

SPEED LE Serial Adaptors

User Guide

*Part number: 5500174-10
Date: 2 December 2005*

Navigating around this manual



Using this on-line manual. See page 5.



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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 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 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

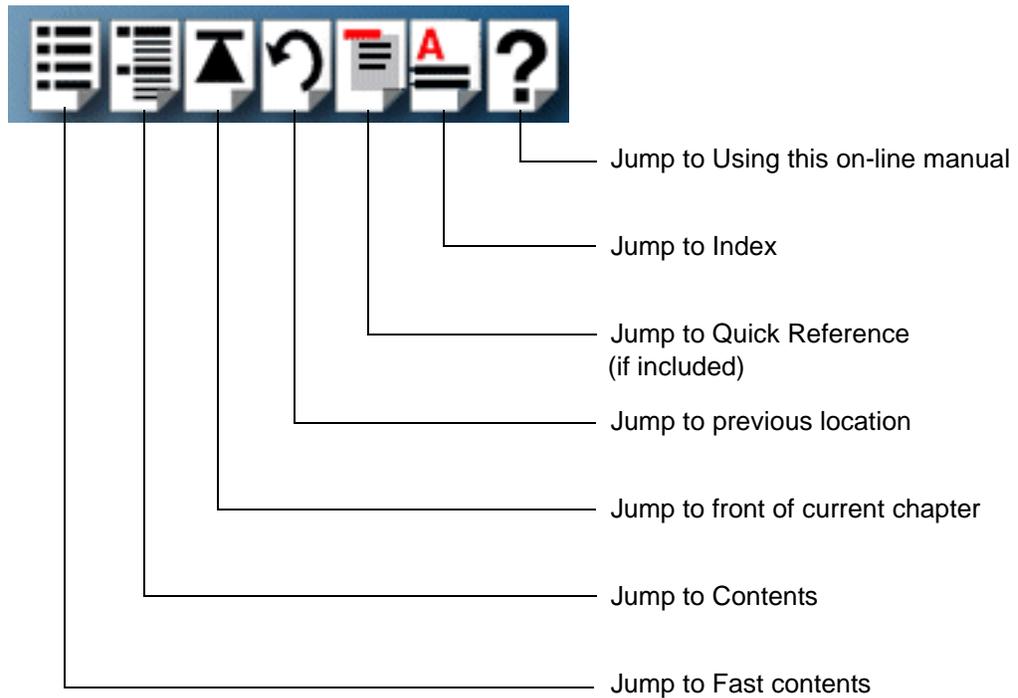
Dangerous voltages exist inside computer systems. Before installing host cards in your system, turn off the power supply and disconnect the power cord.

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;



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.

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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 serial adaptor cards, driver software and utilities.

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

This chapter includes the following sections;

- [About the SPEED LE Serial Adaptor cards](#) on page 11
- [Connection accessories](#) on page 12

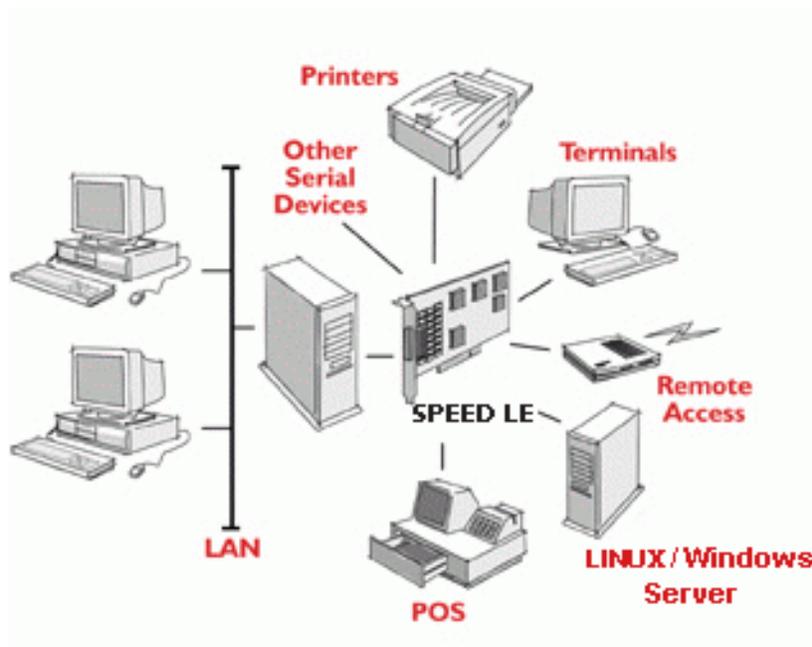
About the SPEED LE Serial Adaptor cards

The SPEED LE 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 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 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 serial adaptor cards make it suitable for any modem or ISDN TA application.

Note

To use the SPEED LE 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 14 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 serial adaptor cards, associated hardware and software.

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

Note

The procedure for installing and configuring SPEED LE serial adaptor cards varies for different operating systems. Please read [Before you start](#) on page 14 before commencing installation.

