PortDirector software contains drivers for the SPEED host cards.
>
> You will need to install the PortDirector **for WIndows NT** on your system in order to use the SPEED host cards.
>
> See **Chapter 5 Adding and deleting host cards** in the **PortDirector User guide** part number **5500028** for further details.

1. Install any PCI host cards you require into your system. See **Installing a PCI host card** on page **69**
2. If required, remove any host cards you want from your system. See **Removing host cards** on page **70**.
3. Use the PortDirector software to update your system with the revised number and type of host cards. See The PortDirector user guide part number 5500028 for further details.

Your system can now use the serial adaptor cards you have installed.

Installing under Windows 2000/XP/Server 2003/Vista/ Server 2008

This section describes how to install the SPEED device driver software under Microsoft Windows 2000/XP/Server 2003/Vista/Server 2008.

This section includes the following;

General setup procedure for Windows 2000/XP/Server 2003/Vista/Server 2008

The general procedure for installing SPEED cards under the Windows 2000, XP, Server 2003, Vista. or Server 2008 operating systems is as follows;

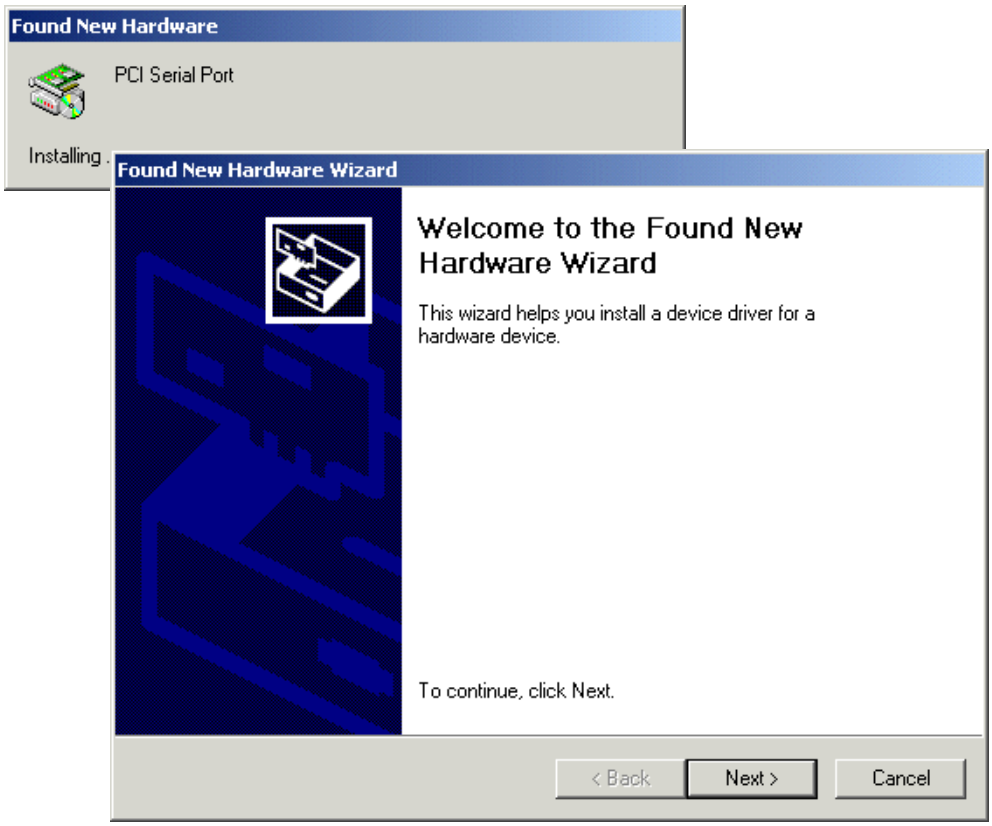
1. Install or remove any PCI host cards you require on your system. See **Installing a PCI host card** on page **69** and **Removing host cards** on page **70**.
2. Install the SPEED device driver software. See **Installing device drivers and utilities onto your system** on page **60**
3. If you add new SPEED cards, you should run Update Driver to make sure the new cards have the latest driver. See **Adding additional cards and/or updating drivers** on page **62**.
4. If required, remove any host cards you want from your system. See **Removing host cards** on page **70**.
5. Using the Windows 2000 **Device Manager**, configure the serial ports you have added to the system. See **Configuring serial ports** on page **62**.

Installing device drivers and utilities onto your system

To install or enable the SPEED device drivers on your system proceed as follows;

1. Turn on your PC and if required, log in.

   If you have installed any new host cards a Found New Hardware message is briefly shown followed by the Found New Hardware wizard as shown in the pictures.



2. In the Found New Hardware wizard click on the **Cancel** button.
3. Download the lastest SPEED driver zip file from the Perle website for your operating system:

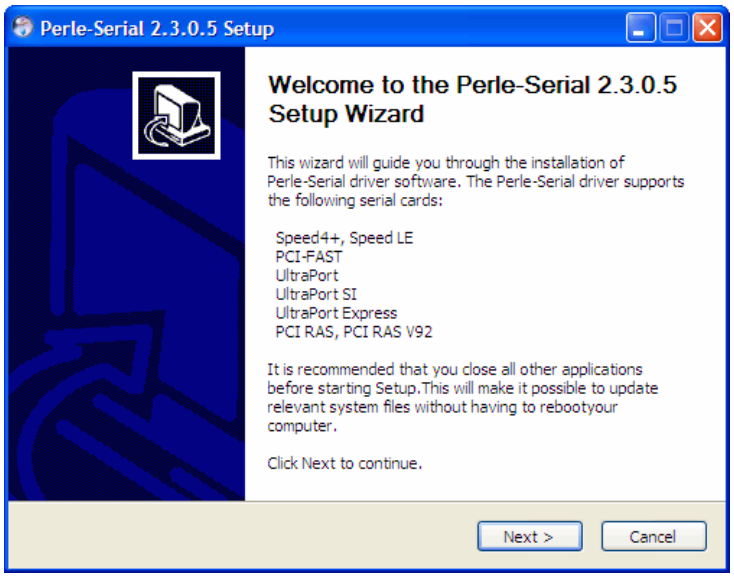
   pserial-x86.zip for 32-bit Windows operating systems.

   pserial-amd64.zip for 64-bit Windows operating systems.

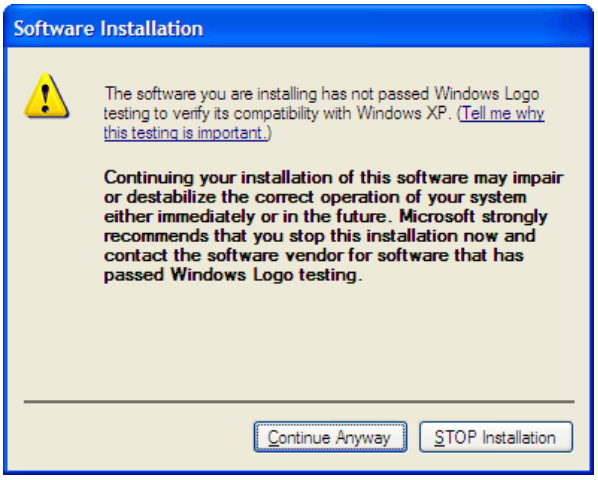
   pserial-ia64.zip for 64-bit Windows Itanium operating systems.

4. Unzip the driver zip file to a local directory. We recommend that you use the **pserial-setup-<*arch*>.exe** file, which will launch the installation wizard, to install the SPEED driver.

5. Double-click the **pserial-setup-<*arch*>.exe** installation executable and follow the installation wizard steps:



6. During the installation, you may get a Windows Logo message. Click **Continue Anyway** when these appear.



> **Note**
>
> If you are installing an unsigned driver, you may have to click through the Found New Hardware wizard for every SPEED port on your system.

Your SPEED driver installation is now finished.

Adding additional cards and/or updating drivers

Whenever you add any additional SPEED hardware to your system, Windows might install the latest digitally signed driver in its database (depending on your Windows operating system and settings). To ensure you have the latest driver installed after you add new hardware, you can either:

- Click **Start > All Programs > Perle > Perle-Serial > Update Driver**

  or

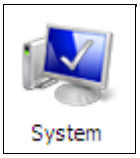
- Reinstall the drivers as described in **Installing device drivers and utilities onto your system** on page **60**.

Configuring serial ports

To configure SPEED serial ports under Windows 2000/XP/Server 2003/Vista/Server 2008, proceed as follows;

1. In the Windows desktop, click on the **Start** button and select **Settings > Control Panel**

   The control panel window is now displayed.



2. In the Control Panel window, click on the **System** icon.

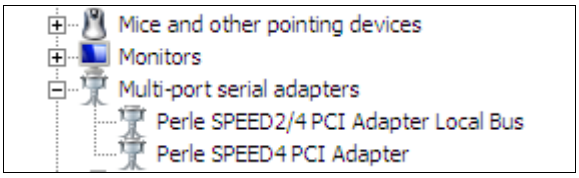
   The System Properties tabbed window is now displayed.

3. In the System Properties window, click on the **Hardware** tab.

   The hardware page is now displayed.

