Dell™ PowerEdge™ M905, M805, M605, and M600

Getting Started With Your System

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DELL™

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.

System Features

This section describes the major hardware and software features of your system. It also provides information about other documents you may need when setting up your system and how to obtain technical assistance.

System Enclosure Features

The M1000e system enclosure (chassis) includes the following features:

Scalability Features

- Support for up to 16 half-height or 8 full-height blades (server modules).
- Support for three layers of I/O fabric, selectable between combinations of Ethernet, Infiniband, and Fibre Channel modules.

  Up to six I/O modules may be installed in the enclosure, chosen from Fibre Channel switches, Fibre Channel passthroughs, Infiniband switches, Ethernet switches, and Ethernet passthrough modules.

Reliability Features

- Nine redundant, hot-pluggable system fan modules.
- Three 2360-watt, hot-pluggable power supplies and three power supply blanks, or six 2360-watt, hot-pluggable power supplies. (Three power supplies provide power to the system; adding three additional power supplies provides 3+3 redundancy.)

NOTICE: Power supplies can only connect to a power distribution unit (PDU). They cannot connect directly to an electrical outlet.

NOTICE: The system enclosure requires a 200-240V power source.

Systems Management Features

- A Chassis Management Controller (CMC), which provides several essential systems management features:

  - Enclosure-level power management and thermal management:

    - The CMC monitors system power requirements and supports the optional Dynamic Power Supply Engagement mode so that the CMC can enable or place power supplies in standby dynamically, depending on load and redundancy requirements, to improve power efficiency.

    - The CMC reports real-time power consumption.

    - The CMC supports an optional power ceiling, which will either trigger an alert or actions to keep the enclosure power consumption under the predefined ceiling.

    - The CMC monitors and controls cooling fans based on actual ambient and internal temperature measurements.

  - The CMC provides comprehensive enclosure inventory and status/error reporting.

  - The CMC allows centralized configuration of the following settings:

    - The CMC's network and security settings

    - Power redundancy and power ceiling settings

    - I/O switches and iDRAC network settings

    - First boot device on the blades

  - The CMC will check I/O fabric consistency between the I/O modules and blades and will disable system components if necessary to protect the system hardware.

  - User access security.

  - An SD card slot on the CMC card supports an optional persistent WWN/MAC feature that allows slot-based WWN/MACs for the blades, simplifying blade installation and replacement.

The CMC has two Ethernet ports. "Gb1" is used to connect to the external management network. "Stack" allows CMCs in adjacent enclosures to be daisy-chained. A 24-port Ethernet switch provides internal 100-Mb communication with the blades, I/O modules, optional iKVM, and

optional second, redundant CMC, and provides a 10/100/1000-Mb connection to the external management network.

NOTE: The 24-port Ethernet switch is reserved for internal communication between the iDRAC on the blades to the CMC, then to the external management network.

A second, optional CMC can be installed for hot-plug failover redundancy.

- An enclosure control panel that includes an LCD display which provides current infrastructure and blade information, and error reporting.
- An optional Avocent integrated Keyboard, Video and Mouse (iKVM) module, which includes the following features:

  – The iKVM maintains all blade connections as input is switched from each blade.

  – Local iKVM access can be remotely disabled on a per blade basis via the iDRAC user interface.

  – One VGA connector.

  – Two USB ports for keyboard and mouse connections.

  NOTE: USB functionality is contingent on the connection of a video interface, such as a monitor cable.

  – An RJ-45 ACI port for tiering with external Dell and Avocent analog KVM and KVM over IP switches with ARI ports. The ACI connection takes precedence over the rear panel KVM ports.

  – The iKVM can also be accessed from the control panel in the front of the enclosure. Either front or rear KVM functionality is supported (simultaneous functionality is not supported).

  NOTE: The front iKVM is enabled by default if contention exists between the front and rear iKVM ports. Front iKVM access can be disabled via the CMC user interface.

