SPEED LE
and
SPEED LE Express
Serial Adapters

User Guide

Navigating around this manual

Using this on-line manual. See page 5.

Fast Contents. See page 7.

Contents. See page 8.

Index. See page 60.

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.

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 LE and SPEED LE Express serial adaptor cards, cabling hardware, 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 LE or SPEED LE Express 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.

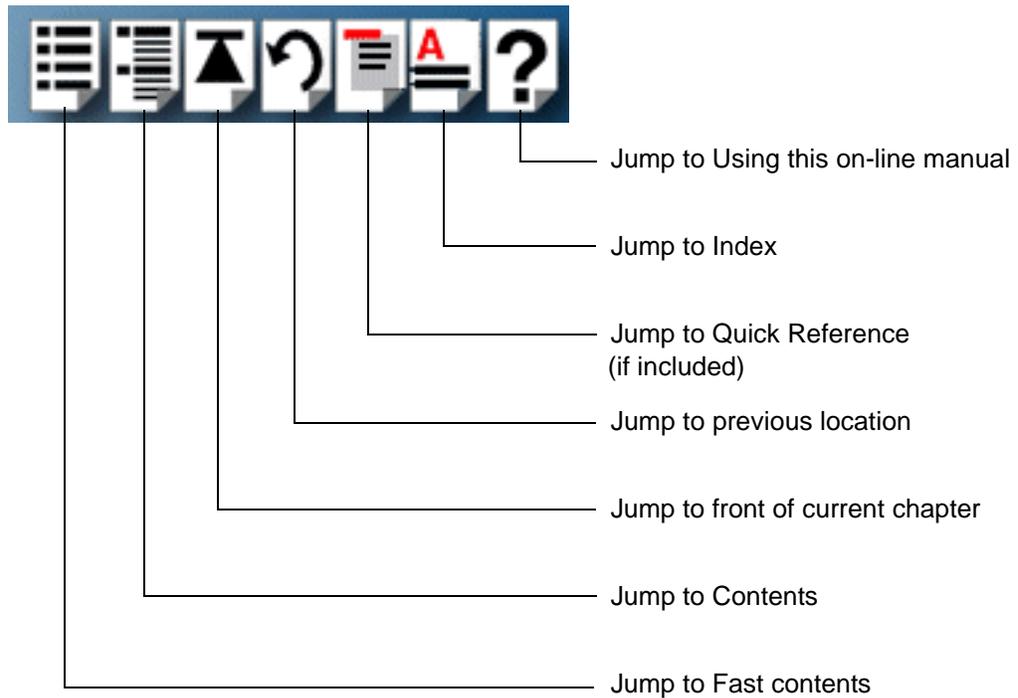|	**Warning**
	Dangerous voltages exist inside computer systems. Before installing host cards in your system, turn off the power supply and disconnect the power cord.

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;

Jump to Using this on-line manual

Jump to Index

Jump to Quick Reference
(if included)

Jump to previous location

Jump to front of current chapter

Jump to Contents

Jump to Fast contents

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
December 2005	5500174-10	First issue of the SPEED LE user manual.
March 2007	5500174-11	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.
February 2008	5500174-12	Updated guide to support SPEED LE Express cards. Also, a new feature has been added that allows you to configure the DSR signal to always be on, for applications that require the DSR signal when the wiring does not support it.
July 2008	5500174-13	Updated guide to support new SPEED LE and SPEED LE Express cards that support combinations of serial and parallel ports.
September 2008	5500174-14	Added support for Windows Server 2008.

Fast Contents

Contents

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 SPEED LE or SPEED LE Express serial adaptor cards, driver software, and utilities.

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

This chapter includes the following sections;

- **About the SPEED LE Serial Adaptor cards** on page **12**

- **Connection Accessories** on page **13**

About the SPEED LE Serial Adaptor cards

The SPEED LE and SPEED LE Express Serial Adaptor cards are multi-port cards which provide extra serial ports for EIA-232, peripherals. These cards plug into your PC servers and provide 1, 2, 4, or 8 high speed ports suitable for remote access, data collection, point of sale, or any other EIA-232 applications.

You use the SPEED LE and SPEED LE Express serial adaptor cards when you want a robust entry level solution for the small office or point of sale applications. Typically you use SPEED LE and SPEED LE Express serial adaptor cards 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 SPEED LE and SPEED LE Express serial adaptor cards make it suitable for any modem or ISDN TA application.

Note
To use the SPEED LE and SPEED LE Express 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 **15** in Chapter 2 Installing drivers and host cards before commencing installation.
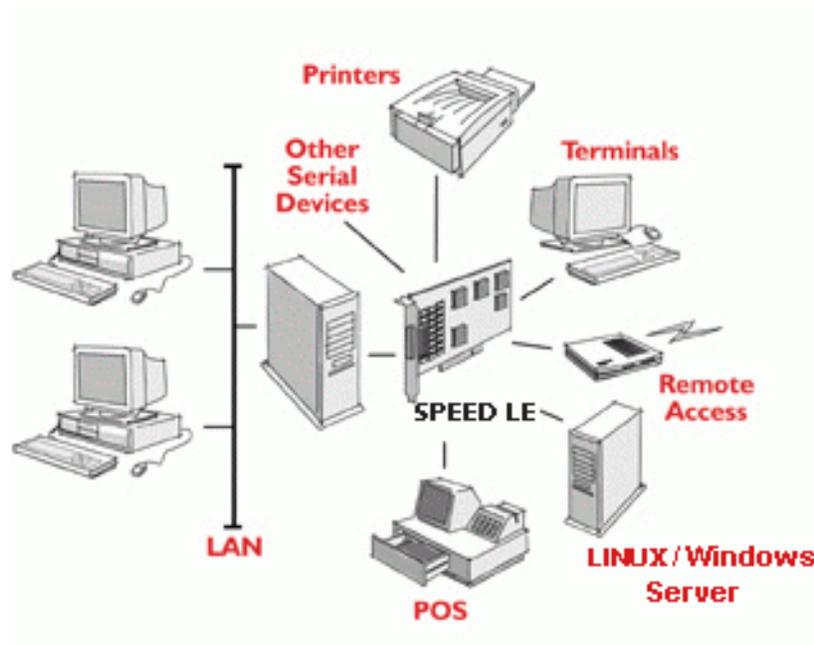
Connection Accessories

The connector box or cable required for the SPEED LE products you are using depends on the number of ports and product type. For details see **Chapter 3 Cabling Information**.

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 LE or SPEED LE Express serial adaptor cards, associated hardware, and software.

This chapter provides information about installing and configuring SPEED LE and SPEED LE Express serial adaptor cards.

> **Note**
>
> The procedure for installing and configuring SPEED LE or SPEED LE Express serial adaptor cards varies for different operating systems. Please read **Before You Start** on page **15** before commencing installation.

This chapter includes the following sections;

- **Before You Start** on page **15**
- **Downloading Drivers From the Perle Website** on page **16**
- **Installing under Windows 2000/XP/Server 2003/Vista/Server 2008** on page **17**
- **Installing under Linux** on page **23**
- **Installing Host Cards and Cable Accessories** on page **27**
- **Removing Host Cards** on page **30**

Before You Start

Before you install your SPEED LE or SPEED LE Express host cards and software, note that the procedure for installing and configuring SPEED LE or SPEED LE Express 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 Windows 2000/XP/Server 2003/Vista/Server 2008** on page **17**

- **Installing under Linux** on page **23**

Downloading Drivers From the Perle Website

You can install the SPEED LE or SPEED LE Express driver and utility software from the Perle website. To do this proceed as follows;

1. On your PC, start the Internet browser you want to use.

2. Within your Internet browser window, 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. Select the **MultiPort Serial Cards** option.