This chapter includes the following sections;

- [Before you start](#) on page 14
- [Downloading drivers from the Perle web site](#) on page 15
- [Installing under Windows 2000/XP/Server 2003](#) on page 16
- [Installing under Linux](#) on page 24
- [Installing host cards and cable accessories](#) on page 28
- [Removing host cards](#) on page 31.

Before you start

Before you install your SPEED LE host cards and software, note that the procedure for installing and configuring SPEED LE 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](#) on page **16**
- [Installing under Linux](#) on page **24**

Downloading drivers from the Perle web site

You can install the SPEED LE driver and utility software from the Perle web site. 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. 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 **14**.

Installing under Windows 2000/XP/Server 2003

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

This section includes the following;

- [General setup procedure for Windows 2000/XP/Server 2003](#) on page [17](#)
- [Installing device drivers and utilities onto your system](#) on page [18](#)
- [Configuring serial ports](#) on page [22](#).

General setup procedure for Windows 2000/XP/Server 2003

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

1. Install any SPEED LE cards and cables or connector boxes you require into your system. See [Installing host cards and cable accessories](#) on page 28.
2. Using the Windows **Found New Hardware Wizard**, install the SPEED LE device driver software. See [Installing device drivers and utilities onto your system](#) on page 18

Note

The SPEED LE device drivers for Microsoft Windows 2000, XP or Server 2003 are not included on your Windows 2000, Windows XP, or Window Server 2003 CDROM.

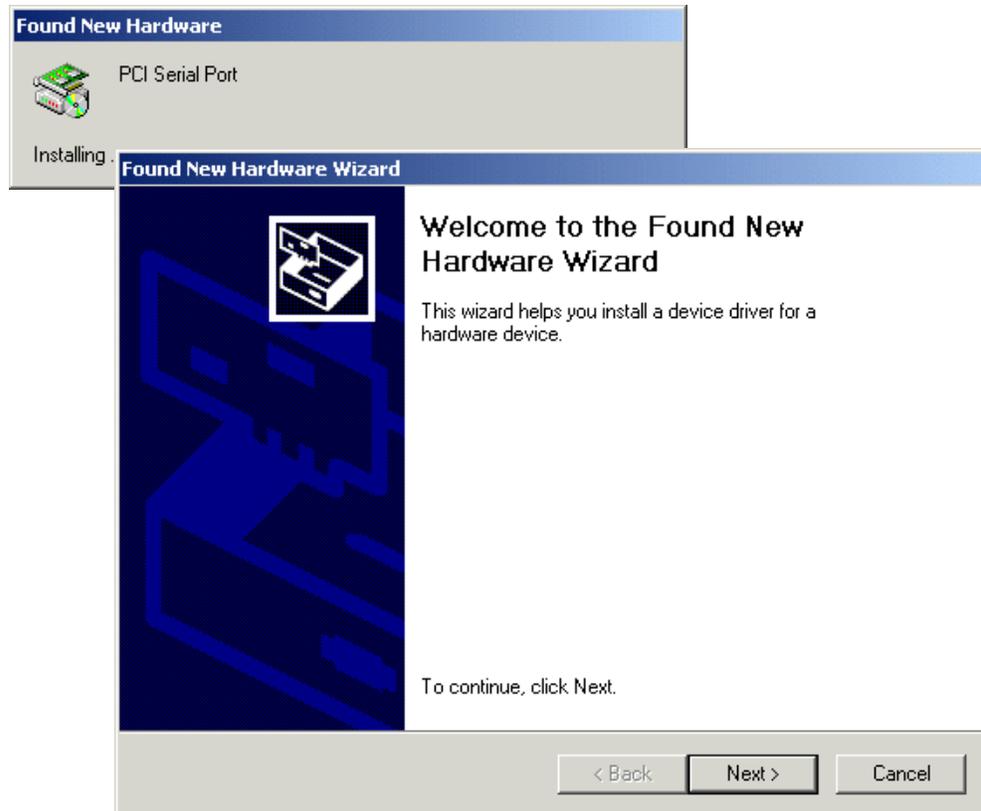
3. If required, remove any host cards you want from your system. See [Removing host cards](#) on page 31.
4. Using the Windows **Device Manager**, configure the serial ports you have added to the system. See [Configuring serial ports](#) on page 22.

Installing device drivers and utilities onto your system

To install or enable the SPEED LE 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 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 **Next >** button.

3. Using the instructions given in the next table, use the Found New Hardware wizard to install your device drivers.

In this Wizard page	Do the following...
 <p>Install Hardware Device Drivers A device driver is a software program that allows an operating system to communicate with a hardware device.</p>	<p>a. In the Install Hardware Device Drivers page, select the Search for a suitable device driver for my device option and click on the Next > button.</p>
 <p>Locate Driver Files Where do you want to search for driver files?</p>	<p>b. In the Locate Driver Files page, select the Specify a location option and then click on the Next > button. A pop-up window now appears prompting you for the location of the drivers you want to install</p> <p>c. In the pop-up select a location for the Copy manufacturer's files from field and click on OK. The Driver Files Search Results page is now displayed showing the driver windows has selected for you.</p>
 <p>Driver Files Search Results The wizard has finished searching for driver files.</p>	<p>d. In the Driver Files Search Results page, click on the Next > button To use the suggested driver.</p>

The driver now starts and adds ports resulting from the cards you've installed. A message displays on completion.