4. In the Hardware page, click on the **Device Manager** Button.

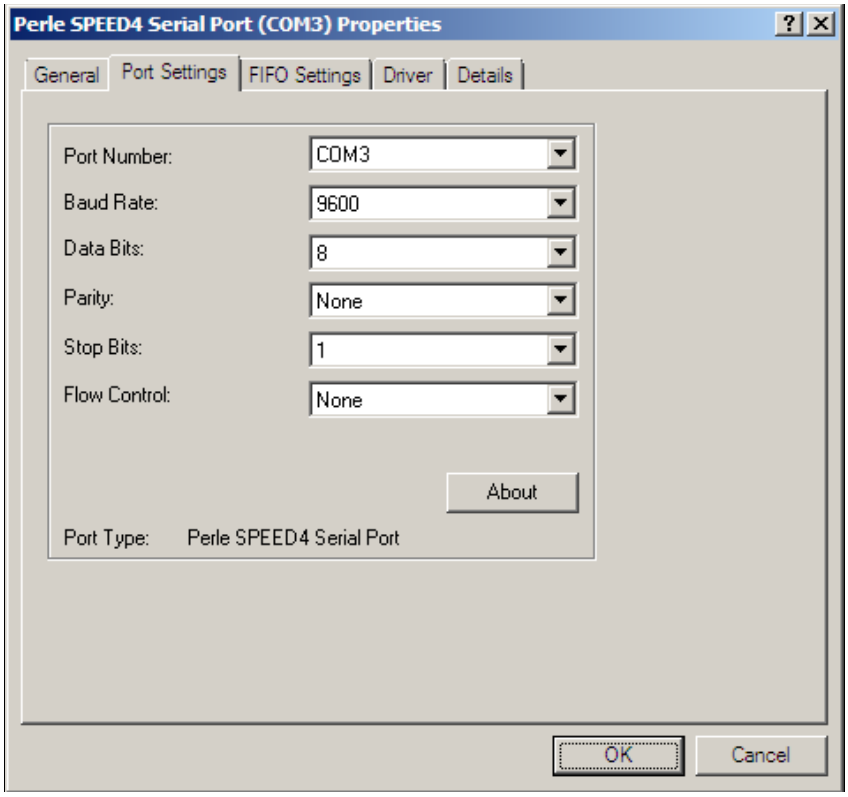
   The Device Manager window is now displayed.



5. In the Device Manager window, click on the Multiport serial adapters icon to display the currently installed devices.
6. In the Device Manager window, double click on the device whose properties you want to view or change

   The device Properties tabbed window is now displayed.

7. In the device Properties window, click on the **Port Settings** tab to display the Port Settings page.



8. In the Port Settings page, set the **Port Number**, **Baud Rate** and other configuration parameters you require and then click on the **OK** button to save changes and close the window.

The configuration process is now complete.

Installing under Linux

This section tells you how to install host cards, software drivers and utilities under the Linux operating system and includes the following;

> Note
>
> As of version 2.4.x of Linux, support for the SPEED driver is built into the operating system and does not require download of the patch file from our FTP site.

General installation procedure for Linux

The general procedure for installing and configuring host cards, drivers software and associated utilities for the Linux operating system is as follows:

1. Install any PCI host cards you require into your system. See **Installing a PCI host card** on page **69**.
2. Install the SPEED Linux drivers onto your system using the procedures described in **Installing drivers onto your system** on page **66**.
3. Create devices for the required ports using the procedures detailed in **Creating devices for the attached ports** on page **67**.

Your system can now use the SPEED serial adaptor cards you have installed.

Installing drivers onto your system

To install the device driver proceed as follows:

> Note
>
> When installing SPEED drivers under Linux **versions 2.2.x**, you will need to apply a patch file to the kernel before enabling the drivers (step **6.** of this procedure).
>
> You can find a kernel patch file on either of the following;
>
> - The CDROM (in the /drivers/speed/linux directory) supplied with your Perle product.
> - The Perle website **http://www.perle.com**.
>
> As of Linux **version 2.4.x**, you do not need to apply a patch on this or later kernels, you can proceed straight to enabling the driver using step **6.** of this procedure.

Using the kernel patch file

1. Make sure you have an up to date Linux kernel source directory installed. This can be obtained from **ftp://ftp.linux.org** or other major Linux web sites, along with instructions on how to install and build.
2. Copy the driver patch file onto your system in a temporary directory. For example, **/tmp**.

   The patch file will be named
   speed.patch-<driver vers>-<kernel vers>.gz
   For example, **speed.patch-6-2.2.13.gz**
3. At the command prompt, uncompress the driver patch file by typing **gunzip /tmp speed.patch-6-2.2.13.gz** and pressing the **Enter** key.
4. At the command prompt, change directory to the kernel source directory by typing **cd /usr/src/linux** and pressing the **Enter** key.
5. At the command prompt, apply the kernel patch by typing **patch -p1 </tmp/speed.patch-6-2.2.13.gz** and pressing the **Enter** key.

Enabling the driver

6. Enable the driver using the **make config** or **make xconfig kernel** utility. The SPEED driver appears in the **Character devices** section and is labelled **SPEED system support**. Set this to **m** for modules
7. Within either the **make config** or the **make xconfig kernel** utility, set the **Support more than 4 serial ports** and **Support special multiport boards** options to **Y** and enable **Support for sharing serial interrupts**.
8. Now rebuild and install the kernel and modules. See your Linux distribution documentation on how to rebuild and install a new kernel and modules. We recommend reading the Kernel-HOWTO available in **/usr/doc/HOWTO**.

Creating devices for the attached ports

After you have installed the new kernel & hardware, and have rebooted the machine. you need to create devices for the added ports. To do this proceed as follows;

1. At the command prompt, type **grep ttyS /var/log/messages** and press the **Enter** key to determine how many on board devices are present.

   The devices present on the system are now displayed as shown in the next example.

This example shows 2 tty devices already present in the machine.

```
Nov 12 09:41:43 pro800x2 kernel: ttyS00 at 0x03f8 (irq = 4) is a 16550A
Nov 12 09:41:43 pro800x2 kernel: ttyS01 at 0x02f8 (irq = 3) is a 16550A
```

First 2 nodes relate to the two tty devices already present in the machine, **/dev/ttyS0** and **/dev/ttyS1**

   You now need to create four more nodes to support of the SPEED4 card, **ttyS2**, **ttyS3**, **ttyS4**, and **ttyS5**. To do this proceed as follows;

2. At the command prompt, type **ls -l /dev/ttyS[0-9]*** and press the **Enter** key to determine the major and minor node numbers.

   The major and minor node numbers are now displayed as shown in the next example.

```
crw-rw-rw- 1 root tty 4, 64 May 5 1998 /dev/ttyS0
crw------- 1 root tty 4, 65 Nov 12 14:12 /dev/ttyS1
```

3. At the command prompt, enter the following commands (pressing the **Enter** key after each one) to create the next 4 nodes which must follow on from the ones already defined.

   For example, if **S0** and **S1** are already defined, then the next available serial port will be **S2** (Note that the major node number will be the same as any existing device, but the minor node must be the next available).

Same as that for **/dev/ttyS0**

Uses next available number

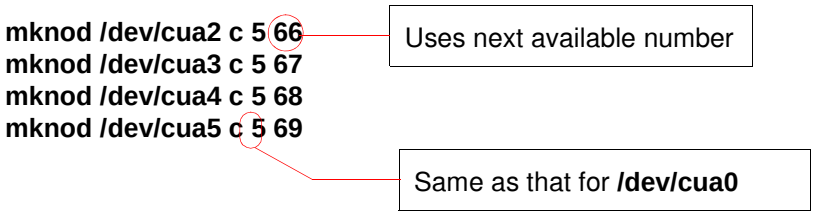
```
mknod /dev/ttyS2 c 4 66
mknod /dev/ttyS3 c 4 67
mknod /dev/ttyS4 c 4 68
mknod /dev/ttyS5 c 4 69
```

4. If you require callout devices as well as tty devices, at the command prompt, type **ls -l /dev/cua[0-9]*** and press the **Enter** key to determine the major and minor node numbers for callout devices.

   The major and minor node numbers are now displayed as shown in the next example.

```
crw-rw-rw- 1 root tty 4, 64 May 5 1998 /dev/cua0
crw------- 1 root tty 4, 65 Nov 12 14:12 /dev/cua1
```

5. At the command prompt, type the following (pressing the **Enter** key after each one):



Your system can now use the SPEED serial adaptor cards you have installed.

Installing a PCI host card

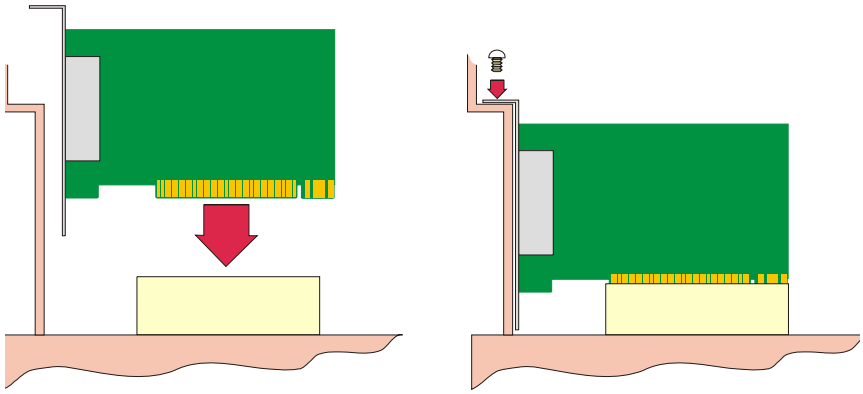
To install a PCI host card proceed as follows;

> Note
>
> The exact location of host card slots varies for different systems, for exact mechanical details of your system, refer to your system documentation.