4. Select **Speed LE.**

5. Select the operating system that the SPEED LE or SPEED LE Express driver will be running on.

6. Download the zip file in this directory to a suitable location on your PC for example, **/tmp**.

7. Uncompress the files using a suitable utility.

8. You can now install the driver software using the correct procedure for your operating system. See **Before You Start** on page **15**.

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

This section describes how to install the SPEED LE or SPEED LE Express driver software under Microsoft Windows 2000, XP, Server 2003, Vista, or Server 2008.

This section includes the following;

- **General setup procedure for Windows 2000/XP/Server 2003/Vista/Server 2008** on page **17**

- **Installing Device Drivers and Utilities onto Your System** on page **18**

- **Adding Additional Cards and/or Updating Drivers** on page **20**

- **Configuring Serial Ports** on page **21**.

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

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

1. Install any SPEED LE or SPEED LE Express cards and cables or connector boxes you require into your system. See **Installing Host Cards and Cable Accessories** on page **27**.

2. Install the SPEED LE or SPEED LE Express device driver software. See **Installing Device Drivers and Utilities onto Your System** on page **18**.

3. If you add new SPEED LE or SPEED LE Express 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 **20**.

4. If required, remove any host cards you want from your system. See **Removing Host Cards** on page **30**.

5. Using the Windows **Device Manager**, configure the serial ports you have added to the system. See **Configuring Serial Ports** on page **21**.

Installing Device Drivers and Utilities onto Your System

To install or enable the SPEED LE or SPEED LE Express device drivers on your system proceed as follows:

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

    If you have installed any new SPEED LE or SPEED LE Express cards, a Found New Hardware message is shown, followed by the Found New Hardware wizard as shown.
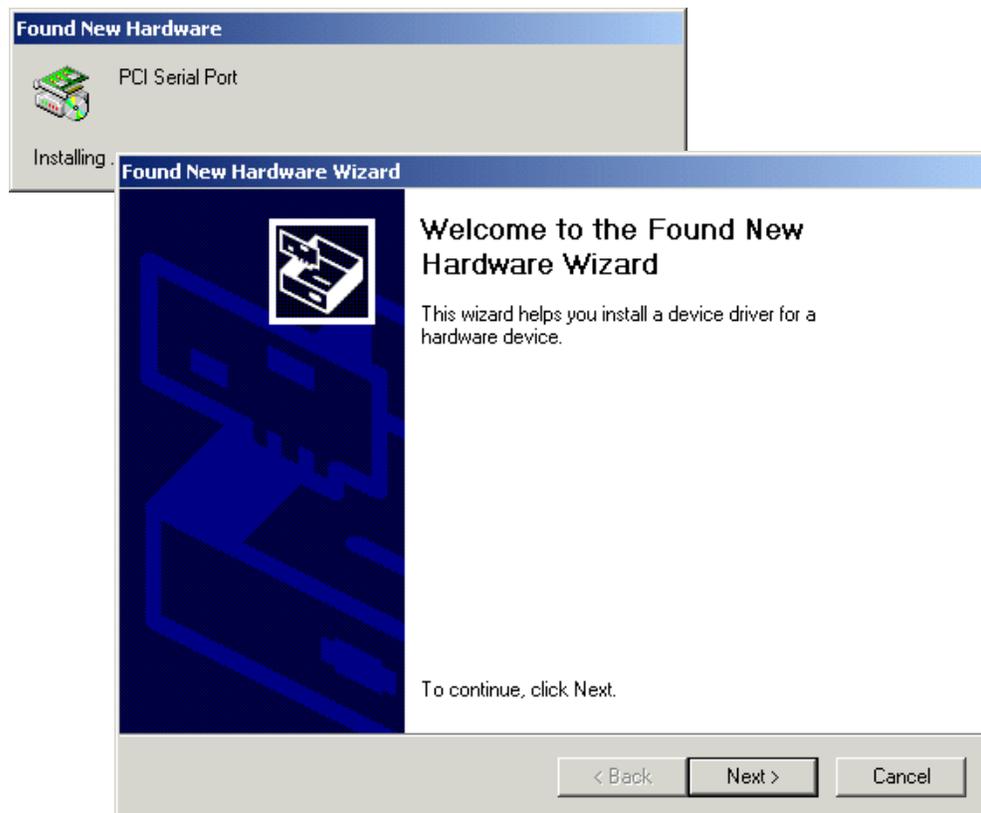
2. In the Found New Hardware wizard click on the **Cancel** button.

3. Download the lastest SPEED LE driver zip file from the Perle website for your operating system:

    pserial-x86V<*version*>**.zip** for 32-bit Windows operating systems.

    pserial-amd64V<*version*>**.zip** for 64-bit Windows operating systems.

    pserial-ia64V<*version*>**.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 LE 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.
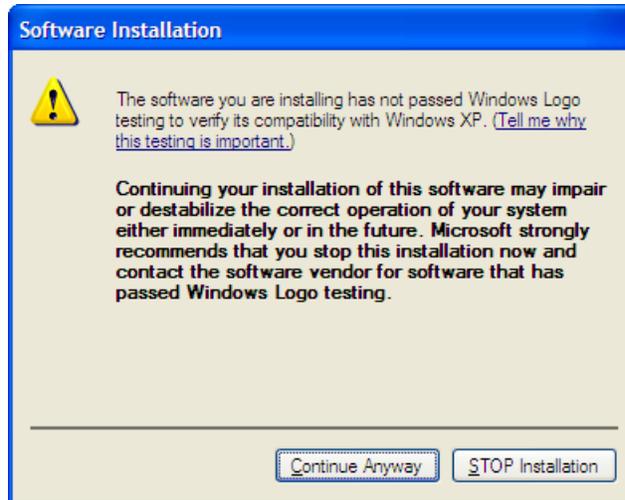
Note
If you are installing an unsigned driver, you may have to click through the Found New Hardware wizard for every SPEED LE or SPEED LE Express port on your system.

Your SPEED LE or SPEED LE Express driver installation is now finished.

Adding Additional Cards and/or Updating Drivers

Whenever you add any additional SPEED LE or SPEED LE Express 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 **18**.

Configuring Serial Ports

To configure SPEED LE or SPEED LE Express serial ports under Windows 2000, XP, Server 2003, Vista, or 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.
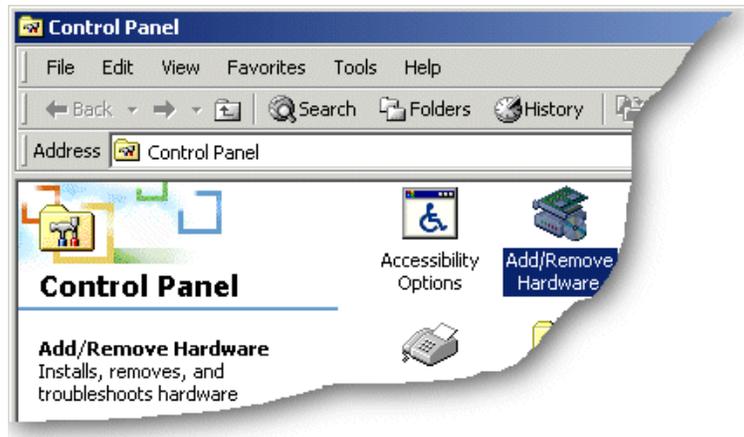
2. In the Control Panel window, click on the **System** icon.