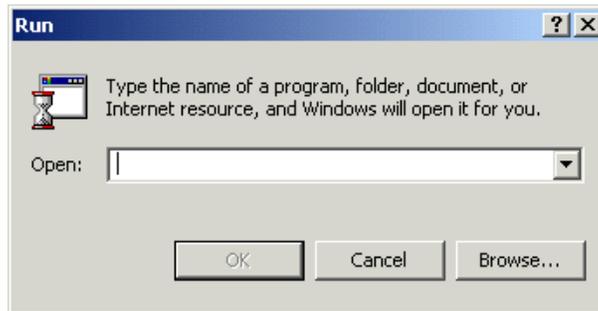
Click on the **Finish** button to close the wizard.

Note

Whenever you add any SPEED LE hardware to your system, by default Windows will use its latest digitally signed driver in its driver database. To ensure you install the latest driver you must now run the **update.exe** program using step 4. of this procedure. This ensures that every device currently installed in the system is updated to use the driver on the CDROM.

*Running
update.exe*

4. In the Windows desktop, click on the **Start** button and select the **Run** option
The Run window is now displayed.



5. In the run window enter the path and program name (**update.exe**), then click on the **OK** button.

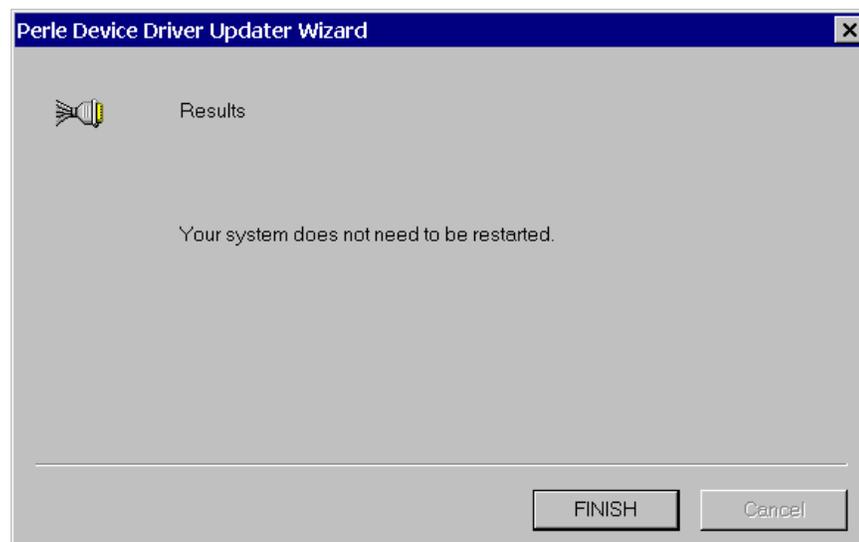
Note

You can find this program in the `\drivers\SPEEDLE\w2kx.y.z` directory on the **CDROM**, where x.y.z is the version number of the driver

The digital signature window may now be displayed as shown in the next picture.



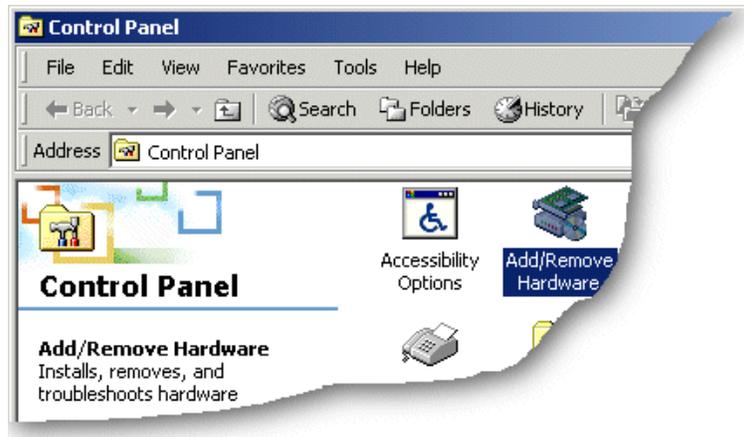
6. If this happens in the window click on the **Yes** button to close the window. The program now runs and displays the following message shown on completion.