> **Warning**
>
> **Dangerous voltages exist inside computer systems. Before installing host cards in your system, turn off the power supply and disconnect the mains lead.**

1. Turn off the power to your system and disconnect the mains supply.
2. Remove the system cover to expose the inside of the connector panel for host cards.
3. Insert the PCI card you want to install into a vacant host card slot and secure in place as shown in the next picture.

> **Caution**
>
> **Full anti-static precautions should be taken when handling host cards.**



4. Repeat step **3.** until you have installed all the PCI cards you want.
5. Replace and secure the system cover.

Installation of PCI host cards is now complete. For further details about installing host cards including other types, see **Before you start** on page **18**.

Removing host cards

To remove a host card from your system proceed as follows;

> Note
>
> The exact location of host card slots varies for different systems, for exact mechanical details of your system, refer to your system documentation.

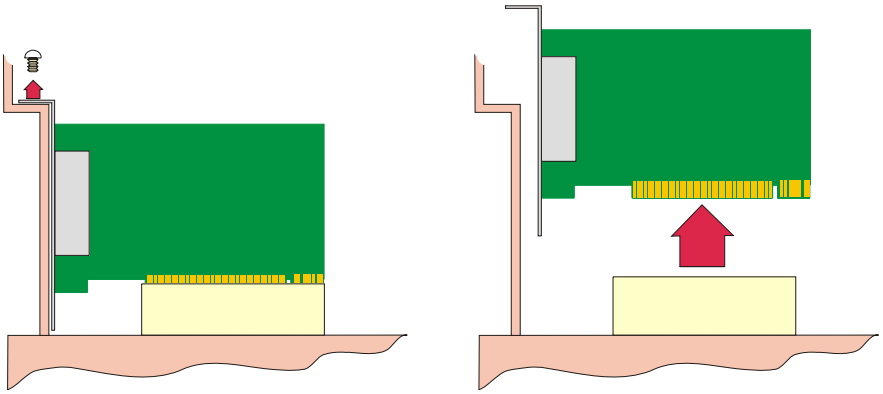
Warning

Dangerous voltages exist inside computer systems. Before removing host cards from your system, turn off the power supply and disconnect the mains lead.

1. Turn off the power to your system and disconnect the mains supply.
2. Remove the system cover to expose the inside of the connector panel for host cards.
3. Remove all cables plugged into the host card.
4. Undo the securing screw for the host card you want to remove then lift the card out of its slot as shown in the next picture.

Caution

Full anti-static precautions should be taken when handling host cards.



5. Repeat step **4.** until you have removed all the host cards you want.
6. Replace and secure the system cover.
7. Plug in the mains lead and turn on the power.

Removal of host cards is now complete. For further details about installation of host cards including other types, see **Before you start** on page **18**.

Chapter 3 SPEED Cabling Information

You need to read this chapter if you want to...

You need to read this chapter if you want cabling information for the Perle SPEED serial adaptor cards.

This chapter provides cabling and connector pinout information for the Perle SPEED serial adaptor cards. Included are details of standard cables for use with SPEED products available from Perle.

This chapter includes the following sections;

SPEED cabling guide

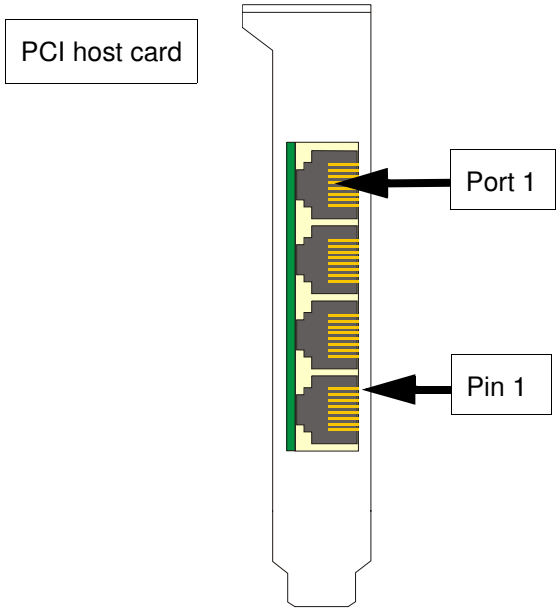
The type of cable and edge connectors used by the SPEED product range is shown in the next table.

Product	Card edge connector	Cabling information
SPEED4	RJ45 8pin female. See **page 74**	**RJ45 (8 pin) to DB9 male cable** on page **77**.
		RJ45 (8pin) to DB25 male cable on page **78**.
		RJ45 (8pin) to DB25 female cable on page **79**.
SPEED4+	RJ45 10 pin female See **page 75**	**RJ45 (10 pin) to DB9 male cable** on page **80**.
		RJ45 (10pin) to DB25 male cable on page **81**.
		RJ45 (10pin) to DB25 female cable on page **82**.

RJ45 socket pinouts on SPEED host cards

SPEED4 cards

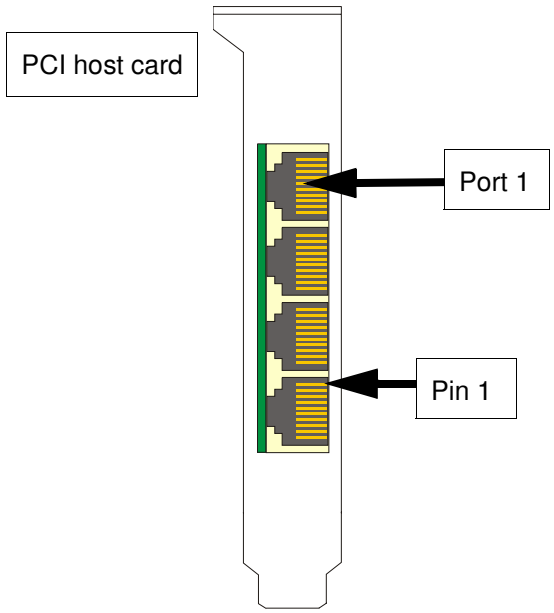
The connector pinout for each RJ45 socket fitted to the SPEED4 PCI host card is as follows;



RJ45 pin	Signal	Direction	Description
1	DCD	In	Data Carrier Detect
2	DTR	Out	Data Terminal Ready
3	DSR	In	Data Set Ready
4	GND		Ground
5	TXD	Out	Transmit Data
6	RXD	In	Receive Data
7	RTS	Out	Request to send
8	CTS	In	Clear to Send

SPEED4+ cards

The connector pinout for each RJ45 socket fitted to the SPEED4+ PCI host card is as follows;



RJ45 pin	Signal	Direction	Description
1	RI	In	Ring Indicator
2	DCD	In	Data Carrier Detect
3	DTR	Out	Data Terminal Ready
4	DSR	In	Data Set Ready
5	GND		Ground
6	TXD	Out	Transmit Data
7	RXD	In	Receive Data
8	RTS	Out	Request To Send
9	CTS	In	Clear To Send
10	N/C	-	Not connected

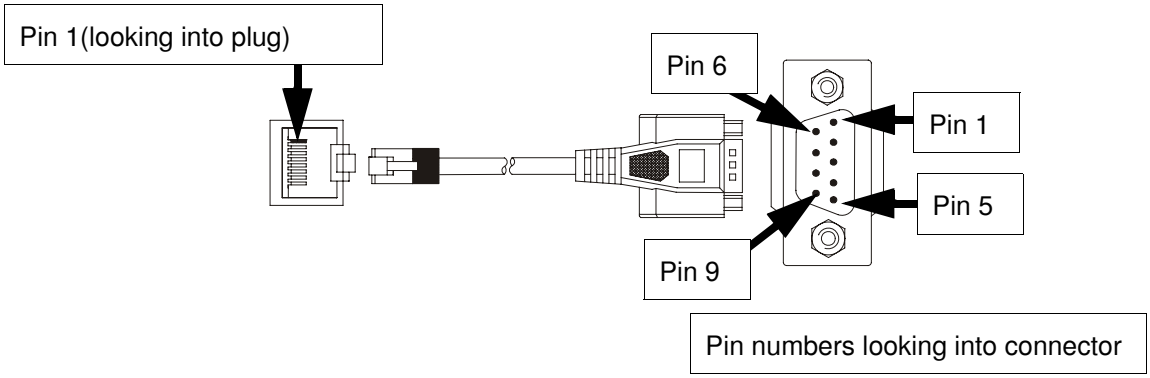
SPEED cables available from Perle

This section provides connector pinout information for the following standard cables available from Perle:

> Hint
>
> To see which cables are used by a given SPEED product, see **SPEED cabling guide** on page **73**.

RJ45 (8 pin) to DB9 male cable

Cable diagram

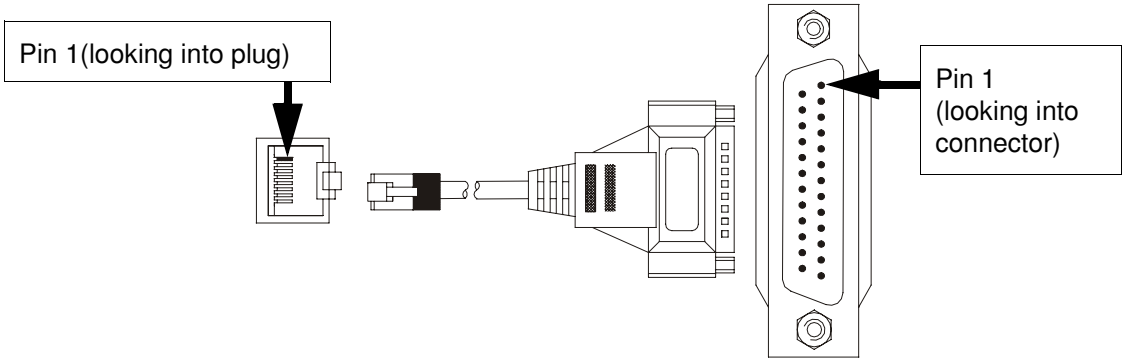


Connector pinout table

RJ45 pin	DB9 Pin	Signal	Direction	Description
1	1	DCD	In	Data Carrier Detect
2	4	DTR	Out	Data Terminal Ready
3	6	DSR	In	Data Set Ready
4	5	GND		Ground
5	3	TXD	Out	Transmit Data
6	2	RXD	In	Receive Data
7	7	RTS	Out	Request to send
8	8	CTS	In	Clear to Send
Shell	Shell	Chassis		Chassis ground.

