Dell™ PowerEdge™ Cluster SE500W Systems

Platform Guide

Notes, Notices, and Cautions

NOTE: A NOTE indicates important information that helps you make better use of your computer.

NOTICE: A NOTICE indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

CAUTION: A CAUTION indicates a potential for property damage, personal injury, or death.

⚠ **CAUTION: Only trained service technicians are authorized to remove the system cover and access any of the components inside the system. Before performing any procedure, see your *Product Information Guide* for complete information about safety precautions, working inside the computer, and protecting against electrostatic discharge.**

This document provides information for installing and connecting peripheral hardware components to your Dell™ PowerEdge™ Cluster SE500W solution. The configuration information in this document is specific to Microsoft® Windows® 2000 Advanced Server and Windows Server™ 2003 operating systems.

This document provides the following information:

- Dell PowerVault™ storage systems and PowerEdge systems that support Cluster SE500W configurations
- Peripheral Component Interconnect (PCI) slot information for installing Redundant Array of Independent Disks (RAID) controllers in your cluster nodes

📝 **NOTE:** Configurations not listed in this document may not be certified or supported by Dell or Microsoft.

📝 **NOTE:** In this guide and in other cluster documentation, the Microsoft Cluster Service (for Windows 2000 Advanced Server or Windows Server 2003) is also referred to as Microsoft Cluster Services (MSCS).

📝 **NOTE:** Reference to Windows Server 2003 in this guide, implies reference to Windows Server 2003 Enterprise and Enterprise x64 Editions, Microsoft Windows Server 2003 R2 Enterprise and Enterprise x64 Editions, unless explicitly stated.

Supported Cluster Configurations

This section provides information about supported configurations for your PowerEdge cluster.

Table 1-1 provides a list of supported cluster configurations for the Cluster SE500W solutions running Windows 2000 Advanced Server or Windows Server 2003.

📝 **NOTE:** Two cluster nodes in the same cluster must be of the same system model.

Table 1-1.   Supported Cluster Configurations

PowerEdge Cluster	Supported PowerEdge Systems	Supported Storage Systems	Supported Cluster Interconnect (for the Private Network)
SE500W	1650, 1750, 1800, 1850, 1950, 2600, 2650, 2800, 2850, 2900, 2950, 4600, 6600, 6650, 6800, 6850	PowerVault 220S and 221S	Any Network Interface Card (NIC) supported by the system **NOTE:** All nodes in the same cluster must use homogeneous (identical) NICs for the cluster interconnect. NIC teaming on the Private Interconnect is not supported.

📝 **NOTE:** Microsoft Windows Server 2003 Enterprise x64 Edition and Windows Server 2003 R2 Enterprise x64 Edition are supported on PowerEdge 1800, 1850, 1950, 2800, 2850, 2900, 2950, 6800, and 6850 systems only.

Rules and Guidelines

When configuring your cluster, both cluster nodes must contain identical versions of the following:

- Operating systems and service packs
- Hardware, drivers, and firmware for the network adapters, RAID controllers, and any other peripheral hardware components
- Management utilities, such as Dell OpenManage™ systems management software

NOTE: The PowerEdge Cluster SE500W supports up to two PowerEdge expandable RAID Controller (PERC) 4/DC or PERC 4e/DC adapters in a single cluster node. However, Dell does not support use of PERC 4/DC and PERC 4e/DC adapters together in the PowerEdge Cluster SE500W solution.

Service Pack Support

See "Dell Cluster Configuration Support Matrix" for the supported service pack version. You can download the latest service pack from Microsoft Support website at **www.support.microsoft.com**.

Installing Peripheral Components in Your PowerEdge Cluster Node

This section provides configuration information for adding RAID controllers to your cluster node PCI expansion slots.

Adding Peripherals to Your PowerEdge Cluster Nodes

CAUTION: Only trained service technicians are authorized to remove the system cover and access any of the components inside the system. See your _Product Information Guide_ for complete information about safety precautions, working inside the computer, and protecting against electrostatic discharge.

NOTE: To ensure that the Small Computer System Interface (SCSI) or RAID controller attached to the boot drives initializes first, you might have to change the device controller priority order using the system BIOS utility or physically change the order of the RAID adapters. This process ensures that the Windows operating system numbers the boot drives in the proper sequence.

Table 1-2 provides a list of the supported RAID adapters for Cluster SE500W configurations.

Table 1-2.   Supported RAID adapters for Cluster SE500W Configurations

PowerEdge System	PERC 4/DC (PCI)	PERC 4e/DC (PCI Express (PCIe))
1650	X	
1750	X	
1800	X	X
1850	X[a]	X[b]
1950		X[b]
2600	X	
2650	X	
2800	X	X
2850	X[a]	X[b]
2900		X
2950		X[c]
4600	X	
6600	X	
6650	X	
6800	X	X
6850	X	X

[a]   The PowerEdge system must have a PCI-X riser installed in order to use this RAID adapter.

