

Dell™ PowerEdge™ 2950 Systems

Getting Started With Your System

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.

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Model EMS01

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P/N YC453

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System Features

The major hardware and software features of your system include:

- One or two Dual-Core Intel® Xeon® Processors 5000 Sequence.
- Support for symmetric multiprocessing (SMP), which is available on systems with two Intel Xeon processors. SMP greatly improves overall system performance by dividing processor operations between independent processors. To take advantage of this feature, you must use an operating system that supports multiprocessing.



NOTE: If you decide to upgrade your system by installing a second processor, you must order the processor upgrade kits from Dell. Not all versions of the Intel Xeon processor will work properly as additional processors. The upgrade kit from Dell contains the correct version of the processor, heat sink, and fan as well as the instructions for performing the upgrade.

- A minimum of 512 MB of 533 or 667 (when available) MHz, Fully Buffered DIMMs (FBD), upgradable to a maximum of 32 GB by installing combinations of 256-MB, 512-MB, 1-GB, 2-GB, or 4-GB memory modules in the eight memory module sockets on the system board.

The system also features redundant memory, which provides memory sparing or memory mirroring. Either feature is available if eight identical memory modules are installed.

- Support for up to six 3.5-inch, internal hot-pluggable Serial Attached SCSI (SAS) or SATA hard drives without optional media bay, or up to four 3.5-inch internal hot-pluggable SAS or SATA hard drives with optional media bay, or eight 2.5-inch internal hot-pluggable SAS hard drives.
- The optional media bay (available with the 3.5-inch x4 and 2.5-inch x8 backplane configurations) provides support for an optional half-height tape backup unit (TBU) and an optional single, 1.44-MB, 3.5-inch diskette drive.
- An optional slim-line IDE CD, DVD, or combination CD-RW/DVD drive.



NOTE: DVD devices are data only.

- An intrusion switch that signals the appropriate systems management software if the top cover is opened.
- Up to two hot-pluggable, 750-W power supplies in an optional 1 + 1 redundant configuration.
- Four hot-pluggable system cooling fans.

The system board includes the following features:

- One of the following left riser card options:
 - A left riser card that has one full-length PCIe x8 lane slot and one full-length PCIe x4 lane slot.
 - OR
 - A left riser card that has two full-length PCI-X 3.3-V, 64-bit, 133-MHz slots on separate PCI-X buses (capable of throttling back to support legacy PCI add-in cards).
- A center riser card that has one half-length PCIe x8 lane slot.
- Dedicated slot for an integrated SAS host bus adapter or an optional RAID controller card with 256 MB of cache memory and a RAID battery. The internal channel supports up to eight 2.5-inch SAS or six 3.5-inch SATA hard drives.



NOTE: System boot is not supported from an external device attached to a SAS or SCSI adapter, including SAS 5/E, PERC 5/E, or PERC 4e/DC. See support.dell.com for the latest support information about booting from external devices.

- Two integrated Gigabit Ethernet NICs, capable of supporting 10-Mbps, 100-Mbps, and 1000-Mbps data rates.
- Four USB 2.0-compliant connectors (two on the front and two on the back) capable of supporting a diskette drive, a CD-ROM drive, a keyboard, a mouse, or a USB flash drive.
- Optional remote access controller (RAC) for remote systems management.
- An integrated VGA-compatible video subsystem with an ATI ES1000, 33-MHz PCI video controller. This video subsystem contains 16 MB of DDR SDRAM video memory (nonupgradable). Maximum resolution is 1600 x 1200 with 64 K colors; true-color graphics are supported in the following resolutions: 640 x 480, 800 x 600, 1024 x 768, 1152 x 864, and 1280 x 1024. When the optional RAC is installed, the video resolution is 1280 X 1024.
- Systems management circuitry that monitors operation of the system fans as well as critical system voltages and temperatures. The systems management circuitry works in conjunction with the systems management software.
- Standard baseboard management controller with serial access.
- Back-panel connectors include one serial, one video, two USB, and two NIC connectors.
- Front-panel connectors include a video and two USB connectors.
- Front-panel 1x5 LCD for system ID and error messaging.
- System ID button on the front and back panels.

For more information about specific features, see "Technical Specifications" on page 10.

Supported Operating Systems

- Microsoft® Windows Server™ 2003 Standard, Enterprise, and Web Editions
- Microsoft Windows Server 2003 Standard and Enterprise x64 Editions
- Red Hat® Enterprise Linux AS and ES for Intel x86 (versions 3 and 4)
- Red Hat Enterprise Linux AS and ES for Intel Extended Memory 64 Technology (Intel EM64T) (version 4)
- SUSE® Linux Enterprise Server 9 for Intel EM64T
- Novell® NetWare® 6.5 (when available) (not available factory-installed)

Other Information You May Need



CAUTION: The *Product Information Guide* provides important safety and regulatory information. Warranty information may be included within this document or as a separate document.