RJ45 (8pin) to DB25 male cable

Cable diagram

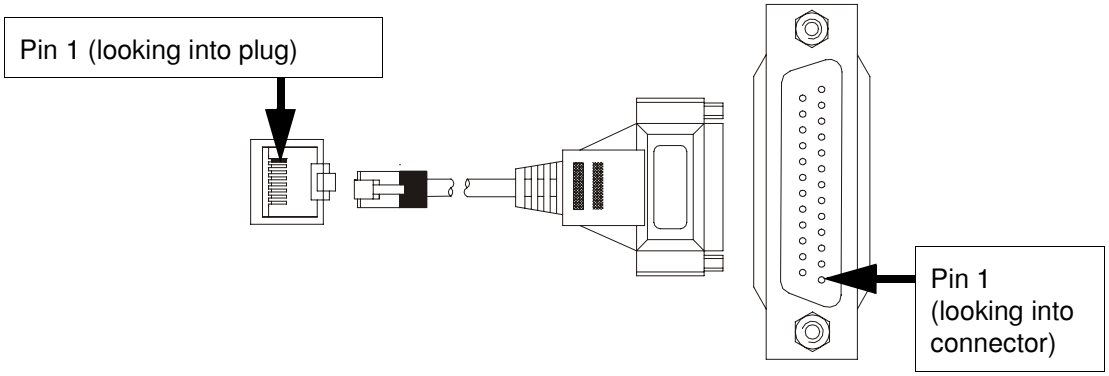


Connector pinout table

RJ45 pin	DB25 Pin	Signal	Direction	Description
1	8	DCD	In	Data Carrier Detect
2	20	DTR	Out	Data Terminal Ready
3	6	DSR	In	Data Set Ready
4	7	GND		Ground
5	2	TXD	Out	Transmit Data
6	3	RXD	In	Receive Data
7	4	RTS	Out	Request to send
8	5	CTS	In	Clear to Send
Shell	Shell	Chassis		Chassis ground.

RJ45 (8pin) to DB25 female cable

Cable diagram

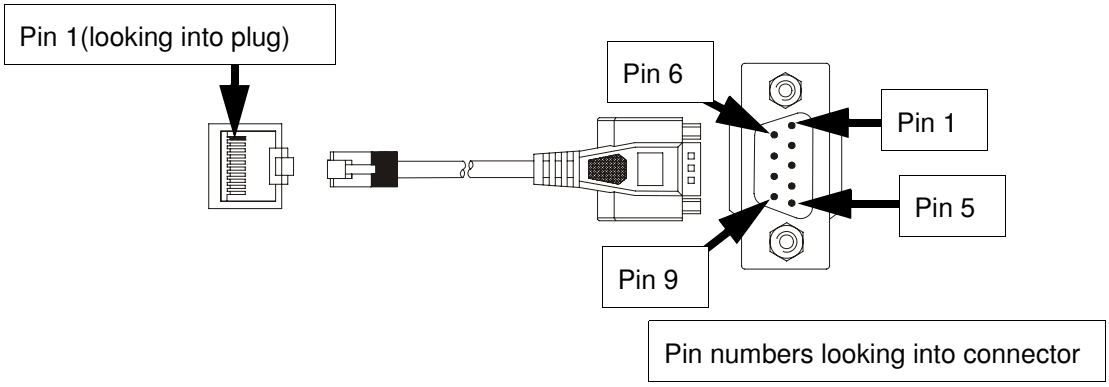


Connector pinout table

RJ45 pin	DB25 Pin	Signal	Direction	Description
1	8	DCD	In	Data Carrier Detect
2	6	DTR	Out	Data Terminal Ready
3	20	DSR	In	Data Set Ready
4	7	GND		Ground
5	3	TXD	Out	Transmit Data
6	2	RXD	In	Receive Data
7	5	RTS	Out	Request to send
8	4	CTS	In	Clear to Send
Shell	Shell	Chassis		Chassis ground.

RJ45 (10 pin) to DB9 male cable

Cable diagram

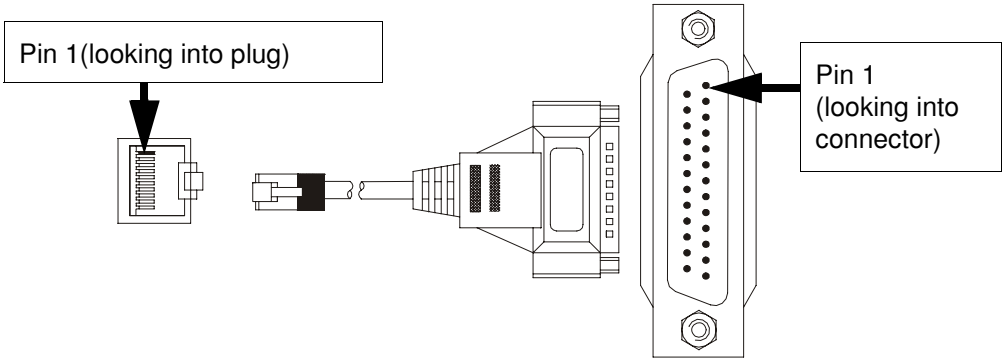


Connector pinout table

RJ45 pin	DB9 pin	Signal	Direction	Description
1	9	RI	In	Ring Indicator
2	1	DCD	In	Data Carrier Detect
3	4	DTR	Out	Data Terminal Ready
4	6	DSR	In	Data Set Ready
5	5	GND		Ground
6	3	TXD	Out	Transmit Data
7	2	RXD	In	Receive Data
8	7	RTS	Out	Request To Send
9	8	CTS	In	Clear To Send
10	N/C	N/C	-	Not connected
Shell	Shell	Chassis		Chassis

RJ45 (10pin) to DB25 male cable

Cable diagram

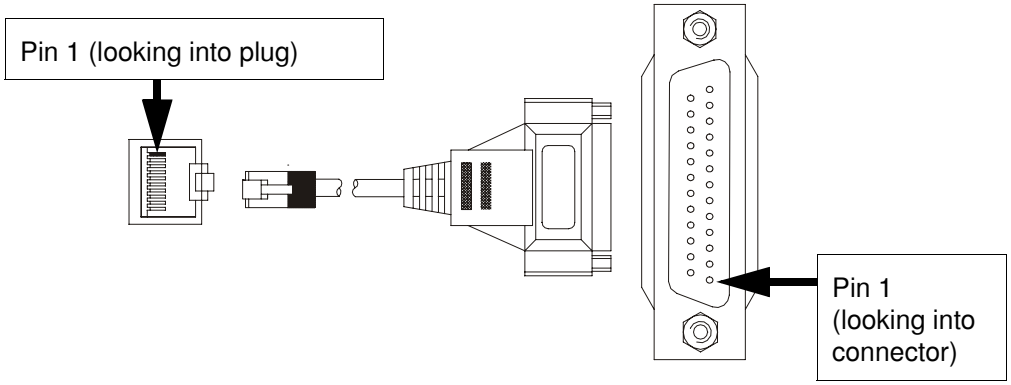


Connector pinout table

RJ45 pin	DB25 pin	Signal	Direction	Description
1	22	RI	In	Ring Indicator
2	8	DCD	In	Data Carrier Detect
3	20	DTR	Out	Data Terminal Ready
4	6	DSR	In	Data Set Ready
5	7	GND		Ground
6	2	TXD	Out	Transmit Data
7	3	RXD	In	Receive Data
8	4	RTS	Out	Request To Send
9	5	CTS	In	Clear To Send
10	N/C	N/C		Not connected
Shell	Shell	Chassis		Chassis

RJ45 (10pin) to DB25 female cable

Cable diagram



Connector pinout table

RJ45 pin	DB25 pin	Signal	Direction	Description
1	22	RI	In	Ring Indicator
2	8	DCD	In	Data Carrier Detect
3	6	DTR	Out	Data Terminal Ready
4	20	DSR	In	Data Set Ready
5	7	GND		Ground
6	3	TXD	Out	Transmit Data
7	2	RXD	In	Receive Data
8	5	RTS	Out	Request To Send
9	4	CTS	In	Clear To Send
10	N/C	N/C		Not connected
Shell	Shell	Chassis		Chassis

Chapter 4 Quick Reference

You need to read this chapter if you want to...

You need to read this chapter if you want information in quick reference form about the utilities provided with the SPEED Serial adaptor cards.

This chapter provides a quick reference guide to the software utilities provided with the SPEED Serial adaptor cards. The utilities are grouped under operating system and include main windows and menus. In addition, cross references are provided for further information about each area.