[b]   The PowerEdge system must have a PCIe riser installed in order to use this RAID adapter.

[c]   The PowerEdge system may have either a PCI-X or a PCIe riser installed to use one PERC 4e/DC. If two PERC 4e/DC adapters are required, the system must have the PCIe riser installed.

Table 1-3 provides a list of PCI slot configurations for Cluster SE500W configurations.

Table 1-3.   PCI Slot Configurations for PowerEdge Cluster Nodes

PowerEdge System	Riser Board Option	Slot	Slot Type	Slot Speed
1650	Any	1	PCI	64-bit, 66 MHz
				or
				32-bit, 33 MHz
		2	PCI	64-bit, 66 MHz
1750	Any	1	PCI-X	64-bit, 133 MHz
				or
				64-bit, 33 MHz
		2	PCI	64-bit, 133 MHz
1800	N/A	1	PCI	64-bit, 66 MHz
		2	PCIe	2.5-GHz x4-lane
		3	PCIe	2.5-GHz x8-lane
		4	PCI	32-bit, 33 MHz
		5 – 6	PCI-X	64-bit, 100 MHz
1850	Standard	1	PCI-X	64-bit, 133 MHz
		2	PCI-X	64-bit, 100 MHz
	PCI-X with ROMB	1	PCI-X	64-bit, 133 MHz
		2	PCI-X	64-bit, 100 MHz
	PCIe with ROMB	1	PCIe	2.5-GHz x4-lane
		2	PCIe	2.5-GHz x8-lane
1950	PCI-X	1 – 2	PCI-X	64-bit, 133MHz
	PCIe	1 – 2	PCIe	2.5-GHz x8-lane
2600	N/A	1	PCI	32-bit, 33 MHz
		2 – 5	PCI-X	64-bit, 100 MHz
		6 – 7	PCI-X	64-bit, 133 MHz
2650	N/A	1	PCI-X	64-bit, 100 MHz
		2 – 3	PCI-X	64-bit, 133 MHz
				NOTE: Slot 1 must be empty for slot 2 to attain an operating speed of 133 MHz.
2800	N/A	1	PCI	32-bit, 33 MHz
		2 – 5	PCI-X	64-bit, 133 MHz
		6	PCIe	2.5-GHz x4-lane
		7	PCIe	2.5-GHz x8-lane

Table 1-3. PCI Slot Configurations for PowerEdge Cluster Nodes *(continued)*

PowerEdge System	Riser Board Option	Slot	Slot Type	Slot Speed
2850	PCI-X	1 – 3	PCI-X	64-bit, 133 MHz **NOTE:** If slot 1 is populated, slot 2 and slot 3 operate at 100 MHz.
	PCIe	1	PCIe	2.5-GHz x4-lane
		2	PCIe	2.5-GHz x8-lane
		3	PCI-X	64-bit, 100 MHz
2900	N/A	1 – 2	PCI-X	64-bit, 133 MHz
		3	PCIe	2.5-GHz x8-lane
		4 – 6	PCIe	2.5-GHz x4-lane
2950	PCI-X	1	PCIe	2.5-GHz x8-lane
		2 – 3	PCI-X	64-bit, 133MHz
	PCIe	1 – 2	PCIe	2.5-GHz x8-lane
		3	PCIe	2.5-GHz x4-lane
4600	N/A	1	PCI	32-bit, 33 MHz
		2 – 3	PCI-X	64-bit, 100 MHz
		4 – 5	PCI-X	64-bit, 100 MHz
		6 – 7	PCI-X	64-bit, 100 MHz
6600	N/A	1	PCI	32-bit, 33 MHz
		2 – 3	PCI-X	64-bit, 100 MHz
		4 – 5	PCI-X	64-bit, 100 MHz
		6 – 7	PCI-X	64-bit, 100 MHz
		8 – 9	PCI-X	64-bit, 100 MHz
		10 – 11	PCI-X	64-bit 100 MHz
6650	N/A	1	PCI	32-bit, 33 MHz
		2 – 3	PCI-X	64-bit, 100 MHz
		4 – 5	PCI-X	64-bit, 100 MHz
		6	PCI-X	64-bit, 100 MHz
		7	PCI-X	64-bit, 100 MHz
		8	PCI-X	64-bit, 100 MHz

Table 1-3. PCI Slot Configurations for PowerEdge Cluster Nodes *(continued)*

PowerEdge System	Riser Board Option	Slot	Slot Type	Slot Speed
6800	N/A	1	PCIe	2.5-GHz x8-lane
		2	PCI-X	64-bit, 133 MHz
		3 – 5	PCIe	2.5-GHz x4-lane
		6 – 7	PCI-X	64-bit, 100 MHz
6850	N/A	1	PCIe	2.5-GHz x8-lane
		2	PCI-X	64-bit, 133 MHz
		3 – 5	PCIe	2.5-GHz x4-lane
		6 – 7	PCI-X	64-bit, 100 MHz

Table 1-4 provides a list of PCI slot assignments for Cluster SE500W configurations.