- The *Rack Installation Instructions* or *Rack Installation Guide* included with your rack solution describes how to install your system into a rack.
- The *Hardware Owner's Manual* provides information about system features and describes how to troubleshoot the system and install or replace system components. This document may be found on the CDs that came with your system, or on support.dell.com.
- CDs included with your system provide documentation and tools for configuring and managing your system.
- Release notes or readme files may be included to provide last-minute updates to the system or documentation or advanced technical reference material intended for experienced users or technicians.

Obtaining Technical Assistance

If you do not understand a procedure in this guide or if the system does not perform as expected, see your *Hardware Owner's Manual*.

Dell™ Enterprise Training and Certification is available; see www.dell.com/training for more information. This service may not be offered in all locations.

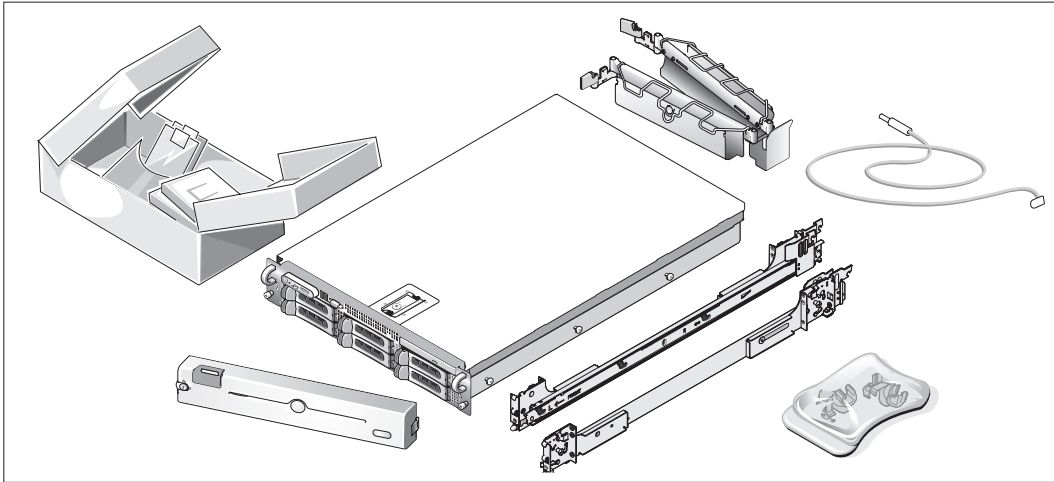
Installation and Configuration



CAUTION: Before performing the following procedure, read and follow the safety instructions and important regulatory information in your *Product Information Guide*.

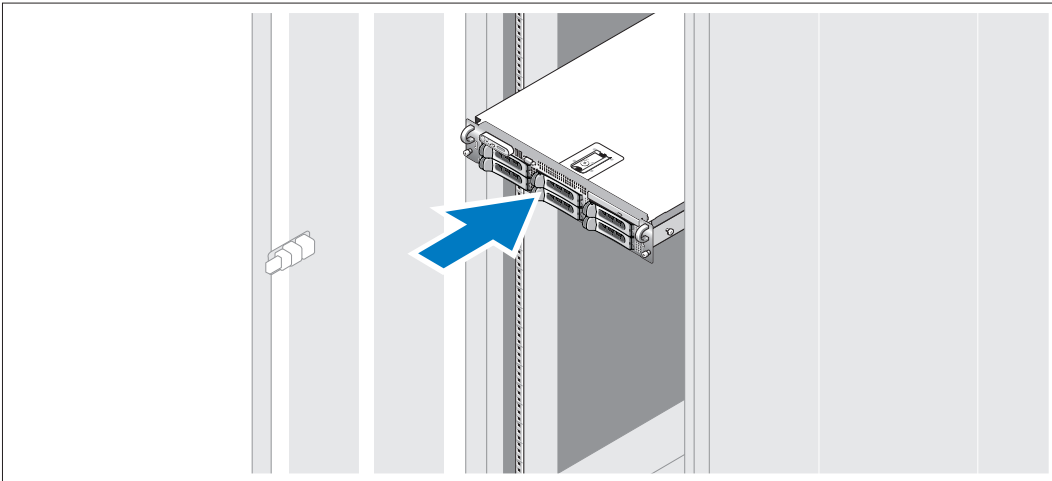
This section describes the steps to set up your system for the first time.