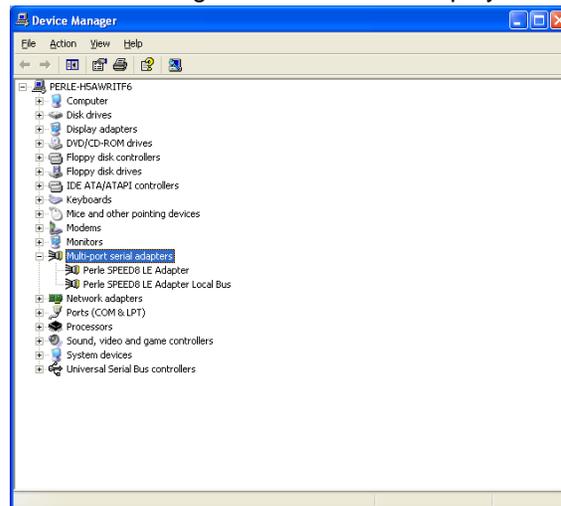
Configuring serial ports

To configure SPEED LE serial ports under Windows 2000, XP or Server 2003, proceed as follows;

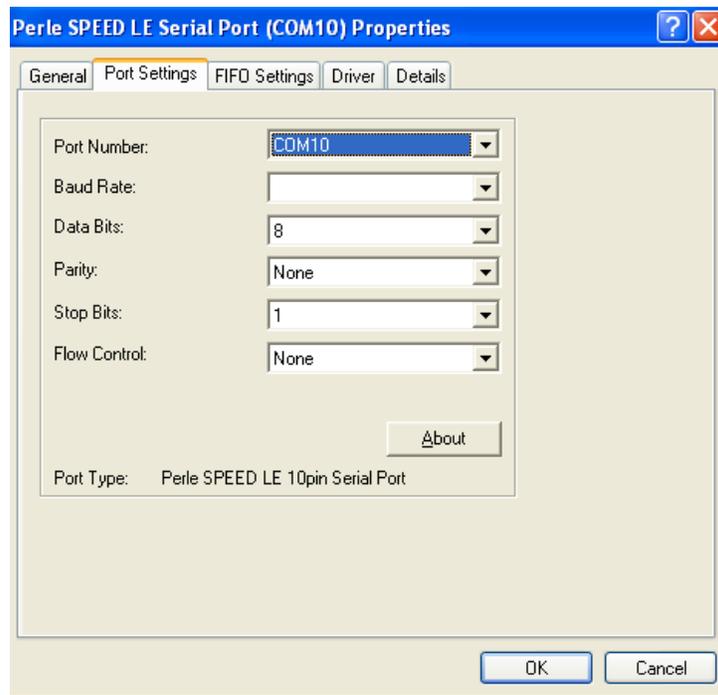
1. In the Windows desktop, click on the **Start** button and select **Settings > Control Panel**
The control panel window is now displayed.



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.

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 25
- [Installing Drivers onto your system](#) on page 25
- [Creating devices for the attached ports](#) on page 27

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 cards you require into your system. See [Installing host cards and cable accessories](#) on page 28.
2. Install the SPEED LE Linux drivers onto your system using the procedures described in [Installing Drivers onto your system](#) on page 25.
3. Create devices for the required ports using the procedures detailed in [Creating devices for the attached ports](#) on page 27.

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

Installing Drivers onto your system

SPEED LE 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 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 as follows:

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

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

Creating devices for the attached ports

After the SPEED LE cards and the new driver have been installed, terminal devices will need to be created for the added ports. This can be done by 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:

```
/dev/ttyPSnn
```

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 an SPEED LE device is used. However, if more than one SPEED LE card has been 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.

Uninstalling the SPEED LE Driver for Linux

To uninstall the driver enter the following command:

```
rpm -e perle-serial
```

Installing host cards and cable accessories

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

- [Installing SPEED LE cards](#) on page [29](#)
- [Installing cables and connector boxes](#) on page [30](#)

Installing SPEED LE cards

This section describes the mechanical installation of SPEED LE cards.

To install an SPEED LE 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

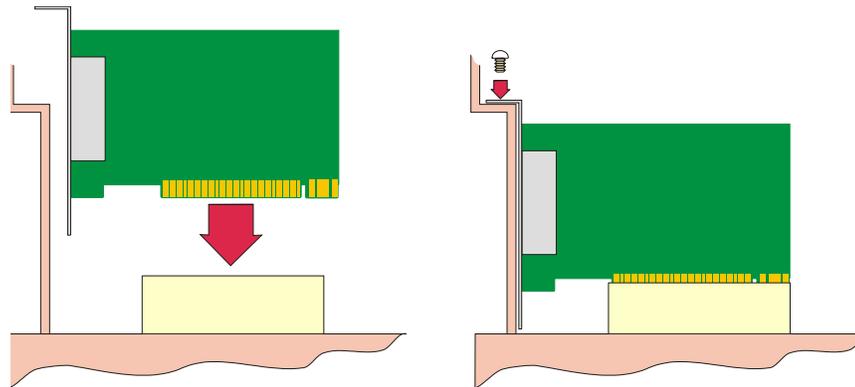
Dangerous voltages exist inside computer systems. Before installing host cards in your system, turn off the power supply and unplug the power cord.

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 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 cards you want.
5. Replace and secure the system cover.