Blade Features

Performance Features

PowerEdge M905

- Four AMD™ Opteron™ 8000 Series dual-core or quad-core processors.
- A minimum of 8 GB of 677 MHz DDR2 memory modules, upgradable to a maximum of 192 GB by installing pairs of 1-GB, 2-GB, 4-GB, or 8-GB modules in the 24 memory module sockets on the blade system board. The blade also supports memory sparing if eight or sixteen memory module sockets are populated with identical memory modules.
- An SD (Secure Digital) card slot for embedded Hyperviser support.

PowerEdge M805

- Two AMD Opteron 2000 Series dual-core or quad-core processors.
- A minimum of 4 GB of 677 MHz DDR2 memory modules, upgradable to a maximum of 128 GB by installing pairs of 1-GB, 2-GB, 4-GB, or 8-GB modules in the 16 memory module sockets on the blade system board. The blade also supports memory sparing if eight or sixteen memory module sockets are populated with identical memory modules.
- An SD card slot for embedded Hyperviser support.

PowerEdge M600

- One or two Intel® Xeon® dual-core or quad-core processors
- A minimum of 1 GB of 677-MHz FBD memory modules, upgradable to a maximum of 64 GB by installing pairs of 512-MB, 1-GB, 2-GB, 4-GB, or 8-GB modules in the eight memory module sockets on the blade system board. The blade also supports memory sparing or memory mirroring if all eight memory module sockets are populated with identical memory modules.

PowerEdge M605

- One or two AMD Opteron 2000 Series dual-core or quad-core processors.
- A minimum of 1 GB of 677-MHz or 800-MHz DDR2 memory modules, upgradable to a maximum of 64 GB by installing pairs of 512-MB, 1-GB, 2-GB, 4-GB, or 8-GB modules in the eight memory module sockets on the blade system board. The blade also supports memory sparing.

Common Features

- The PowerEdge M805 and M905 blades support one or two 2.5 inch SAS hard drives.
- The PowerEdge M600 and M605 blades support one or two 2.5-inch SATA hard drives, *or* one or two 2.5 inch SAS hard drives.

  NOTE: SAS and SATA hard drives cannot be mixed within a blade.

  Hot-plug drive operation is supported if an optional RAID controller card is installed in the blade.

- Three USB 2.0-compliant ports (PowerEdge M805 and M905) or two USB 2.0-compliant ports (PowerEdge M605 and M600) support devices such as a mouse, keyboard, flash drive, diskette drive, or an optical drive.

  NOTE: Only Dell-supplied USB devices are supported.

- An integrated VGA-compatible video subsystem with an ATI RN50 video controller. This video subsystem contains 32 MB of SDRAM video memory (nonupgradable). Maximum resolution is 1280 x 1024 x 65,000 colors (noninterlaced).
- An Integrated Dell Remote Access Controller (iDRAC), which provides remote system management, blade-level power management, virtual KVM and virtual media support, remote alerting and event logging.
- Four 1-GB Ethernet ports supported by two integrated dual-port Broadcom 5709S controllers (PowerEdge M805 and M905), or two 1-GB Ethernet ports supported by two integrated Broadcom 5708S controllers (PowerEdge M600 and M605). TCP/IP Offload Engine (TOE) and iSCSI boot are supported.

For a complete list of system features, see "Technical Specifications" on page 15.

The following software is included with your system:

- A System Setup program for quickly viewing and changing system configuration information. For more information on this program, see "Using the System Setup Program" in your *Hardware Owner's Manual*.

- Enhanced security features, including a system password and a setup password, available through the System Setup program.

- System diagnostics for evaluating system components and devices. For information about the system diagnostics, see "Running the System Diagnostics" in your *Hardware Owner's Manual*.

- Video drivers for displaying many popular application programs in high-resolution modes.

- Systems management software and documentation. Systems management software is used to manage and monitor each individual blade as well as the system as a whole, including all of the blades, network switch modules, power supplies, and fans. Systems management software manages the system locally and remotely on a network. Dell recommends that you use the systems management software provided with this system.