   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.
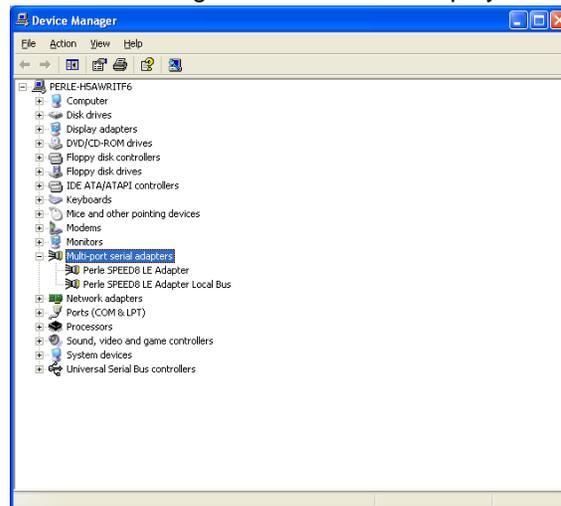
5. In the Device Manager window, click on the Multiport serial adapters icon to display the currently installed devices.

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.
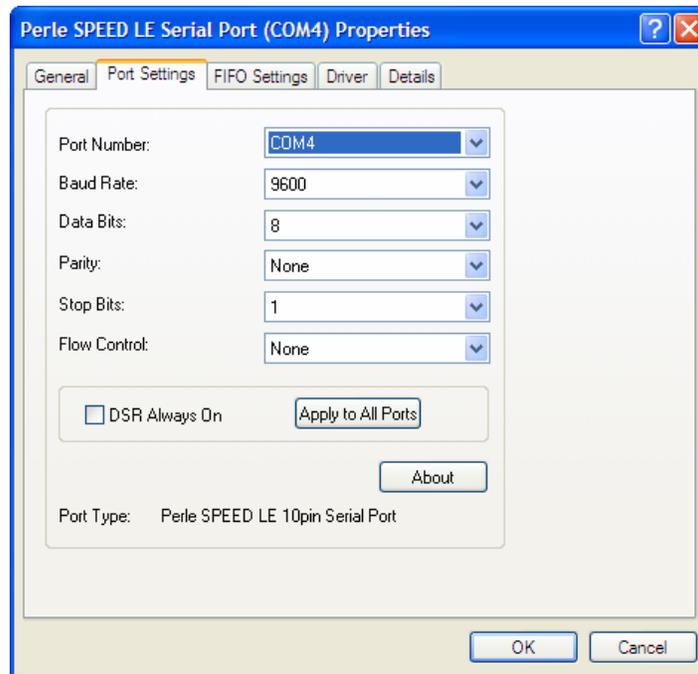
8. In the Port Settings page, set the **Port Number**, **Baud Rate**, and any other configuration parameters you require.

   DSR Always On—This feature is used for systems where the wiring does not support the DSR signal but the Host application still requires that the DSR be active. When the **DSR Always On** option is enabled, the driver will always report to the application that the DSR signal is "on".

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:

- **General Installation Procedure for Linux** on page **23**

- **Installing Drivers onto Your System** on page **23**

- **Creating Devices for the Attached Ports** on page **25**

General Installation Procedure for Linux

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

1. Install any SPEED LE or SPEED LE Express cards you require into your system. See **Installing Host Cards and Cable Accessories** on page **27**.

2. Install the SPEED LE Linux drivers onto your system using the procedures described in **Installing Drivers onto Your System** on page **23**.

3. Create devices for the required ports using the procedures detailed in **Creating Devices for the Attached Ports** on page **25**.

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

Installing Drivers onto Your System

SPEED LE or SPEED LE Express cards installed on Linux machines use the perle-serial driver for Linux. The driver supports the Linux kernel versions 2.4 and 2.6. The kernel header files are needed for kernel and 2.4. For the 2.6 kernel, a configuration kernel source tree and a set of makefile rules describing how the modules are built is required.

The driver is supplied in both source RPM package format and a compressed tar file. The procedure for installation of each format is described in the following sections.

Install from Source RPM

1. Log in to the LINUX system as root user.

> **Notes:**
> The <packages directory> path name in the following instructions will be different depending on the LINUX distribution you have installed. (i.e. Redhat will have a "redhat" directory; Suse will have a "packages" directory)
>
> The *<rpm build command>* will change depending on the version of the RPM utilities installed. For newer versions (i.e. 4.2) , the *<rpm build command>* is "rpmbuild". For older versions use "rpm".

2. At the LINUX prompt, copy the supplied **perle-serial-***<version>***-***<release>***.src.rpm** file onto your system in the **/tmp** directory.

3. Install the source rpm by typing the following command:

   rpm –ivh perle-serial-*<version>*-*<release>*.src.rpm

4. Build the binary RPM package for your system by entering the following commands:

   cd /usr/src/<packages directory>/SPECS

   ***<rpm build command>* -bb perle-serial-*<version>*.spec**

5. Install the binary RPM which was just created. Enter the following commands:

   cd /usr/src/<packages directory>/RPMS/*<arch>*

   rpm –ivh perle-serial-*<version>*-*<release>*.*<arch>*.rpm

The *<arch>* value is the architecture of your LINUX machine such as "i386" or "alpha".

Install from Tar File Driver Version 3.4.x or Below

1. Log in to the LINUX system as root user.

2. At the LINUX prompt, copy the supplied perle-serial **.tgz** file onto your system in the **/tmp** directory.

3. Unpack the file using the command:

   tar –xzvf perle-serial-*<version>*-*<release>*.tgz

4. Build and install the perle-serial software by entering the following commands:

   cd /tmp/perle-serial-*<version>*-*<release>*

   ./tar_install.sh

Install from Tar File Driver Version 3.5.x or Higher

1. Log in to the LINUX system as root user.
2. At the LINUX prompt, copy the supplied perle-serial **.tgz** file onto your system in the **/tmp** directory.
3. Unpack the file using the command:

    tar –xzvf perle-serial-<*version*>-<*release*>.tgz

4. In the directory run:

    make

Note: If the parallel port driver has been installed, then the system will need to be rebooted to complete the uninstall proces.

Creating Devices for the Attached Ports

After the SPEED LE or SPEED LE Express cards and the new driver have been installed, terminal devices will need to be created for the added ports. This can be done be using the **ps_addports** utility.

To use the ps_addports script, enter the following command:

ps_addports m n

where:

m is the first port device (starting at 0)
n is the last port device to add.

The port devices will be created in the /dev directory and will have the following format:

where **nn** is the 2 digit port number.

The perle-serial driver has been installed so that it will automatically be loaded the first time a SPEED LE or SPEED LE Express device is used. However, if more than one SPEED LE or SPEED LE Express card was installed in the Linux machine, then the driver can be manually loaded to determine which terminal device numbers have been assigned to each card.