Unpacking the System



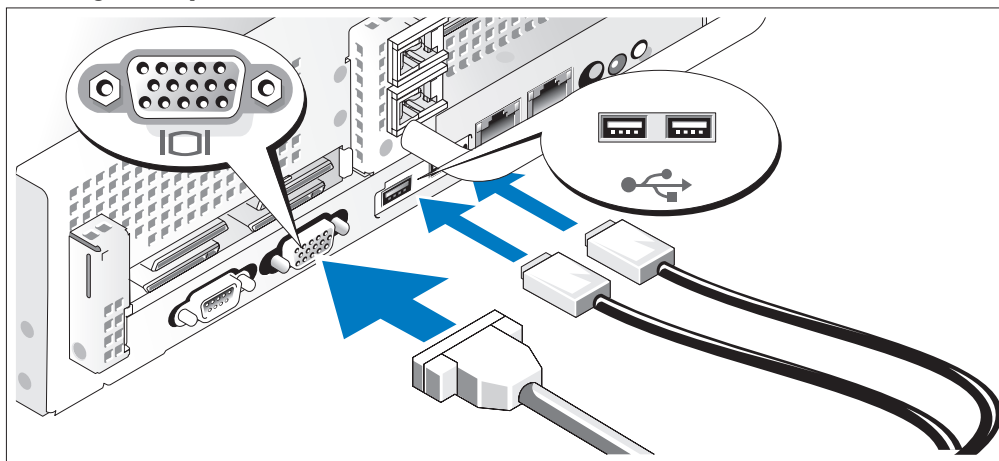
- 1 Unpack your system and identify each item.
Keep all shipping materials in case you need them later.

Installing the Rails and System in a Rack



- 2 Once you have read the "Safety Instructions" located in the rack installation documentation for your system, install the rails and the system in the rack.
See your rack installation documentation for instructions on installing your system in a rack.

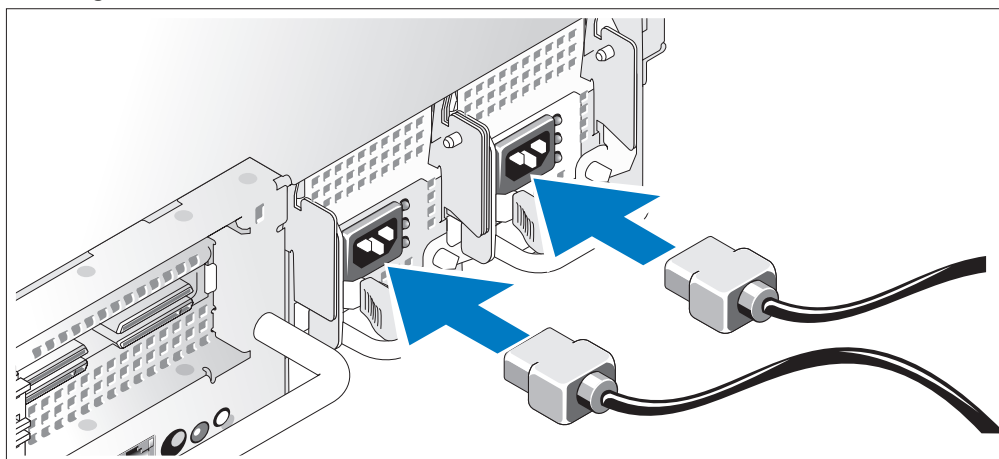
Connecting the Keyboard, Mouse, and Monitor



- 3 Connect the keyboard, mouse, and monitor (optional).

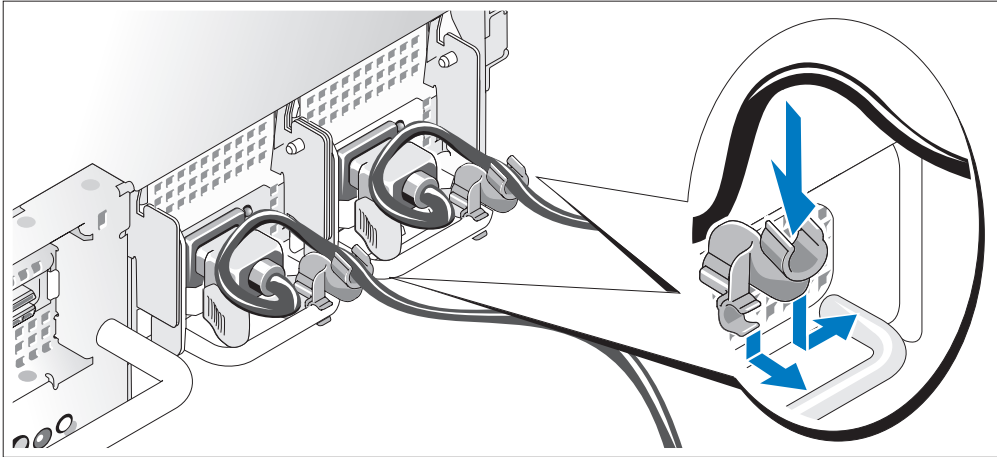
The connectors on the back of your system have icons indicating which cable to plug into each connector. Be sure to tighten the screws (if any) on the monitor's cable connector.