Table 1-4. PCI Slot Assignments for PowerEdge Cluster Nodes

PowerEdge System	Riser Board Option	RAID adapter	PCI Slot Assignment
1650	Any	PERC 4/DC	Any available PCI slot.
1750	Any	PERC 4/DC	Any available PCI or PCI-X slot.
1800	N/A	PERC 4/DC	PCI/PCI-X slot 1, 5, or 6.
		PERC 4e/DC	PCIe slot 2 or 3.
1850	Standard	PERC 4/DC	PCI-X slot 1 or 2.
	PCI-X with ROMB	PERC 4/DC	PCI-X slot 1 or 2.
	PCIe with ROMB	PERC 4e/DC	PCIe slot 1 or 2.
1950	PCI-X	N/A	N/A
	PCIe	PERC 4e/DC	PCIe slot 1 or 2.
2600	N/A	PERC 4/DC	PCI-X slot 2, 3, 4, or 5.
2650	N/A	PERC 4/DC	Any available PCI or PCI-X slot.
2800	N/A	PERC 4/DC	PCI-X slot 2, 3, 4, or 5.
		PERC 4e/DC	PCIe slot 6 or 7.
2850	PCI-X	PERC 4/DC	Any available PCI-X slot.
	PCIe	PERC 4e/DC	PCIe slot 1 or 2.
2900	N/A	PERC 4e/DC	Any available PCIe slot.
2950	PCI-X	PERC 4e/DC	One adapter in PCIe slot 1 only.
	PCIe	PERC 4e/DC	Any available PCIe slot.

Table 1-4. PCI Slot Assignments for PowerEdge Cluster Nodes *(continued)*

PowerEdge System	Riser Board Option	RAID adapter	PCI Slot Assignment
4600	N/A	PERC 4/DC	Any available PCI or PCI-X slot.
6600	N/A	PERC 4/DC	Any available PCI or PCI-X slot.
6650	N/A	PERC 4/DC	Any available PCI or PCI-X slot.
6800	N/A	PERC 4/DC	PCI-X slot 2, 6, or 7.
		PERC 4e/DC	PCIe slot 1, 3, 4, or 5.
6850	N/A	PERC 4/DC	PCI-X slot 2, 6, or 7.
		PERC 4e/DC	PCIe slot 1, 3, 4, or 5.

NOTE: It is recommended that the RAID adapters be placed on separate buses to balance the load on the system. These buses are identified as separate rows in Table 1-3.

Installing the PERC Adapter

You must install the PERC 4/DC card in a 64-bit PCI/PCI-X slot up to 133 MHz or a 32-bit, 33-MHz PCI slot.

You must install the PERC 4e/DC adapter in a PCIe slot. See the I/O slot assignments in Table 1-3 and Table 1-4 for your specific system.

Ensure that your system has the correct PERC firmware and Windows driver. See the "Dell Cluster Configuration Support Matrix" for the supported PERC driver and firmware versions. To verify your driver, perform the following steps:

1 Click **Start**, point to **Programs**→ **Administrative Tools** and click **Computer Management**.

2 In the **Computer Management** window, point to **System Tools**→ **Device Manager**, and click the plus sign (+) to expand SCSI and RAID controllers. One or more PERC adapters are listed.

3 In the **Device Manager** window, right-click the appropriate PERC RAID adapter, select **Properties**, select the **Driver** tab, and verify the driver version.

See your PERC RAID adapter documentation for information about downloading the latest firmware.

Obtaining More Information

See the section related to your cluster product for more information on supported configurations.

See the *Dell PowerEdge Cluster SE500W Installation and Troubleshooting Guide* for a detailed list of related documentation.

Dell Cluster Configuration Support Matrix

The **Dell Cluster Configuration Support Matrix** provides the latest supported service pack, drivers, firmware, and operating system versions for your PowerEdge Cluster SE500W system. To obtain the supported service pack, drivers, and firmware versions for the operating system that is running on your PowerEdge Cluster SE500W cluster nodes, perform the following steps:

1 Open a web browser.

2 Navigate to the Dell High Availability Clustering website at **www.dell.com/ha**.

3 Click the **Products and Services** tab.

4 Select **SCSI Clusters**.

5 In the **Product Offerings** window, click **SE500W**.
   The **Dell Cluster Configuration Support Matrix** for the PowerEdge Cluster SE500W appears.

6 In the **Operating System** column, locate the operating system that is running on your cluster nodes.

Locate the appropriate service pack, drivers, and firmware for your operating system.

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