To load the driver, enter the command:

modprobe perle-serial

Review the messages in the file **/var/log/messages.**

Once the port devices have been created, they may be used as standard LINUX serial TTYs.

Setting the DSR Signal

The **setultrap** utility can be used to configure the DSR Always On option. This feature is used for systems where the wiring does not support the DSR signal but the Host application still requires that the DSR be active. When the DSR Always On option to set to "on," the driver will always report to the application that the DSR signal is "on". The syntax for the command is:

To use the **setultrap** utility, enter the following command:

> setultrap -f *device name* -r on|off|list

where:

> **-f** specifies the port the action should be taken on.
> - **/dev/ttyPS1** specifies port 1
> - **/dev/ttyPS1,/dev/ttyPS64** specifies port 1 through port 64 (ranges are separated by a comma with no space between them)
>
> **-r** sets DSRAlwaysOn option on or off for serial devices(s). Use list to see the existing configuration. By default this option is set to off.

Uninstalling the SPEED LE or Speed LE Express Driver for Linux

To uninstall the driver (RPM), enter the following command:

rpm -e perle-serial

To uninstall the driver (TAR) version 3.5.x or higher, enter the following command:

make uninstall

To uninstall the driver (TAR) version 3.4.x or lower, enter the following command:

./tar_uninstall.sh

Installing Host Cards and Cable Accessories

This section describes the mechanical installation of the SPEED LE and SPEED LE Express host cards and associated connector boxes and cables for 1,2, 4, and 8 ports and includes the following;

- **Installing SPEED LE and SPEED LE Express Cards** on page **27**

- **Installing Cables and Connector Boxes** on page **28**

Installing SPEED LE and SPEED LE Express Cards

This section describes the mechanical installation of SPEED LE and SPEED LE Express cards.

To install a SPEED LE or SPEED LE Express 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 unplug the power cord.**

1. Turn off the power to your system and unplug the power cord.
2. Remove the system cover to expose the inside of the connector panel for host cards.

3. Insert the SPEED LE or SPEED LE Express card you want to install into a vacant host PCI card slot and secure in place as shown in the next picture.

	Caution
⚠️	Full anti-static precautions should be taken when handling host cards.
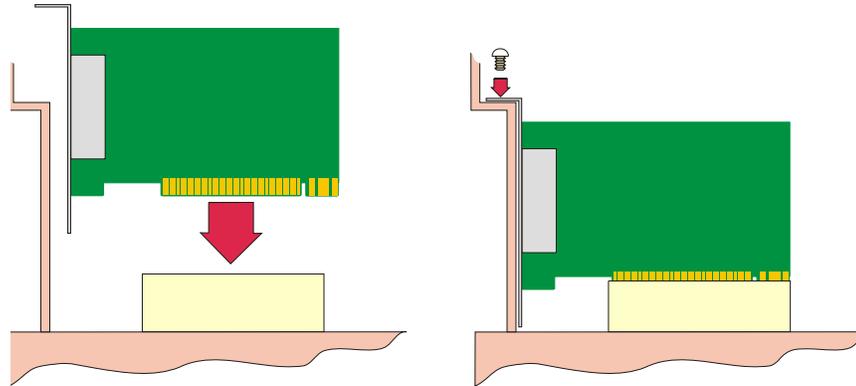
4. Repeat step **3.** until you have installed all the SPEED LE or SPEED LE Express cards you want.

5. Replace and secure the system cover.

Installation of SPEED LE or SPEED LE Express cards is now complete.

Installing Cables and Connector Boxes

This section describes the mechanical installation of cables and connector boxes to the SPEED LE and SPEED LE Express host cards for 1, 2, 4, and 8 ports and includes the following;

- **Installing cables on SPEED1 LE, SPEED2 LE, and SPEED4 LE cards** on page **28**.

- **Installing Fan-out Cables and Connector Boxes on SPEED4 LE HD and SPEED8 LE HD Cards** on page **29**.

For information on available connectors and their pinouts and cabling, see **Chapter 3 Cabling Information**.

Installing cables on SPEED1 LE, SPEED2 LE, and SPEED4 LE cards

The SPEED1 LE has a D89M connector on the back panel.

The SPEED2 LE and SPEED4 LE each have RJ45 connectors on the back panel. There is one for each serial port and they are labelled 1 to 4.

Installing Fan-out Cables and Connector Boxes on SPEED4 LE HD and SPEED8 LE HD Cards

SPEED4 LE HD and SPEED8 LE HD cards have a single VHDCI-68 connector on the back panel. It provides the signals for 4 or 8 serial ports.

A fan-out cable or connector box with the proper individual connectors can be plugged into the card to provide the desired interface. The port numbers will be identified on the interface connectors or connector box.

Note

The SPEED LE fan-out cables and connector box cable need to be secured or supported in case of sudden contact or excessive weight on the cables. Please ensure that adequate caution is taken to avoid possible damage to the SPEED LE card or Host system. This can be accomplished by securing the cable(s) to a rack or to the back of the server as shown below:

Removing Host Cards

To remove any SPEED LE or SPEED LE Express 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 unplug the power cord.**

1. Turn off the power to your system and unplug the power cord.
2. Remove the system cover to expose the inside of the connector panel for host cards.
3. Disconnect any cables or connector boxes connected to the card you want to remove.
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.
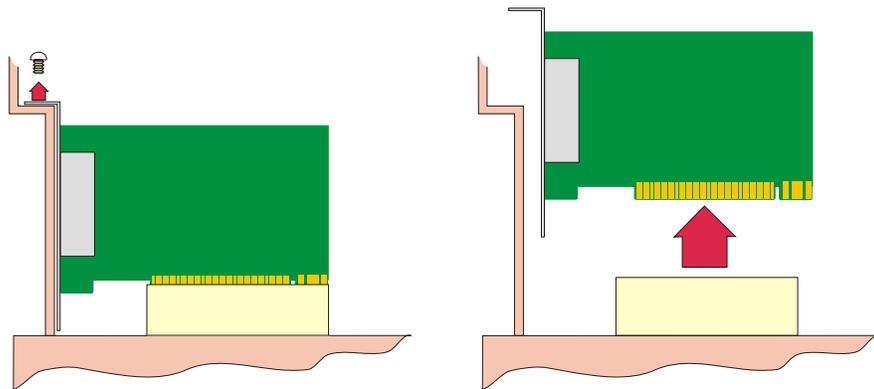
5. Repeat from step **3.** until you have removed all the host cards you want.
6. Replace and secure the system cover.
7. Plug in the mains lead and turn on the power.

Removal of SPEED LE or SPEED LE Express card is now complete.

Chapter 3 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 SPEED LE and SPEED LE Express serial adaptor cards.