This chapter includes the following sections;

SCO OpenServer utilities

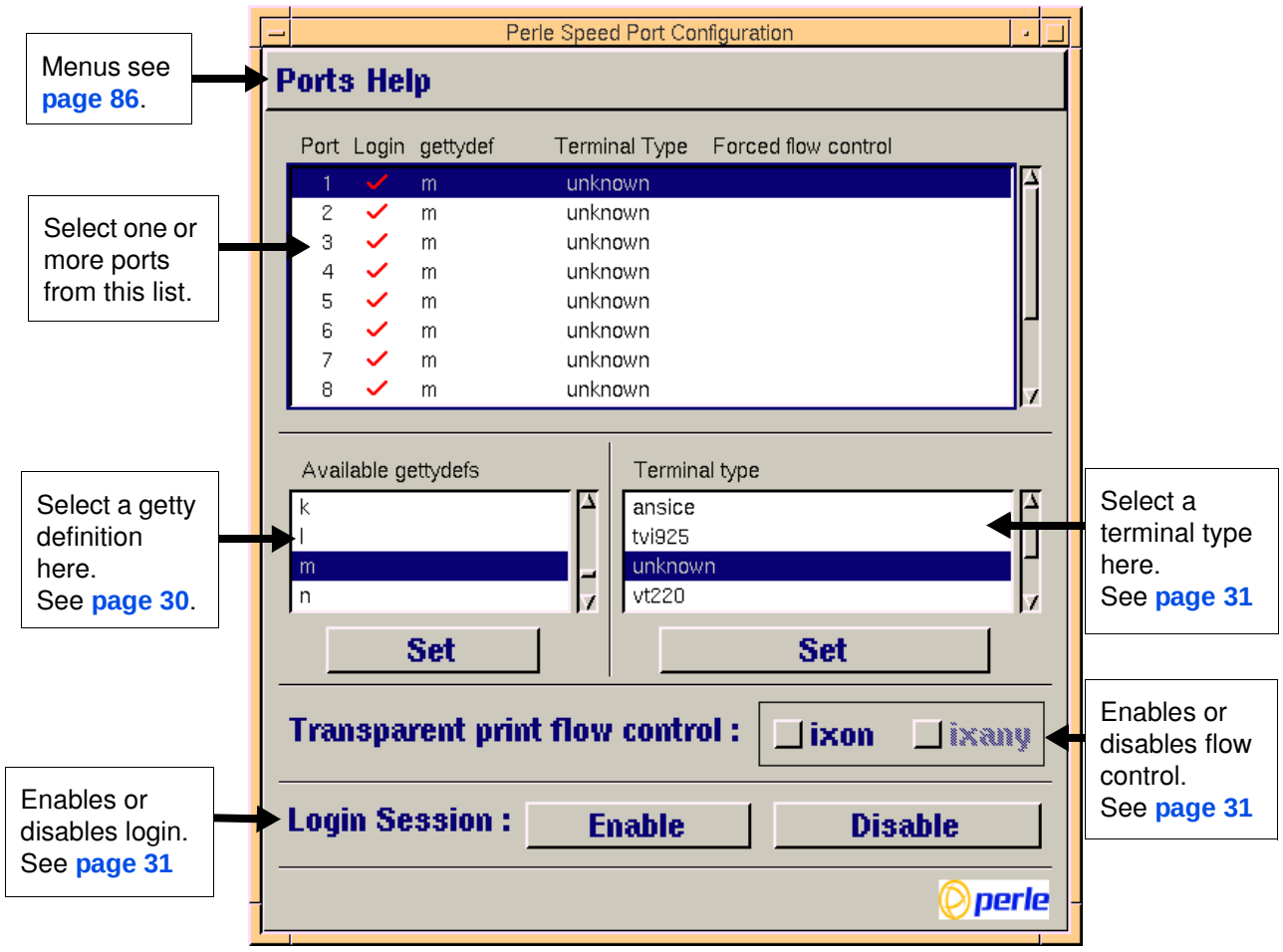
The following utilities are provided for use with the SCO OpenServer operating system.

- **Port Configuration utility** on page **85**

Port Configuration utility

Main window

The main window for the Port Configuration table is shown in the next picture. See **Menu map** on page **86** for details of menus.



The Port Configuration tool menu is as follows;

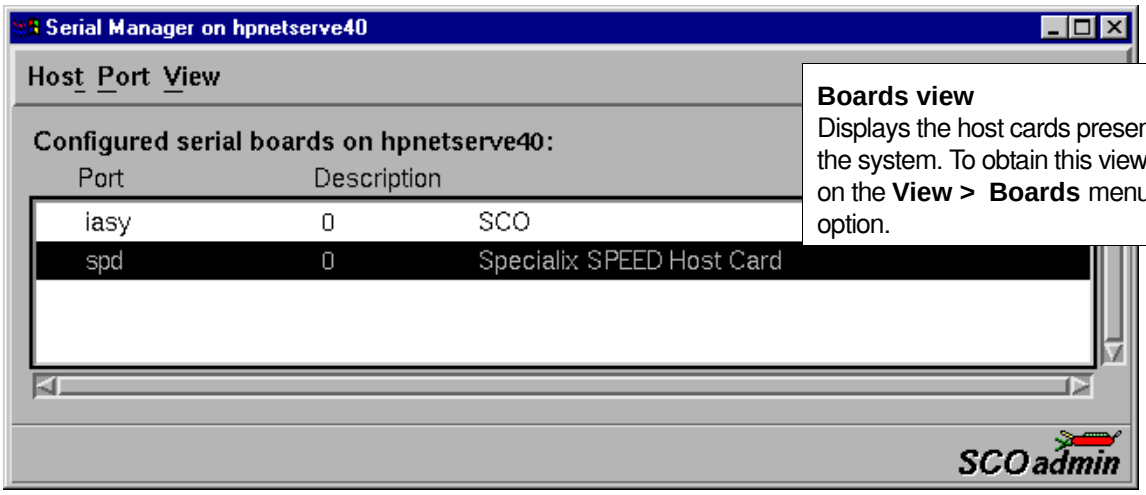
Menu option		Description
Ports >	**Quit**	Quit Port Configuration tool without saving changes. See **page 32**
	Logins	Display all ports with logins enabled. See **page 31**
	Unconfigured	Display all ports without logins enabled. See **page 31**
	All	Display all ports. See **page 31**
	Save & Exit	Exit the Port Configuration tool and save changes. See **page 32**

SCO UnixWare utilities

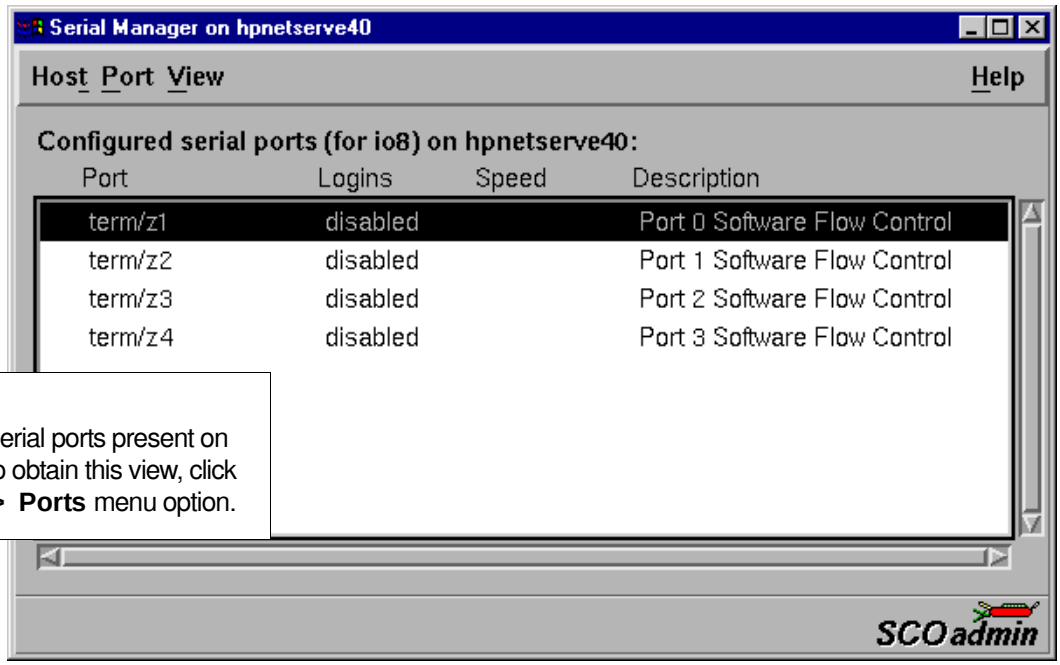
Serial Manager

Main window

The main window for the Serial Manager is shown in the next picture.You can display this window in one of two views, Board view and Ports view. See page 88 for menu maps.



Boards view
Displays the host cards present on the system. To obtain this view, click on the **View > Boards** menu option.



Ports view
Displays the serial ports present on the system. To obtain this view, click on the **View > Ports** menu option.

Menu map The Serial Manager menu is as follows;

Menu option		Description
Host >	**Open Host**	Selects a host machine. See your SCO UnixWare documentation for further details.
	Exit	Exit Serial Manager.
Port >	**Modify**	Modifies serial port settings. See **page 40**.
View >	**Ports**	Show serial ports available for the currently selected host card. See **page 40**.
	Boards	Show host cards present on the system. See **page 40**.

Appendix A Serial Port Device Names

You need to read this appendix if you want to...

You need to read this appendix if you want information about device names for the Perle SPEED serial adaptor cards.