Installation of SPEED LE cards is now complete.

Installing cables and connector boxes

This section describes the mechanical installation of cables and connector boxes to the SPEED LE 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 30
- [Installing fan-out cables and connector boxes on SPEED4 LE HD and SPEED8 LE HD cards](#) on page 30

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.

Removing host cards

To remove any SPEED LE 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

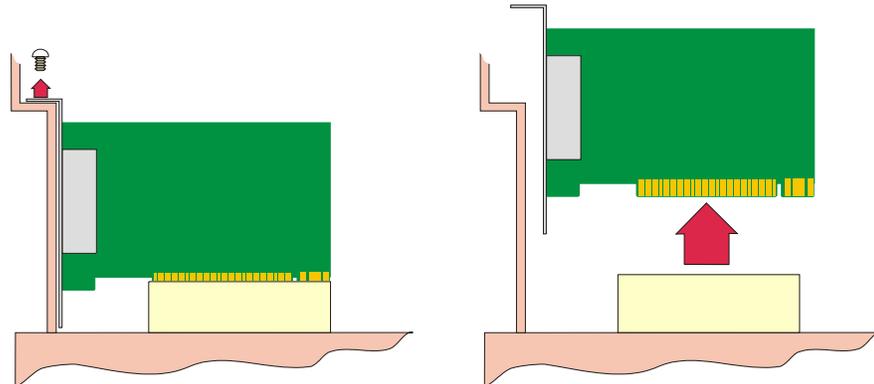
Dangerous voltages exist inside computer systems. Before removing host cards from your system, turn off the power supply and unplug the power cord.

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 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 serial adaptor cards.

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

This chapter includes the following sections;

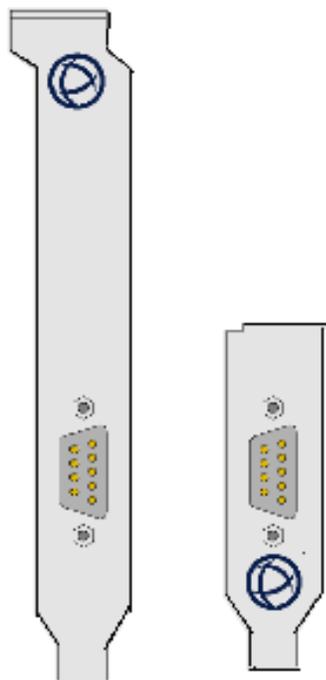
- [Definitions of Signals and Direction](#) on page **33**
- [Host card back panel connectors and pinouts](#) on page **35**
- [Connector box and cable guide](#) on page **42**
- [Connector box and cable pinouts](#) on page **43**

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 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

Host card back panel connectors and pinouts

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

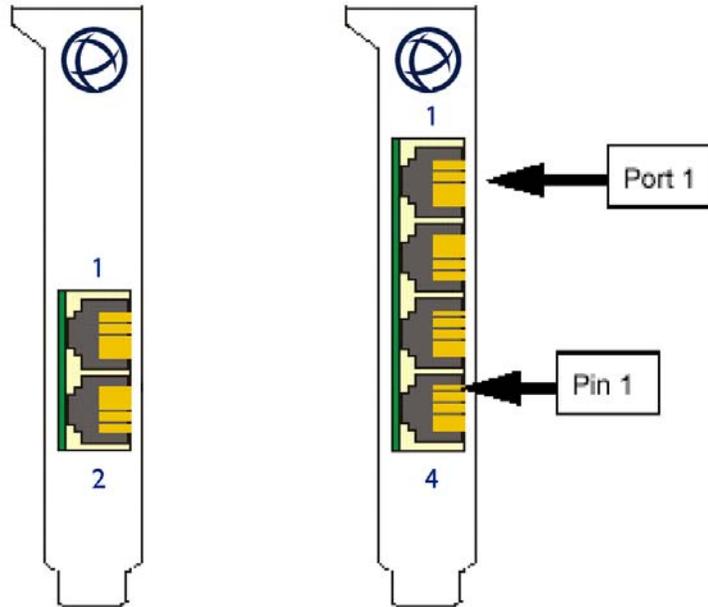
[DB9 back panel connectors and pinout](#) on page [34](#)

[RJ45 back panel connectors and pinout](#) on page [36](#)

[VHDCI-68 Ultra SCSI back panel connectors and pinout](#) on page [37](#)

RJ45 back panel connectors and pinout

The following diagram shows the SPEED2 LE and SPEED4 LE RJ-45 cards back panel.

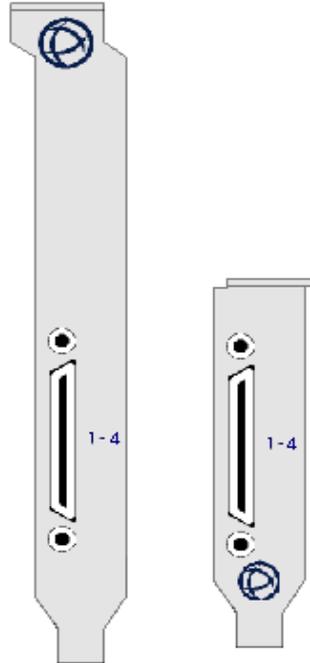


The connector pinout for each RJ45 socket fitted to the SPEED LE cards are as follows;

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

VHDCI-68 Ultra SCSI *back panel connectors and pinout*

The following diagram shows the SPEED4 LE HD Low Profile and standard back panels respectively.