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

This chapter includes the following sections:

- **Definitions of Signals and Direction** on page **32**

- **Host Card Back Panel Connectors and Pinouts** on page **34**

- **Connector Box and Cable Guide** on page **43**

- **Connector Box and Cable Pinouts** on page **44**

- **Low Profile Bracket Conversion** on page **52**

Definitions of Signals and Direction

EIA-232	Direction	Description
RI	In	Ring Indicator
DCD	In	Data Carrier Detect
RTS	Out	Request To Send
DSR	In	Data Set Ready
TXD	Out	Transmit Data
RXD	In	Receive Data
S-GND		Signal Ground
CTS	In	Clear to Send
DTR	Out	Data Terminal Ready
C-GND		Chassis Ground

DB9 Back Panel Connectors and Pinout

The following diagram shows the SPEED1 LE and SPEED LE Express standard and Low Profile back panels respectively.
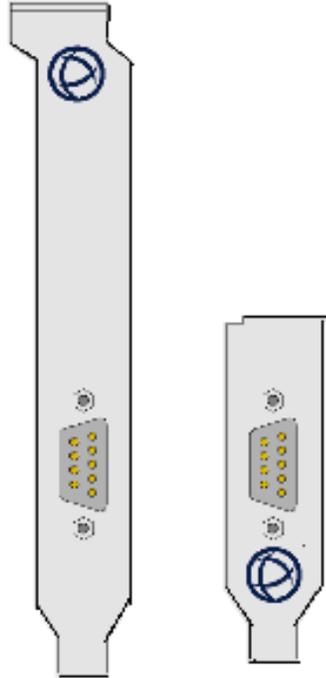
DB9M pin	EIA-232
1	DCD
2	RXD
3	TXD
4	DTR
5	S-GND
6	DSR
7	RTS
8	CTS
9	RI
10	C-GND

Definitions of Signals and Direction

Host Card Back Panel Connectors and Pinouts

This section contains diagrams and pinout information for the SPEED LE and SPEED LE Express host card back panel connectors contains the following;

SPEED LE RJ45 Back Panel Connectors and Pinout

The following diagram shows the SPEED2 LE and SPEED4 LE RJ-45 cards back panel.
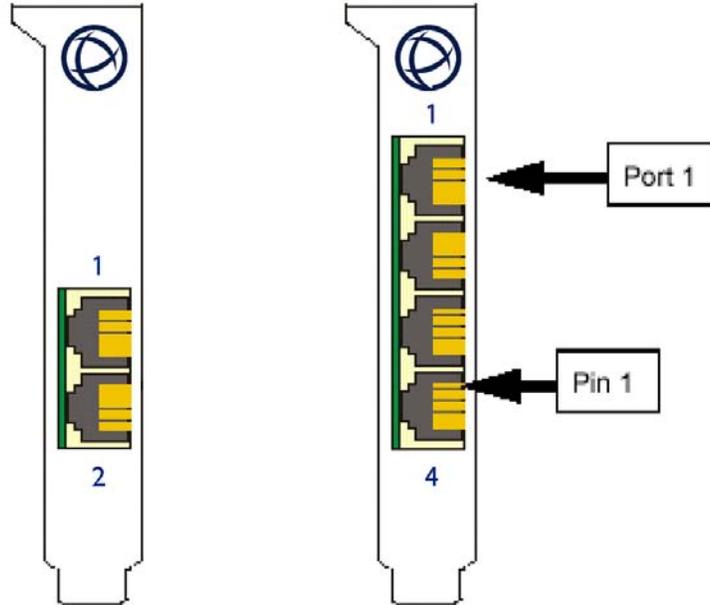
The RJ45 connector has a 10-pin configuration. If you require an 8-pin connector configuration, use the pinouts in the RJ45 8-pin column. The connector pinout for each RJ45 socket fitted to the SPEED LE cards is as follows;

RJ45 10-pin	EIA-232	DIRECTION	RJ45 8-pin
1	RI	IN	N/A
2	DCD	IN	1
3	DTR	OUT	2
4	DSR	IN	3
5	GND		4
6	TXD	OUT	5
7	RXD	IN	6
8	RTS	OUT	7
9	CTS	IN	8
10			N/A
Shell	C-GND		Shell

SPEED LE Express RJ45 Back Panel Connectors and Pinout

The following diagram shows the SPEED2 LE Express and SPEED4 LE Express RJ-45 cards back panel.
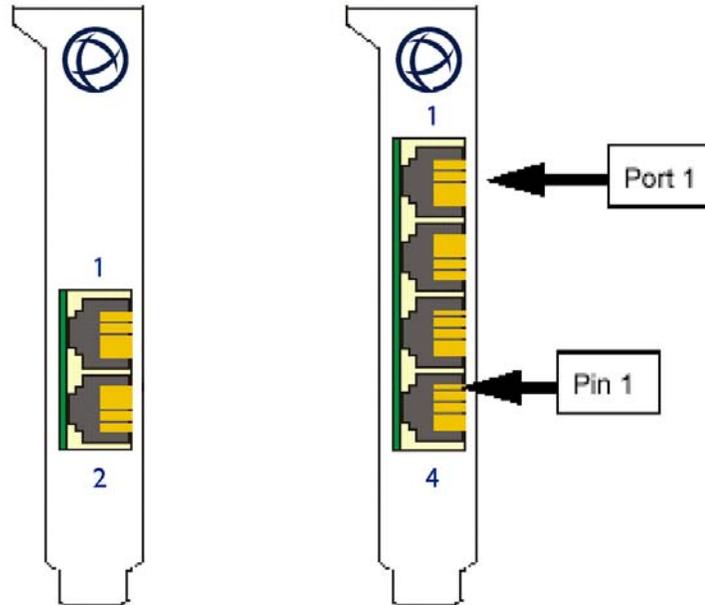
The RJ45 connector has a 10-pin configuration. If you require an 8-pin connector configuration, use the pinouts in the RJ45 8-pin column. The connector pinout for each RJ45 socket fitted to the SPEED LE Express cards is as follows;

RJ45 10-pin	EIA-232	RJ45 8-pin
1	RI	N/A
2	DCD	1
3	RTS	2
4	DSR	3
5	TXD	4
6	RXD	5
7	S-GND	6
8	CTS	7
9	DTR	8
10		N/A
Shell	C-GND	Shell

DB25 Femaie Parallel Port Pinouts

The SPEED LE and SPEED LE Express parallel port pinouts are provided below for cards that support the parallel port.

DB25 Pin	Cent Pin	Direction	Signal Name	Function Notes
1	1	out	-Strobe	Set Low p1ulse >0.5 us to send
2	2	out	Data 0	Set to least significant data
3	3	out	Data 1	
4	4	out	Data 2	
5	5	out	Data 3	
6	6	out	Data 4	
7	7	out	Data 5	
8	8	out	Data 6	
9	9	out	Data 7	Set to most significant data
10	10	in	-Ack	IRQ; Low Pulse ~ 5 uS, after accept
11	11	in	+Busy	High for Busy/Offline/Error
12	12	in	+PaperEnd	High for out of paper
13	13	in	+SelectIn	High for printer selected
14	14	out	-AutoFd	Set Low to autofeed one line
15	32	in	-Error	Low for Error/Offline/PaperEnd
16	31	out	-Init	Set Low pulse > 50uS to init
17	36	out	-Select	Set Low to select printer
18-25	19-30, 33,17,16	----	Ground	Do not connect any of these grounds to a shield