This appendix provides information about the device nodes associated with each serial port for the Perle SPEED serial adaptor cards. Included are naming conventions, functions, file locations and some additional information about the Data terminal ready and Ready to send signals.

This chapter includes the following sections;

Under SCO UnixWare

Device node details

Each serial port has three device nodes associated with it. Each node takes the form of a file which you can access from operating system utilities and user applications. Details of these nodes are shown in the next table.

Device name	Function	Description	Location
ttyz1	Normal communications port for local “tty” devices.	Indicates normal communications port behaviour.	/dev
ttyZ1	Modem port	Indicates that a port open will not complete unless DCD is present	/dev
ttyz1p	Transparent print port.	Indicates that device should only be used for transparent print.	/dev

Under SCO UnixWare

Device node details

Each serial port has three device nodes associated with it. Each node takes the form of a file which you can access from operating system utilities and user applications. Details of these nodes are shown in the next table.

Device name	Function	Description	Location
z1	Normal communications port for local “tty” devices.	Indicates normal communications port behaviour.	/dev/term
Z1	Modem port	Indicates that a port open will not complete unless DCD is present	/dev/term
z1p	Transparent print port.	Indicates that device should only be used for transparent print.	/dev/term

Linux Device node details

Each serial port has two device nodes associated with it. Each node takes the form of a file which you can access from operating system utilities and user applications. Details of these nodes are shown in the next table.

Device name	Function	Description	Location
ttyS0	Normal communications port	Indicates normal communications port behaviour.	/dev
cua0	Modem communications port wait for DCD on open	This device is used when connecting modems to the serial port.	/dev

Appendix B Transparent Printing

You need to read this appendix if you want to...

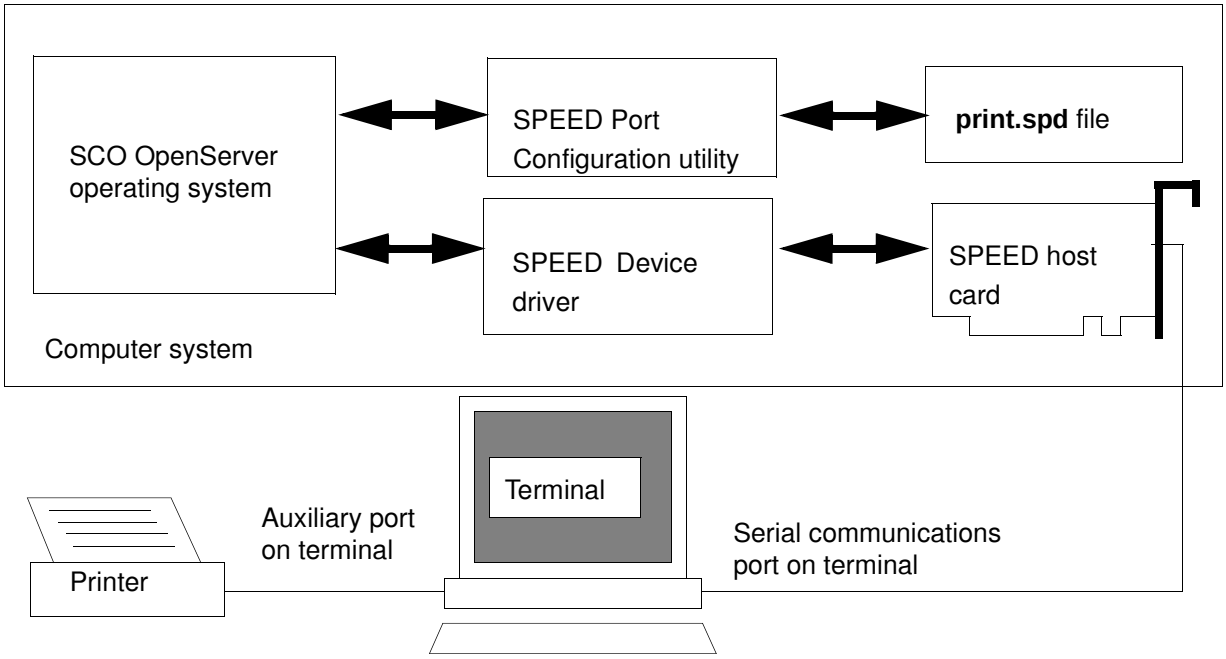
You need to read this appendix if you want background information on transparent printing.

This appendix gives an overview of the transparent printing feature offered for the SCO OpenServer operating systems and includes details of configuration files associated with transparent printing.

This appendix includes the following sections;

What is transparent printing?

Most terminals have an auxiliary (AUX) port which can be connected to a serial printer. Data can then be output to the terminal or the printer via the same serial line. This is called **transparent print** (or xprint) and is designed for printing simple ASCII text. A separate xprint device node (ttyi**n**p where **n** is device number) is created for each port. This device is enabled automatically if either the local or modem device is enabled for the port.



When a host card receives data addressed to the transparent print device it prefixes it with the transparent print mode ON string and appends it with the transparent mode OFF string. The ON and OFF strings for each terminal type available are defined by the **printcap.spd** file. See **The printcap.spd configuration file** on page **94** for more details.

When the host card receives data addressed to the transparent print device, it prefixes it with the Transparent Print Mode ON string and appends it with the Transparent Print Mode OFF string. Terminal I/O has absolute priority over printer output. Transparent print data will only be sent when there is a break in output to the terminal (for more than a tenth of a second)

For each port, the transparent printing parameters are controlled by an entry in the **print.spd** file found in the /etc/ directory on your system. The entry for each port includes definitions of the terminal type, transparent print throughput rate and device name. See **The print.spd configuration file** on page **95** for further details.

Problems with printer output

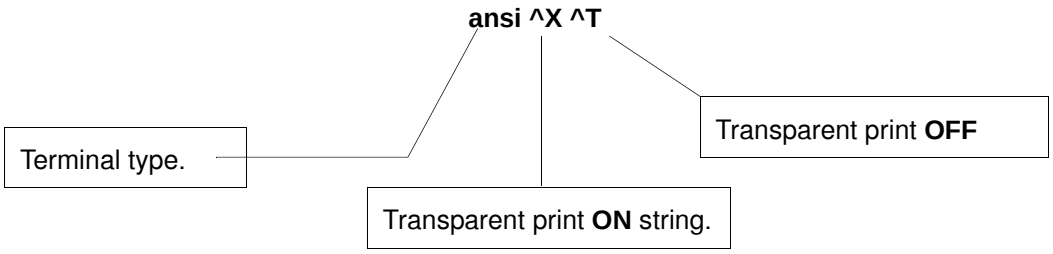
When you use transparent printing you may obtain incorrect printer output due to the following reasons;

Graphics printers may misinterpret some characters output through transparent print. This problem is more likely if the terminal is in 7-bit mode, because 8-bit characters will not be printed.

Some terminals suppress the output of certain characters to their printer or AUX ports. Such terminals can prevent essential control characters from reaching the printer thus generating incorrect printer output. This occurrence is extremely unpredictable because of the large number of potential hardware configurations.

The printcap.spd configuration file

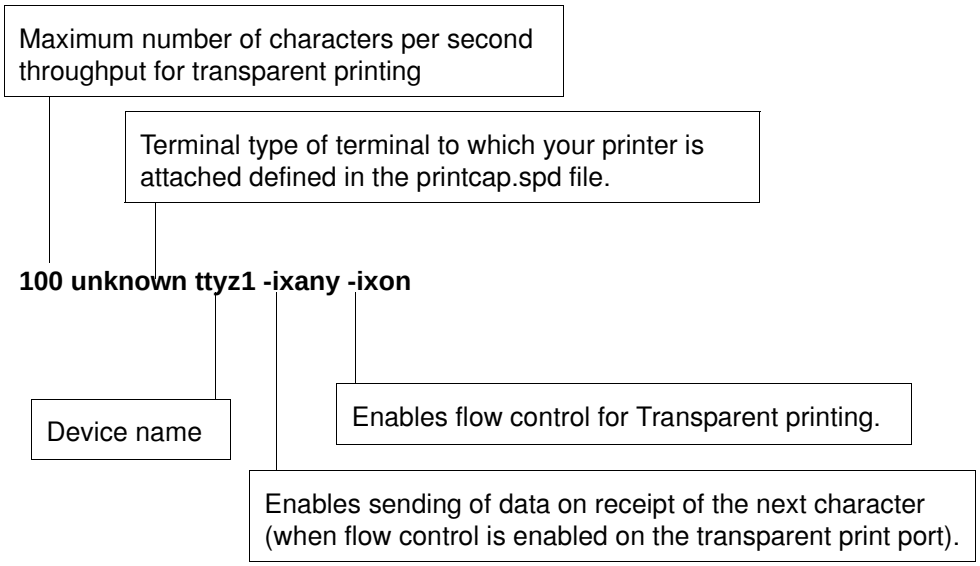
The printcap.spd file defines the transparent print ON and OFF strings for each terminal type available. When a host card receives data addressed to the transparent print device it prefixes it with the transparent print mode ON string and appends it with the transparent mode OFF string.



If you don't configure a specific terminal type printcap.spd will use the default type which is "unknown"

The print.spd configuration file

For each port, transparent printing is controlled by an entry in the **print.spd** file. The **print.spd** file is found in the /etc/ directory on your system. The entry for each port includes definitions of the terminal type, transparent print throughput rate, device name. The content of the **print.spd** file is normally controlled automatically by either the Port Configuration utility (SCO OpenServer). A sample entry from a typical print.spd file is shown in the next example.