Connecting the Power



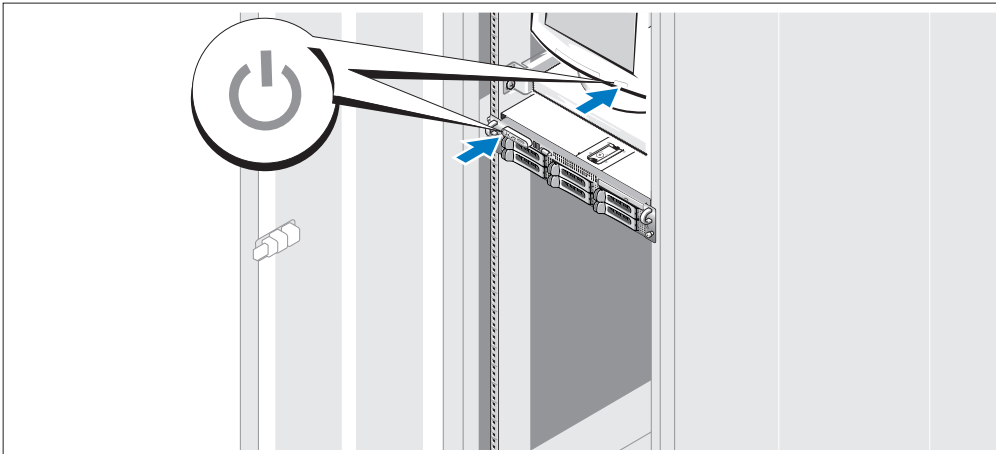
- 4 Connect the monitor (optional) and system power, and connect the system's power cable(s) to the system. If your system has an expansion card with a video output connector, *do not* connect the monitor to system's integrated video connector. Instead, connect the monitor cable to the connector on the expansion card.
- 5 Plug the other end of the cable into a grounded electrical outlet or a separate power source such as an uninterruptible power supply (UPS) or a power distribution unit (PDU).

Installing the Power Cord Retention Bracket



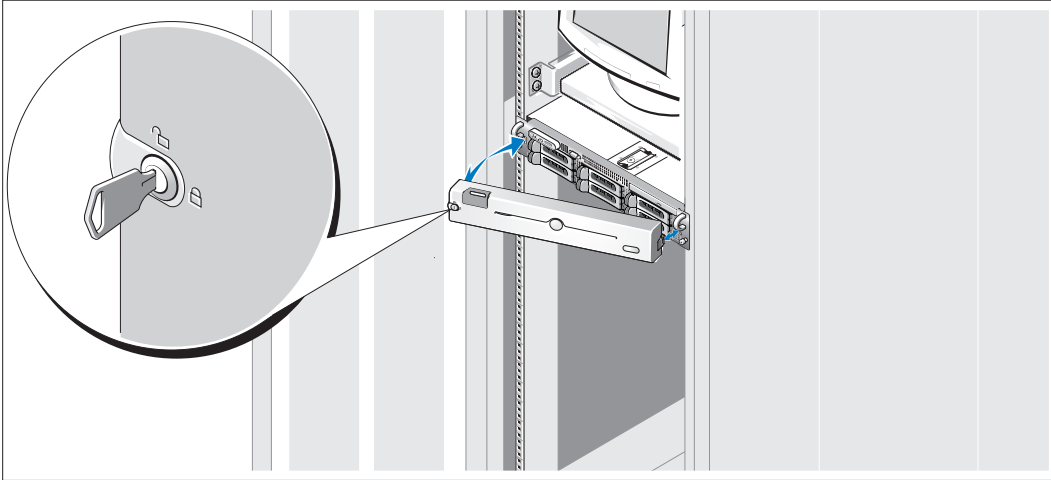
- 6** Attach the power cord retention bracket on the right bend of the power supply handle. Bend the system power cable into a loop as shown in the illustration and attach to the bracket's cable clasp. Repeat the procedure for the second power supply.
- 7** Plug the other end of the power cables into a grounded electrical outlet or a separate power source such as an uninterruptible power supply (UPS) or a power distribution unit (PDU).