VHDCI-68 Ultra SCSI Back Panel Connectors and Pinout

The following diagram shows the SPEED4 LE HD Low Profile and standard back panels respectively.
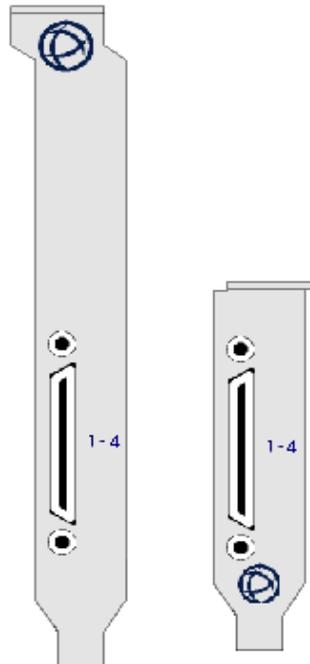
The connector pinout for each VHDCI-68 Ultra SCSI connector fitted to the SPEED4 LE HD Low Profile are as follows:

VHDCI-68 Ultra SCSI Pin Number	EIA-232
1	RXD4
2	CTS4
3	RI4
4	RTS4
5	DCD4
6	DTR4
7	DSR4
8	TXD4

VHDCI-68 Ultra SCSI Pin Number	EIA-232
9	S-GND
10	TXD3
11	DSR3
12	DTR3
13	DCD3
14	RTS3
15	RI3
16	CTS3
17	RXD3
18	RXD2
19	CTS2
20	RI2
21	RTS2
22	DCD2
23	DTR2
24	DSR2
25	TXD2
26	S-GND
27	TXD1
28	DSR1
29	DTR1
30	DCD1
31	RTS1
32	RI1
33	CTS1
34	RXD1
35-42	NC
43	S-GND
44-59	NC
60	S-GND
61-68	NC

Host Card Back Panel Connectors and Pinouts

The following diagram shows the SPEED8 LE HD standard and Low profile back panels respectively
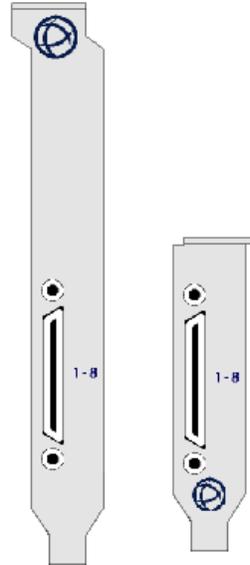
The connector pinout for each VHDCI-68 Ultra SCSI connector fitted to the SPEED8 LE HD, Low profile are as follows;

Ports 1-8 of VHDCI-68 Connector for SPEED8 LE HD adapter cards

VHDCI-68 Ultra SCSI Pin Number	EIA-232
1	RXD7
2	CTS7
3	RI7
4	RTS7
5	DCD7
6	DTR7
7	DSR7
8	TXD7
9	S-GND
10	TXD5
11	DSR5
12	DTR5

VHDCI-68 Ultra SCSI Pin Number	EIA-232
13	DCD5
14	RTS5
15	RI5
16	CTS5
17	RXD5
18	RXD3
19	CTS3
20	RI3
21	RTS3
22	DCD3
23	DTR3
24	DSR3
25	TXD3
26	S-GND
27	TXD1
28	DSR1
29	DTR1
30	DCD1
31	RTS1
32	RI1
33	CTS1
34	RXD1
35	RXD8
36	CTS8
37	RI8
38	RTS8
39	DCD8
40	DTR8
41	DSR8
42	TXD8
43	S-GND

VHDCI-68 Ultra SCSI Pin Number	EIA-232
44	TXD6
45	DSR6
46	DTR6
47	DCD6
48	RTS6
49	RI6
50	CTS6
51	RXD6
52	RXD4
53	CTS4
54	RI4
55	RTS4
56	DCD4
57	DTR4
58	DSR4
59	TXD4
60	S-GND
61	TXD2
62	DSR2
63	DTR2
64	DCD2
65	RTS2
66	RI2
67	CTS2
68	RXD2

Connector Box and Cable Guide

The connector pinout information for the SPEED LE product you are using depends on the number of ports and type of connector box or cable used as detailed in the next table;

Product	Card edge connector	Cable or connector box options	For connector pinouts see...
SPEED LE	RJ45 10-pin	RJ45 - DB25M Converter	See page 45
		RJ45 - DB9M Converter	See page 46
SPEED4 LE HD SPEED8 LE HD	VHDCI-68	RJ45 Connector Box	See page 47
		DB25M Connector Box	See page 48
		DB9M Connector Box	See page 49
		DB25M Fan-out Cable	See page 50
		DB9M Fan-out Cable	See page 51

Connector Box and Cable Pinouts

This section contains pinout information for the SPEED LE product range connector box and cable accessories and contains the following;

- **RJ45 10-pin to DB25 Converter** on page **45**

- **RJ45 10-pin to DB9 Converter** on page **46**

- **RJ45 Connector Box** on page **47**

- **DB25 Connector Box** on page **48**

- **DB9 Connector Box** on page **49**

- **DB25 Fan-Out Cable** on page **50**

- **DB9 Fan-Out Cable** on page **51**

Note
For details of which cables to use with which product, see **Connector Box and Cable Guide** on page **43**.

RJ45 10-pin to DB25 Converter
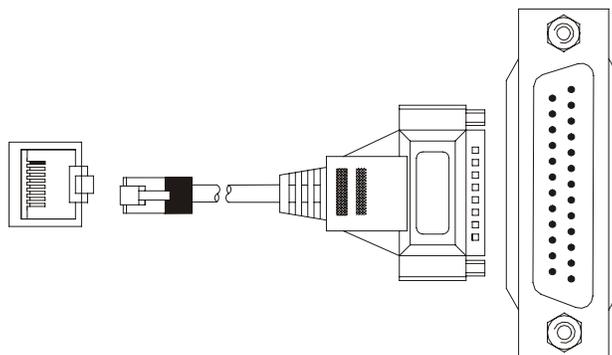
RJ45 pin	DB25 Pin	EIA-232	DIRECTION
1	22	RI	IN
2	8	DCD	IN
3	20	DTR	OUT
4	6	DSR	IN
5	7	GND	
6	2	TXD	OUT
7	3	RxD	IN
8	4	RTS	OUT
9	5	CTS	IN
10	N/C		
1 & Shell	1 & Shell	C-GND	

RJ45 10-pin to DB9 Converter
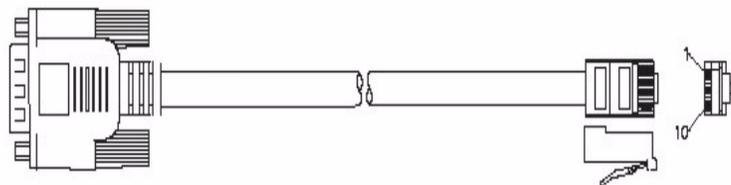
RJ45 pin	DB9 Pin	EIA-232	DIRECTION
1	9	RI	IN
2	1	DCD	IN
3	4	DTR	OUT
4	6	DSR	IN
5	5	GND	
6	3	TXD	OUT
7	2	RXD	IN
8	7	RTS	OUT
9	8	CTS	IN
10	N/C		
Shell	Shell	C-GND	