Appendix C Troubleshooting

You need to read this appendix if you want to...

You need to read this appendix if you want information on troubleshooting problems with SPEED serial adaptor cards.

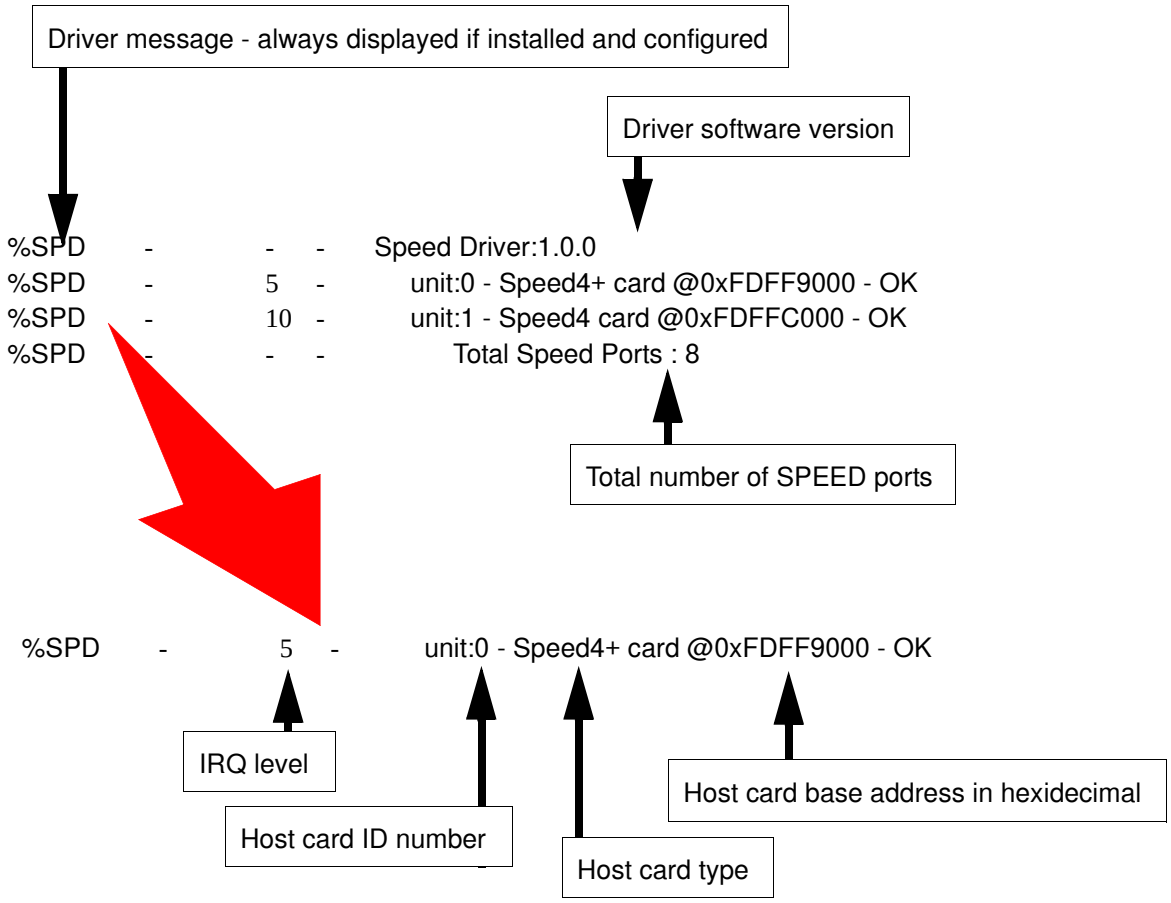
This appendix provides examples of normal boot up messages and a table of error messages, their meaning and corrective action required for the all the currently supported operating systems.

This appendix includes the following sections;

SCO OpenServer 5

Example of normal SPEED driver boot messages

This example shows one SPEED4+ and one SPEED4 successfully detected and initialised by the driver.



Additional card warning messages

If you install more than one SPEED host card, or install additional cards at a later date, the following warning messages will be displayed (they appear immediately following the driver initialisation messages shown on **page 97**).

> Note
>
> Display of these messages and update of **Speed Node** and **Init** files only occurs once after installation of additional cards. This takes place during system start-up.

Message	This message tells you that...
WARNING: Speed Node file updated **- old file moved to /etc/conf/node.d/spd_nnnnnnnn**	The speed node file has been updated to include the revised number of ports. Your old Speed node file is retained with the file name shown in the message. '**nnnnnnnn**' is a unique number so that previous Speed node files are not lost on updating.
WARNING: New Speed ports detected **- /etc/conf/node.d/spd being updated**	You now have additional entries in the Speed init file, existing entries are retained unchanged. The automatic init file update is necessary to make any additional nodes available in the Speed Port Configuration tool.

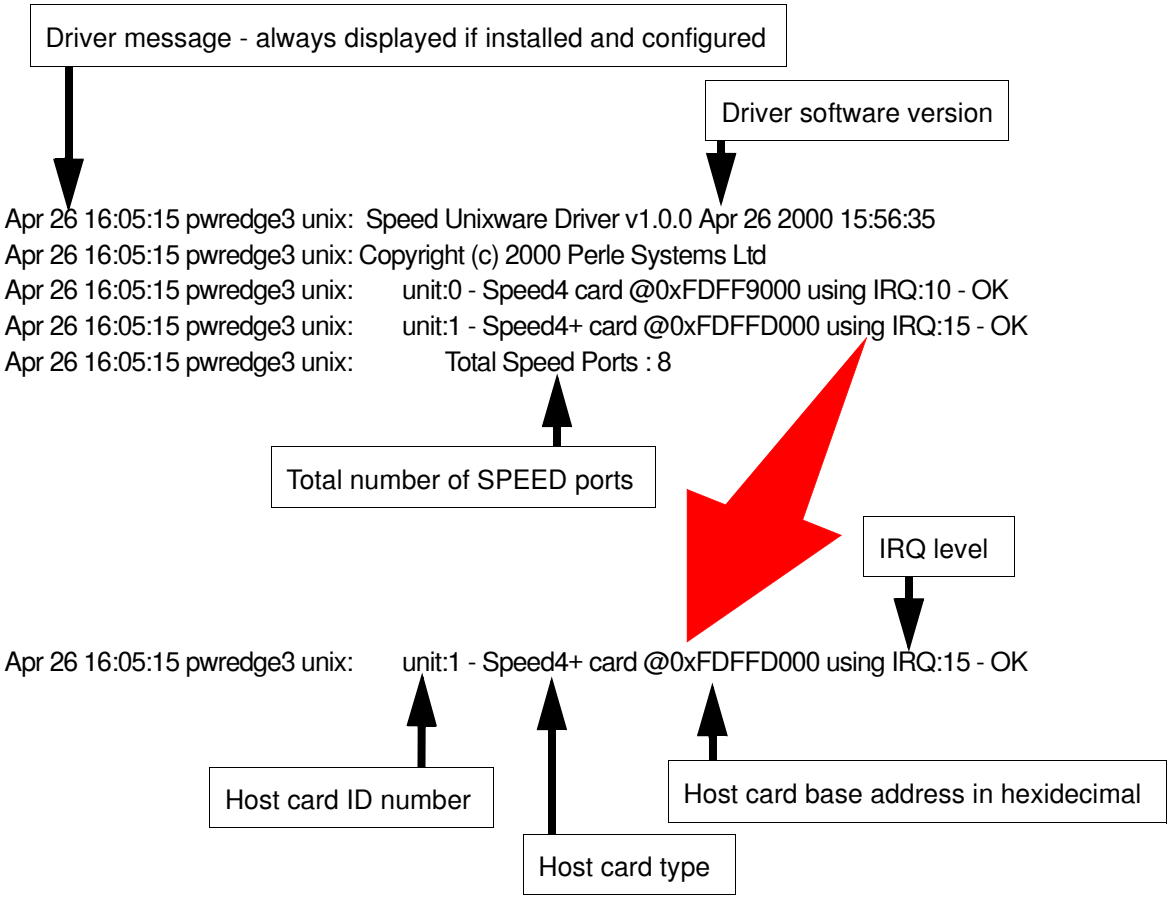
> Hint
>
> If you have modified your Speed node file, (for example you may have changed the default permission for security reasons), you may wish to re-instate the previous node set-up for existing Speed ports.
>
> If you have not modified your Speed node file or do not require to retain the old settings you may safely delete the file shown in the first message.

SCO OpenServer 5 error messages

Error message	Reason	Action required
ERROR: unit @0xnnnnnnnn has bad resource(s)	Incorrectly installed or faulty card. Incorrect BIOS settings.	1. Ensure that you have followed the installation procedure correctly. See **page 21**. 2. Check BIOS settings. 3. If the problem persists try another card. See **page 21** and **page 69**.
ERROR: unit @0xnnnnnnnn not mapped	Insufficient memory available to kernel.	Reconfigure system/kernel memory parameters.
ERROR: unit @0xnnnnnnnn not initialised	Incorrectly installed or faulty card.	1. Ensure that you have followed the installation procedure correctly. See **page 21**. 2. If the problem persists try another card. See **page 21** and **page 69**.
WARNING: unit @0xnnnnnnnn not configured	System error.	1. Uninstall the driver and remove all Speed cards from the system. See **page 33** 2. Re-install the driver and cards taking care to follow the correct procedure. See **page 21** and **page 69**.
WARNING: No Speed ports configured	No cards installed. Installed cards suffer from one or more of above symptoms.	1. Install cards. See **page 69**. 2. Resolve any above listed faults.