Turning on the System



- 8** Turn on the system and monitor (optional).
Press the power button on the system and the monitor. The power indicators should light. Adjust the monitor's controls until the displayed image is satisfactory.

Installing the Bezel



- 9 Install the bezel (optional).

Complete the Operating System Setup

If you purchased a preinstalled operating system, see the operating system documentation that ships with your system. To install an operating system for the first time, see the *Quick Installation Guide*. Be sure the operating system is installed before installing hardware or software not purchased with the system.

Technical Specifications

Processor	
Processor type	One or two Dual-Core Intel Xeon Processors 5000 Sequence.
Expansion Bus	
Bus type	PCI-X, PCIe
Expansion slots	
Center riser: PCIe	one half-height x8 lane 3.3-V (slot 1)
Left riser PCI-X option:	two full-height, full-length 3.3-V, 64-bit, 133-MHz (slots 2 and 3)
	OR
PCIe option:	one full-height x8 lane 3.3-V (slot 2) and one full-height x4 lane 3.3-V (slot 3)
Memory	
Architecture	533 or 667 (when available) MHz Fully Buffered DIMMs (FBD)
Memory module sockets	eight 240-pin
Memory module capacities	256 MB, 512 MB, 1 GB, 2 GB, or 4 GB
Minimum RAM	512 MB (two 256-MB modules)
Maximum RAM	32 GB
Drives	
Hard drives	up to six 3.5-inch, internal hot-pluggable SAS or SATA hard drives without optional media bay, OR up to four 3.5-inch internal hot-pluggable SAS or SATA hard drives with optional media bay OR eight 2.5-inch internal hot-pluggable SAS hard drives
Diskette drive	one optional 3.5-inch, 1.44-MB external optional USB 3.5-inch, 1.44-MB

Drives <i>(continued)</i>	
Optical drive	one optional slimline IDE CD, DVD, or combination CD-RW/DVD NOTE: DVD devices are data only. external optional USB CD
Tape drive	one optional internal half height tape backup device
Flash drive	external optional USB
Connectors	
Back	
NIC	Two RJ-45 (for integrated 1-GB NICs)
Serial	9-pin, DTE, 16550-compatible
USB	Two 4-pin, USB 2.0-compliant
Video	15-pin VGA
Front	
Video	15-pin VGA
USB	Two 4-pin, USB 2.0-compliant
Video	
Video type	ATI ES1000 video controller; VGA connectors
Video memory	16 MB of DDR SDRAM
Power	
AC power supply (per power supply)	
Wattage	750 W
Voltage	85–264 VAC, autoranging, 47–63 Hz
Heat dissipation	2697 BTU/hr maximum
Maximum inrush current	Under typical line conditions and over the entire system ambient operating range, the inrush current may reach 55 A per power supply for 10 ms or less.
Batteries	
System battery	CR 2032 3.0-V lithium ion coin cell
RAID battery (optional)	4.1-V lithium ion

Physical	
Rack	
Height	8.656 cm (3.40 in)
Width	44.7 cm (17.6 in)
Depth	75.68 cm (29.79 in)
Weight (maximum configuration)	26.76 kg (59 lb)
Environmental	
NOTE: For additional information about environmental measurements for specific system configurations, see www.dell.com/environmental_datasheets .	
Temperature	
Operating	10° to 35°C (50° to 95°F) with a maximum temperature gradation of 10°C per hour
Storage	–40° to 65°C (–40° to 149°F) with a maximum temperature gradation of 20°C per hour
Relative humidity	
Operating	20% to 80% (noncondensing) with a maximum humidity gradation of 10% per hour
Storage	5% to 95% (noncondensing) with a maximum humidity gradation of 10% per hour
Maximum vibration	
Operating	0.25 G at 3–200 Hz for 15 min
Storage	0.5 G at 3–200 Hz for 15 min
Maximum shock	
Operating	One shock pulse in the positive z axis (one pulse on each side of the system) of 41 G for up to 2 ms
Storage	Six consecutively executed shock pulses in the positive and negative x, y, and z axes (one pulse on each side of the system) of 71 G for up to 2 ms
Altitude	
Operating	–16 to 3048 m (–50 to 10,000 ft)
Storage	–16 to 10,600 m (–50 to 35,000 ft)