RJ45 Connector Box
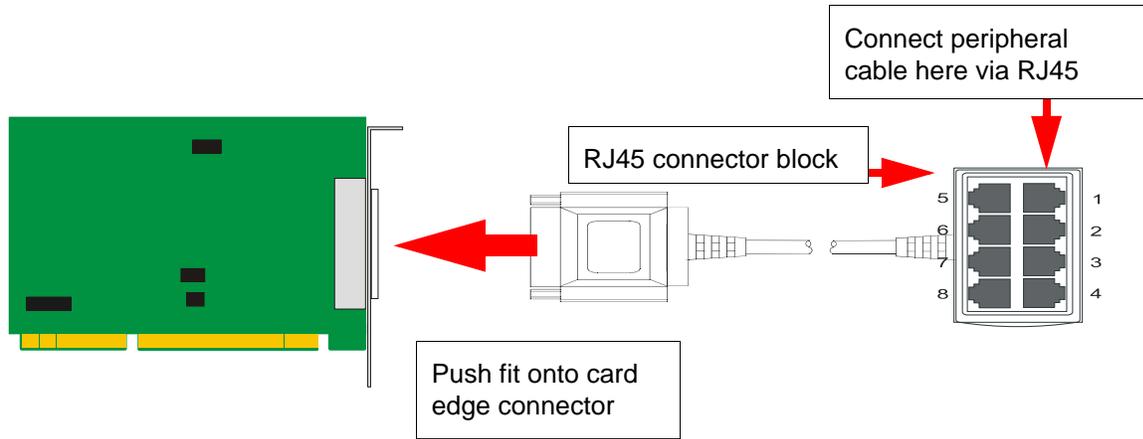
Connect peripheral
cable here via RJ45

RJ45 connector block

Push fit onto card
edge connector

5
6
7
8

1
2
3
4

Note

The SPEED LE connector box cable needs to be secured or supported in case of sudden contact or excessive weight on the cables. Please ensure that adequate caution is taken to avoid possible damage to the SPEED LE card or Host system. This can be accomplished by securing the cable to a rack or to the back of the server.

RJ45 10-pin	RJ45 8-pin	EIA-232
1	N/A	RI
2	1	DCD
3	2	RTS
4	3	DSR
5	4	TXD
6	5	RXD
7	6	S-GND
8	7	CTS
9	8	DTR
10	N/A	NC
Shell	Shell	C-GND

DB25 Connector Box

Note

The SPEED LE connector box cable needs to be secured or supported in case of sudden contact or excessive weight on the cables. Please ensure that adequate caution is taken to avoid possible damage to the SPEED LE card or Host system. This can be accomplished by securing the cable to a rack or to the back of the server.

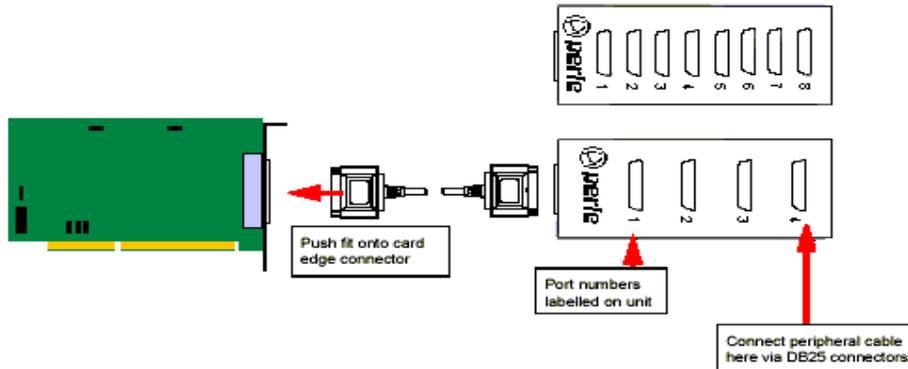| DB25 Pin	EIA-232
1 & Shell	C-GND
2	TXD
3	RXD
4	RTS
5	CTS
6	DSR
7	S-GND
8	DCD
20	DTR
22	RI

DB9 Connector Box

Note	
The SPEED LE connector box cable needs to be secured or supported in case of sudden contact or excessive weight on the cables. Please ensure that adequate caution is taken to avoid possible damage to the SPEED LE card or Host system. This can be accomplished by securing the cable to a rack or to the back of the server.	

DB9 Pin	EIA-232
1	DCD
2	RXD
3	TXD
4	DTR
5	S-GND
6	DSR
7	RTS
8	CTS
9	RI
Shell	C-GND

DB25 Fan-Out Cable

Port numbers labelled on DB25 connectors

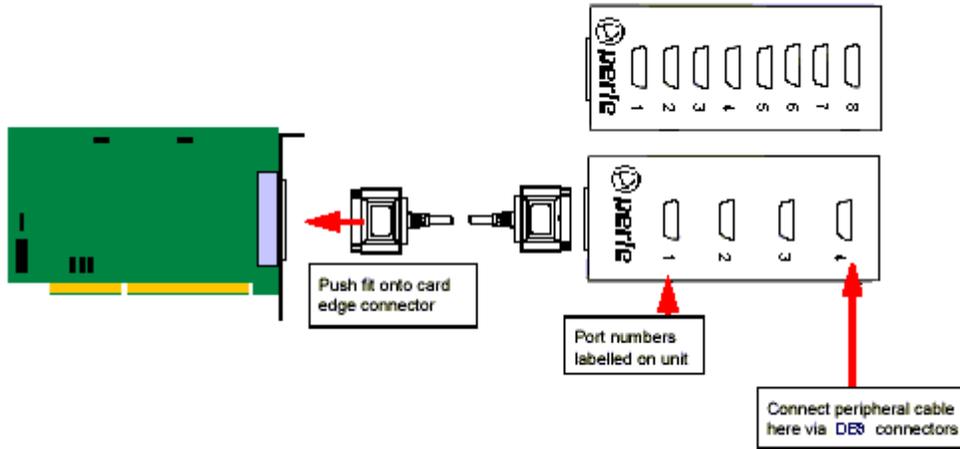Push fit onto card edge connector

Connect peripheral cable here

Note
The SPEED LE fan-out cables need to be secured or supported in case of sudden contact or excessive weight on the cables. Please ensure that adequate caution is taken to avoid possible damage to the SPEED LE card or Host system. This can be accomplished by securing the cables to a rack or to the back of the server.

DB25 Pin	EIA-232
1 & Shell	C-GND
2	TXD
3	RXD
4	RTS
5	CTS
6	DSR
7	S-GND
8	DCD
20	DTR
22	RI

DB9 Fan-Out Cable
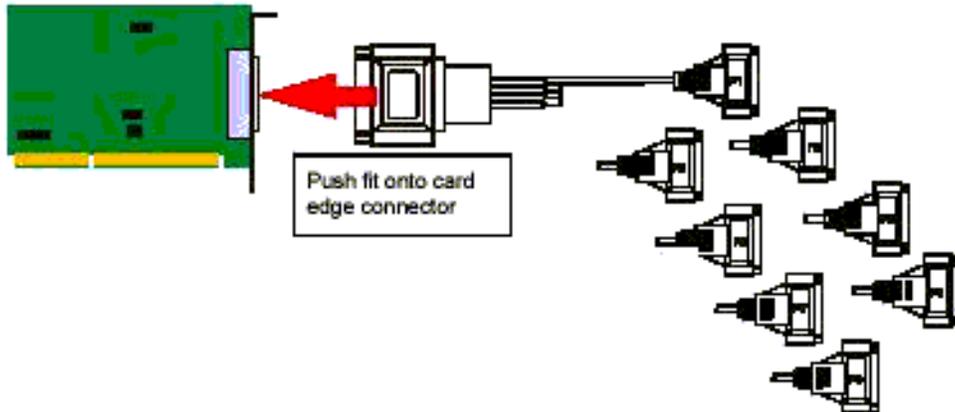
Push fit onto card edge connector