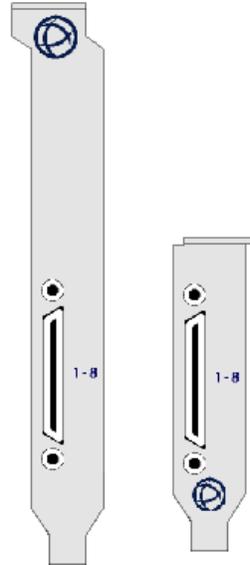


The connector pinout for each VHDCI-68 Ultra SCSI connector fitted to the SPEED4 LE HD Low Profile are as follows:

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

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 44
		RJ45 - DB9M Converter	See page 45
SPEED4 LE HD SPEED8 LE HD	VHDCI-68	RJ45 Connector Box	See page 46
		DB25M Connector Box	See page 47
		DB9M Connector Box	See page 48
		DB25M Fan-out Cable	See page 49
		DB9M Fan-out Cable	See page 50

Connector box and cable pinouts

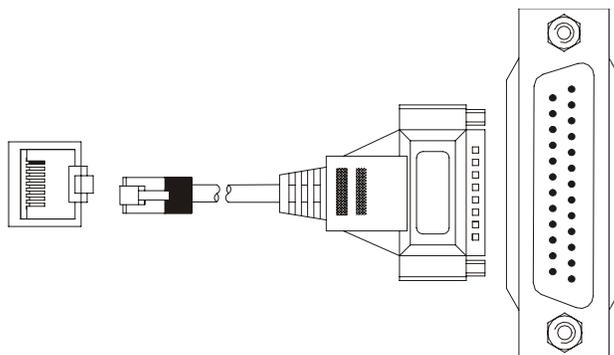
This section contains pinout information for the SPEED LE product range connector box and cable accessories and contains the following;

- [RJ45 10-pin to DB25 converter](#) on page [44](#)
- [RJ45 10-pin to DB9 converter](#) on page [45](#)
- [RJ45 connector box](#) on page [46](#)
- [DB25 connector box](#) on page [47](#)
- [DB9 connector box](#) on page [48](#)
- [DB25 Fan-out cable](#) on page [49](#)
- [DB9 Fan-out cable](#) on page [50](#)

Note

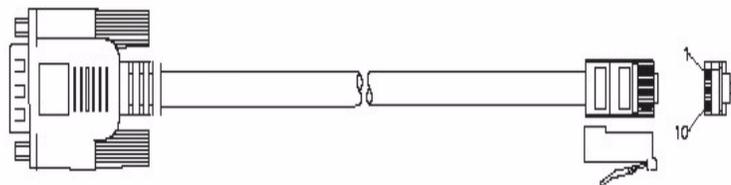
For details of which cables to use with which product, see [Connector box and cable guide](#) on page [42](#).

RJ45 10-pin to DB25 converter



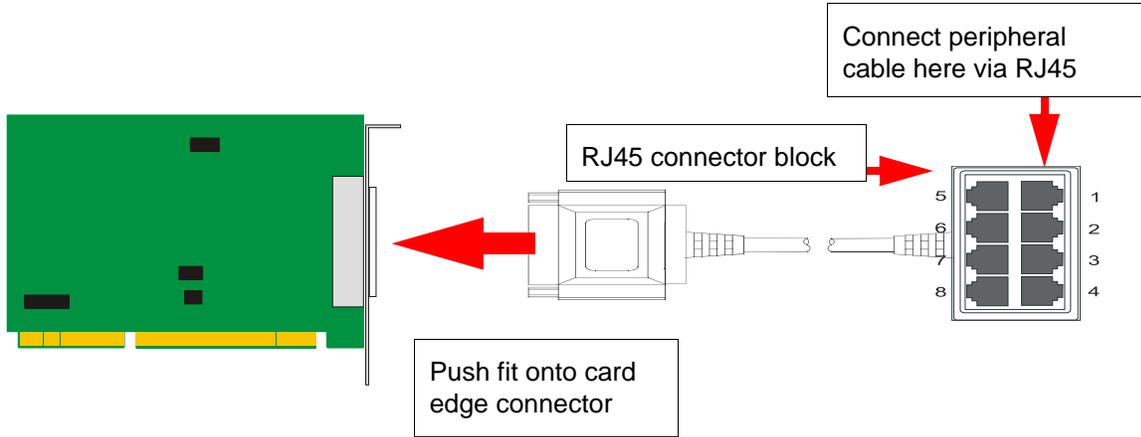
RJ45 pin	DB25 Pin	EIA-232	DIRECTION
1	22	RI	IN
2	8	DCD	IN
3	20	DTR	OUT
4	6	DSR	IN
5	7	GND	
6	2	TXD	OUT
7	3	RxD	IN
8	4	RTS	OUT
9	5	CTS	IN
10	N/C		
1 & Shell	1 & Shell	C-GND	