SCO UnixWare/SCO OpenServer 6

There are no messages displayed on the system at startup. Messages from the SPEED driver are sent to the **syslog** file in the /var/adm directory. Each entry in the **syslog** file is date and time stamped (You can review the content of the syslog file using a suitable text editor). Each time the driver is loaded, entries similar to those shown below indicate successful SPEED card detection.



Additional card warning messages

If you install more than one SPEED host card, or install additional cards at a later date, the following warning messages will be displayed during system start-up.

> Note
>
> Display of these messages and update of **Speed Node** and **Init** files only occurs once after installation of additional cards. This takes place during system start-up.

Message	This message tells you that...
WARNING: Speed Node file updated **- old file moved to /etc/conf/node.d/spd_nnnnnnnn**	The speed node file has been updated to include the revised number of ports. Your old Speed node file is retained with the file name shown in the message. '**nnnnnnnn**' is a unique number so that previous Speed node files are not lost on updating.
WARNING: New Speed ports detected **- /etc/conf/node.d/spd being updated**	You now have additional entries in the Speed init file, existing entries are retained unchanged. The automatic init file update is necessary to make any additional nodes available in the Speed Port Configuration tool.

> Hint
>
> If you have modified your Speed node file, (for example you may have changed the default permission for security reasons), you may wish to re-instate the previous node set-up for existing Speed ports.
>
> If you have not modified your Speed node file or do not require to retain the old settings you may safely delete the file shown in the first message.

SCO UnixWare error messages

Error message	Reason	Action required
ERROR: unit @0xnnnnnnnn has bad resource(s)	Incorrectly installed or faulty card. Incorrect BIOS settings.	1. Ensure that you have followed the installation procedure correctly. See **page 36**. 2. Check BIOS settings. 3. If the problem persists try another card. See **page 36** and **page 69**.
ERROR: unit @0xnnnnnnnn not mapped	Insufficient memory available to kernel.	Reconfigure system/kernel memory parameters.
ERROR: unit @0xnnnnnnnn not initialised	Incorrectly installed or faulty card.	1. Ensure that you have followed the installation procedure correctly. See **page 36**. 2. If the problem persists try another card. See **page 36** and **page 69**.
WARNING: unit @0xnnnnnnnn not configured	System error.	1. Uninstall the driver and remove all Speed cards from the system. See **page 46** 2. Re-install the driver and cards taking care to follow the correct procedure. See **page 36** and **page 69**.
Error: could not register interrupt handler for unit @0xnnnnnnnn	System error	1. Uninstall the driver and remove all Speed cards from the system. See **page 46** 2. Re-install the driver and cards taking care to follow the correct procedure. See **page 36** and **page 69**.
WARNING: No Speed ports configured	No cards installed. Installed cards suffer from one or more of above symptoms.	1. Install cards. See **page 69**. 2. Resolve any above listed faults.

Error message	Reason	Action required
UX: sh (sh): ERROR: telinit: Not found (Note this error occurs on UnixWare 2 systems only)	telinit command not found	None. The installation process takes care of configuring the kernel and ensures that SPEED ports are ready for use when the installation process is complete.
Unable to open device /dev/spd : No such device	No SPEED cards installed during driver installation.	1. Install cards. See **page 69**. Note that there is no need to uninstall and re-install the driver. When the system is rebooted, your SPEED cards will be detected and configured into the kernel.

Windows 95 and 98

Windows 95 and 98 general troubleshooting

In the event of any problems, open the **System Properties** tabbed window and display the **Device Manager** page. In the Device Manager page, check for warning icons on the installed hardware. See your Windows 95 or 98 user documentation or help system for further details.

Windows NT

Windows NT general troubleshooting

In the event of any problems, open the **Devices** window to view the status of any installed hardware. For further details of troubleshooting under Windows NT, see your Windows NT user documentation or help system.

Windows 2000/XP/Server 2003/Vista/Server 2008

This section describes troubleshooting SPEED products under the Windows 2000/XP/ Server 2003/Vista/Server 2008 operating system and includes the following sections;

> Note
> To contact Perle for technical support. see **Appendix D Contacting Perle**.

- **General troubleshooting under Windows 2000/XP/Server 2003/Vista/Server 2008** on page **106**.
- **Windows error messages** on page **107**.

General troubleshooting under Windows 2000/XP/Server 2003/Vista/Server 2008

Problem	Action required
Machine fails to boot.	1. Turn off your machine, remove SPEED card(s) and reboot. See page 70. 2. Try installing a different host card in case the one currently installed is faulty. See page 69.
Windows operating system fails while loading and the system hangs.	1. Reboot machine and then switch to the last known good configuration. 2. Check for resource conflicts or faulty hardware. 3. Turn off machine, remove any SPEED cards fitted (page 70) and then reboot your system. 4. Once the machine boots properly, change the configuration settings of the SPEED card to match those in the BIOS setup. See page 69.
Windows operating system fails while loading and displays a blue screen.	1. Note the five hexadecimal numbers at the top line of the screen 2. Reboot your machine and then switch to the last known good configuration. 3. Check for resource conflicts or faulty hardware. 4. Turn off machine, remove any SPEED cards fitted (page 70) and then reboot your system. 5. Once the machine boots properly, change the configuration settings of the SPEED card to match those in the BIOS setup. See page 69.
Operating system loads OK, but SPEED driver or another driver fails to boot	1. Run Windows Device Manager to find available IRQ and memory addresses.
SPEED ports do not work after installation.	1. Check the Windows Event Log and follow the suggested actions.

Problem	Action required
SPEED Windows driver fails during normal operation, symptom: blue screen	1. Note the five hexadecimal numbers displayed at the top line of the screen. 2. Reboot your machine and then switch to the last known good configuration. 3. Check for resource conflicts or faulty hardware. 4. Turn off machine, remove any SPEED cards fitted (**page 70**) and then reboot your system. 5. Once the machine boots properly, change the configuration settings of the SPEED card to match those in the BIOS setup. See **page 69**.
SPEED Windows driver fails during normal operation, symptoms either: black screen, machine reboots, or system hangs	1. Contact Technical Support. See **Appendix D Contacting Perle**.

Windows error messages

In the event of any error messages, check the **Windows Event Log**. Also open the Windows Device Manager and check for warming icons on the installed hardware. See your Windows user documentation or help system for details.

For general problems, see **General troubleshooting under Windows 2000/XP/Server 2003/Vista/Server 2008** on page **106**.

Appendix D Contacting Perle

You need to read this appendix if you want to...

You need to read this appendix if you want to contact Perle for technical support or any other queries about this product.

This appendix includes the following sections;

Internet access

Click here to access the our website at the following URL:

http://www.perle.com

Email

Click here to email Perle at the following address;

Email: ptac@perle.com

Making a technical Support Query

This section contains the following information about making a query;

Who to contact

If you bought your product from a registered Perle supplier, you must contact their Technical Support department; they are qualified to deal with your problem.

If you are a registered Perle supplier, and bought your product from Perle, contact Perle Technical Support using the details given in **Contacting Perle technical support** on page **113**.

Information needed when making a query

When you make a technical support enquiry please have the following information ready;

> Hint
>
> Print out this page and fill in the table provided with the basic information you need.

Item	Write details here
Product name and version	
Problem description	
Operating system version	
Driver version	
Details of any other cards installed in your system	
Your name	
Company Name	
Country	
Phone number	
Fax number	
Email address (if available)	

Making a support query via the Perle web page

If you have an internet connection, please send details of your problem to Technical Support using the email links provided on the Perle web site in the 'Support' area.

See also **Contacting Perle technical support** on page **113** for email links and other contact details for the Perle technical support centres.

Click here to access our website at the following URL:

http://www.perle.com

Repair procedure

Before sending a unit for repair, you must contact your Perle supplier. If, however, you bought your product directly from Perle you can contact directly. See **Contacting Perle technical support** on page **113** for contact information.

Customers who are in Europe, Africa or Middle East can submit repair details via a website form shown in the next picture. This form is on the Perle website, **www.perle.com**, in the **Support** area.

Click here to access our web site at the following URL:
http://www.perle.com/support_services/rma_form.asp

In the USA and Asia contact the office shown in the Technical Support section.

Feedback about this manual

If you have any comments or suggestions for improving this manual please email Perle using the following address;

Email: ptac@perle.com

Please include the **title**, **part number** and **date** of the manual (you can find these on the title page at the front of this manual).

Contacting Perle technical support

Note

Perle offers free technical support to Perle Authorised Distributors and Registered Perle Resellers.

To access technical support please visit the Perle website at **www.perle.com/support_services/index.shtml.**

If you are unable to find the information you require, please feel free to contact our technical support teams by email using the addresses shown in the next table.

Region	Address	Email
North America	*Perle Systems Ltd.* *60 Renfrew Drive* *Markham* *Ontario* *Canada* *L3R OE1*	**Email: ptac@perle.com**
Europe	*Perle Systems Europe Ltd.* *3 Wintersells Road* *Byfleet Surrey* *KT14 7LF* *UK*	**Email: ptac@perle.com**
Asia	*Perle Asia Pacific (Pte) Ltd.* *190 Middle Road* *#19-05 Fortune Centre* *Singapore 188979*	**Email: ptac@perle.com**
Worldwide	*Perle Systems Ltd.* *60 Renfrew Drive* *Markham* *Ontario* *Canada* *L3R OE1*	**Email: ptac@perle.com**

Index

#A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

L

M

O

P

Q

R

S

T

U

W