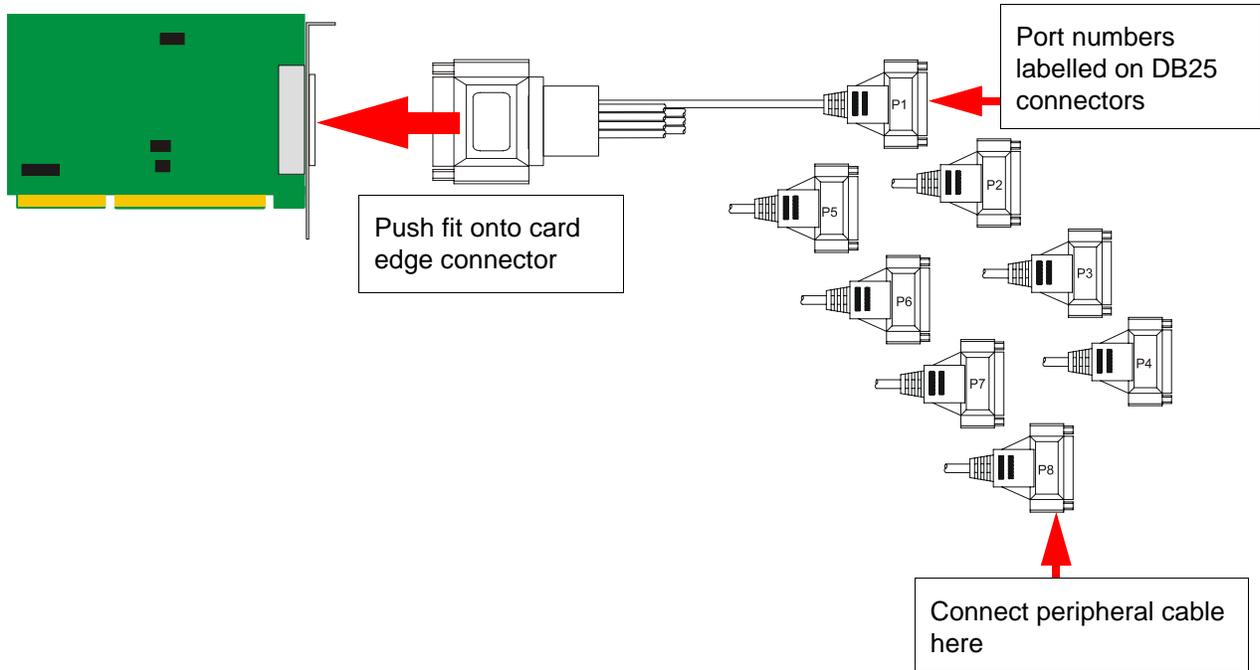| Note |
|------|
| The SPEED LE fan-out cables need to be secured or supported in case of sudden contact or excessive weight on the cables. Please ensure that adequate caution is taken to avoid possible damage to the SPEED LE card or Host system. This can be accomplished by securing the cables to a rack or to the back of the server. |

DB9 Pin	EIA-232
1	DCD
2	RXD
3	TXD
4	DTR
5	S-GND
6	DSR
7	RTS
8	CTS
9	RI
Shell	C-GND

Low Profile Bracket Conversion

The SPEED LE and SPEED LE Express cards come fitted with standard brackets. Additional low profile brackets are included with your SPEED LE and SPEED LE Express cards to accomodate low profile servers. This section describes how to convert your SPEED LE and SPEED LE Express cards from standard to low profile brackets.

To convert a standard profile bracket to a low profile bracket(s) and install it, do the following:

1. Unscrew the screwlocks around each parallel/serial connector. Remove the standard profile bracket.

> **Speed LE 1P and 1S1P models only**
>
> Gently remove the serial/parallel connector(s) from the standard bracket and unscrew the bracket from the serial card. You will see two screws that need to be removed at the top and the bottom of the card near the bracket.

2. For all models except Speed LE 1P and 1S1P, attach the serial low profile bracket and secure with the screwlocks around the serial connector.

> **Speed LE 1P and 1S1P models only**
>
> 1. Attach the low profile bracket with screws to the serial card.
>
>   Align the serial card on top of the low profile bracket mounting tabs and then insert screws into the serial card holes (bracket mounting tabs must be under the serial card).
>
> 2. Secure the low profile bracket with the screwlocks around the serial/parallel connector.

3. Insert the remaining serial/parallel connectors into their appropriate low profile bracket(s) and secure to the bracket(s) with the screwlocks around the serial/parallel connector.

4. Verify that all the serial/parallel connectors are connected to the serial card. The ribbon cables have a notch in the connector that will allow them to be inserted into the serial card in only the proper way.

5. Power off the server and disconnect the power cord from the back of the server that you are going to install the serial card into.

6. Insert the serial card into the server's PCI or PCI Express slot, dependng on the model, and secure it to the chassis with a screw.

7. For any remaining serial/parallel connectors, secure the low profile bracket(s) into adjacent card slots with a screw to the chassis.

8. Power up the server.

Appendix A: 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 LE or SPEED LE Express 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 section, Windows 2000/XP/Server 2003/Vista/Server 2008 on page 54.

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

This section describes troubleshooting SPEED LE products under the Windows 2000, Windows XP, Windows Server 2003, Windows Vista, or Windows Server 2008 operating systems and includes the following sections;

> **Note**
>
> To contact Perle for technical support, see **Appendix B: Contacting Perle**.

- **General Troubleshooting under Windows 2000/XP/Server 2003/Vista/Server 2008** on page **55**.

- **Windows Error Messages** on page **55**.

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 LE card(s) and reboot. See **page 30**. 2. Try installing a different host card in case the one currently installed is faulty. See **page 27**.
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.
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.
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 LE ports do not work after installation.	1. Check the Windows Event Log and follow the suggested actions.
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.
SPEED Windows driver fails during normal operation, symptoms either: black screen, machine reboots or system hangs	1. Contact Technical Support. See **Appendix B: 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 2000, Windows XP, Windows Server 2003, or Windows Server 2008 user documentation or help system for details.

For general problems, see **General Troubleshooting under Windows 2000/XP/Server 2003/Vista/Server 2008** on page **55**.

Appendix B: 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;

- **Making a technical support query** on page **56**

- **Repair procedure** on page **58**

- **Feedback about this manual** on page **58**

- **Perle support centres worldwide** on page **59**

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: support@perle.com

Making a technical support query

This section contains the following information about making a query;

- **Who to contact** on page **56**

- **Information needed when making a query** on page **57**

- **Making a support query via the Perle web page** on page **58**

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 at the offices listed below.

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 **Perle support centres worldwide** on page **59** 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 **Perle support centres worldwide** on page **59** 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;

ptact@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).

Perle support centres worldwide

<table>
<tr><td>Note</td></tr>
<tr><td>Perle offers free technical support to Perle Authorised Distributors and Registered Perle Resellers.</td></tr>
<tr><td>To access technical support please visit the Perle website at
www.perle.com/support_services/index.shtml.</td></tr>
<tr><td>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.</td></tr>
</table>

Country	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**

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