RJ45 10-pin to DB9 converter



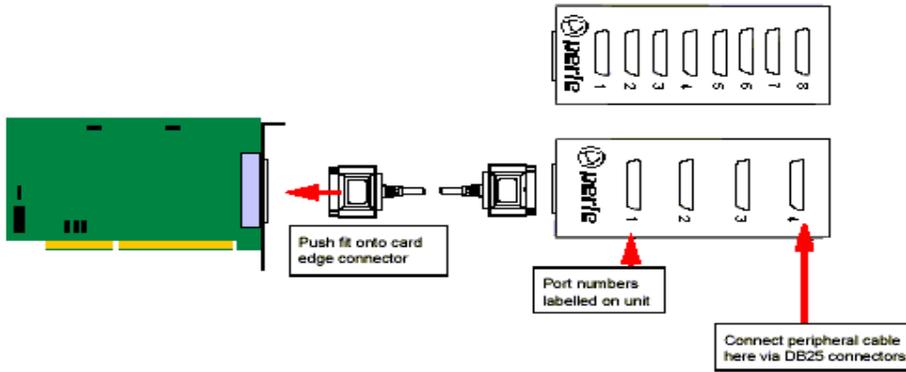
RJ45 pin	DB9 Pin	EIA-232	DIRECTION
1	9	RI	IN
2	1	DCD	IN
3	4	DTR	OUT
4	6	DSR	IN
5	5	GND	
6	3	TXD	OUT
7	2	RXD	IN
8	7	RTS	OUT
9	8	CTS	IN
10	N/C		
Shell	Shell	C-GND	

RJ45 connector box



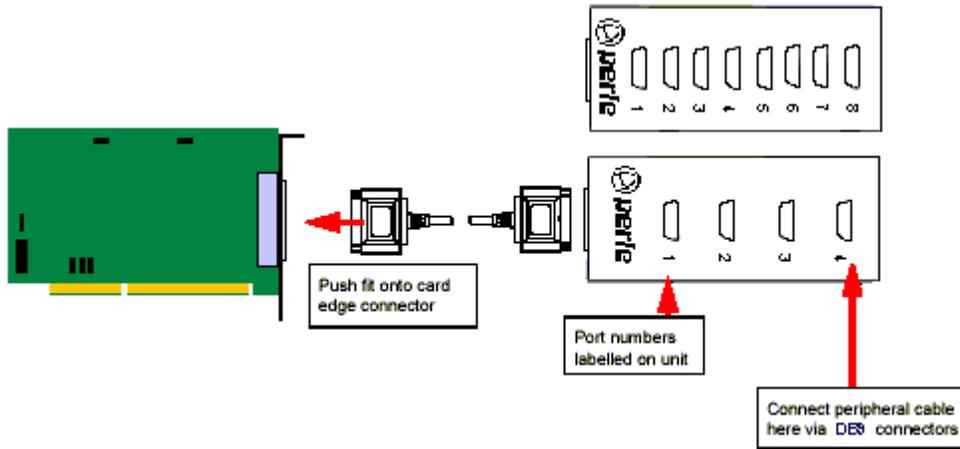
RJ45 10-pin	RJ45 8-pin	EIA-232
1	N/A	RI
2	1	DCD
3	2	RTS
4	3	DSR
5	4	TXD
6	5	RXD
7	6	S-GND
8	7	CTS
9	8	DTR
10	N/A	NC
Shell	Shell	C-GND

DB25 connector box



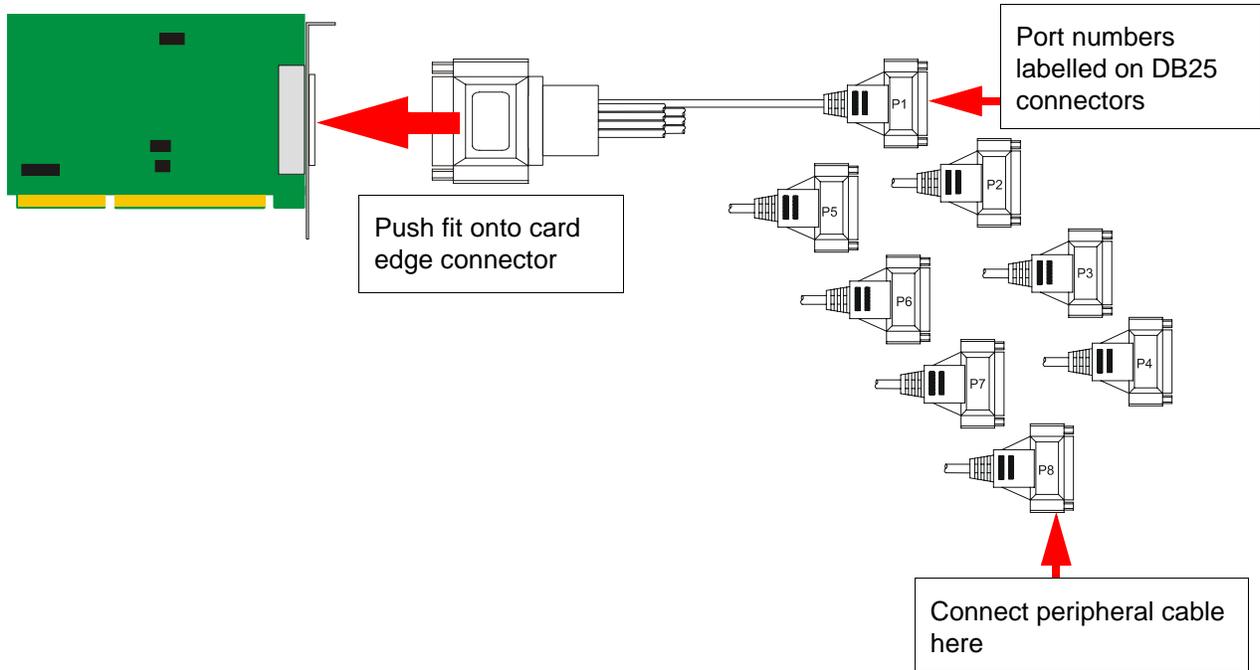
DB25 Pin	EIA-232
1 & Shell	C-GND
2	TXD
3	RXD
4	RTS
5	CTS
6	DSR
7	S-GND
8	DCD
20	DTR
22	RI

DB9 connector box



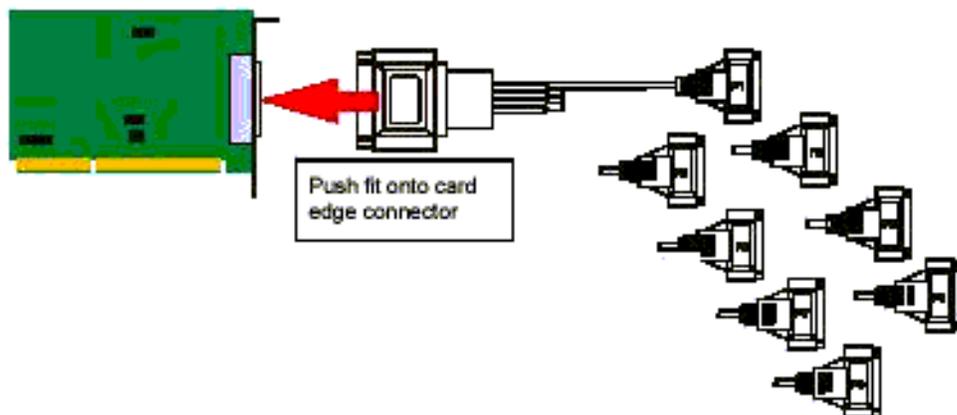
DB9 Pin	EIA-232
1	DCD
2	RXD
3	TXD
4	DTR
5	S-GND
6	DSR
7	RTS
8	CTS
9	RI
Shell	C-GND

DB25 Fan-out cable



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



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

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 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: [Windows 2000/XP/Server 2003](#) on page [52](#): Troubleshooting

Windows 2000/XP/Server 2003

This section describes troubleshooting SPEED LE products under the Windows 2000, Windows XP or Windows Server 2003 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](#) on page 53.
- [Windows error messages](#) on page 53.

General troubleshooting under Windows 2000/XP/Server 2003

Problem	Action required
Machine fails to boot.	<ol style="list-style-type: none"> 1. Turn off your machine, remove SPEED LE card(s) and reboot. See page 31. 2. Try installing a different host card in case the one currently installed is faulty. See page 28.
Windows operating system fails while loading and the system hangs.	<ol style="list-style-type: none"> 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.	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 1. Run Windows Device Manager to find available IRQ and memory addresses.
SPEED LE ports do not work after installation.	<ol style="list-style-type: none"> 1. Check the Windows Event Log and follow the suggested actions.
SPEED Windows driver fails during normal operation, symptom: blue screen	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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 warning icons on the installed hardware. See your Windows 2000, Windows XP, or Windows Server 2003 user documentation or help system for details.

For general problems, see [General troubleshooting under Windows 2000/XP/Server 2003](#) on page [53](#).

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 54
- [Repair procedure](#) on page 56
- [Feedback about this manual](#) on page 56
- [Perle support centres worldwide](#) on page 57

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](mailto:support@perle.com)

Making a technical support query

This section contains the following information about making a query;

- [Who to contact](#) on page 54
- [Information needed when making a query](#) on page 55
- [Making a support query via the Perle web page](#) on page 56

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 57 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 57 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;

docfeedback@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

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.

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

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