- Optional solutions software for Web hosting, caching, or load balancing. See your solutions software documentation for more information.

Supported Operating Systems

- Microsoft® Windows Server™ 2003, Web, Standard and Enterprise (32-bit x86) Editions with SP2

- Microsoft Windows Server 2003, Standard, Enterprise, and DataCenter (x64) Editions SP1, SP2

- Microsoft Windows Server 2003 R2 Standard and Enterprise (32- bit x86) Editions with SP1, SP2

- Microsoft Windows Server 2003 R2 Standard, Enterprise, and DataCenter (x64) Editions with SP1, SP2

- Microsoft Windows Server 2008, Standard Edition with SP1, SP2, DataCenter, and EM64T

- Red Hat® Enterprise Linux® AS, ES, and WS (version 4) and EM64T

- Red Hat Enterprise Linux AS and ES (version 4) (ia32)

- Red Hat Enterprise Linux Server AS and ES (version 5) (ia32)
- Red Hat Enterprise Linux Server AS, ES, and WS (version 5) and EM64T
- SUSE® Linux Enterprise Server 9 (x86_64) with SP3 and EM64T
- SUSE Linux Enterprise Server 10 (x86_64) and EM64T
- VMWare® ESX 3.1
- VMWare ESX 3.5

Other Information You May Need

⚠ **CAUTION: See the safety and regulatory information that shipped with your system. Warranty information may be included within this document or as a separate document.**

- The *Configuration Guide* provides information on configuring the system enclosure and the blades.

- The *Rack Installation Guide* or *Rack Installation Instructions* 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 at **support.dell.com**.

- The *Dell Chassis Management Controller User's Guide* provides detailed information on using the remote management features of the system.

- CDs or DVDs included with your system provide documentation and tools for configuring and managing your system.

- Systems management software documentation describes the features, requirements, installation, and basic operation of the software.

- Operating system documentation describes how to install (if necessary), configure, and use the operating system software.

- Documentation for any components you purchased separately provides information to configure and install these options.

- Updates are sometimes included with the system to describe changes to the system, software, and/or documentation.

  📝 **NOTE:** Always check for updates on **support.dell.com** and read the updates first because they often supersede information in other documents.

- 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 **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 that shipped with your system. For additional safety best practices information, see www.dell.com/regulatory_compliance.**

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

Unpack the System

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

Install the System in a Rack

Install the system in the rack once you have read the "Safety Instructions" located in the rack installation documentation for your system.

See your rack installation documentation for instructions on installing your system in a rack. For power and cooling guidelines, see the rack capacity planner tool on **www.dell.com**.
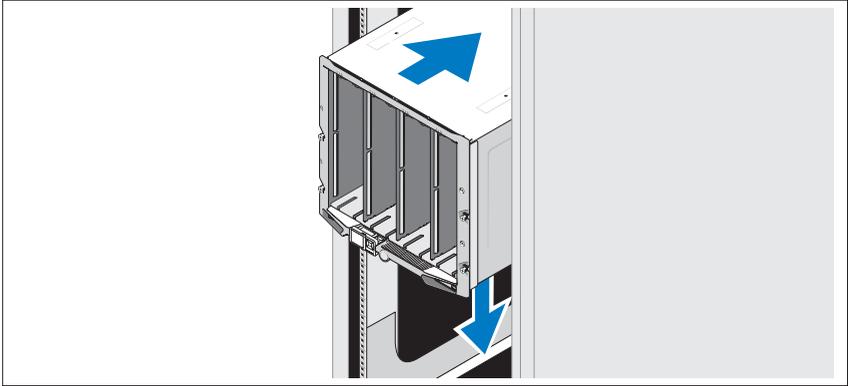
Install the Blades

Beginning at the top, slide the modules into the enclosure from left to right.
When the blade is securely installed, the handle returns to the closed
position.
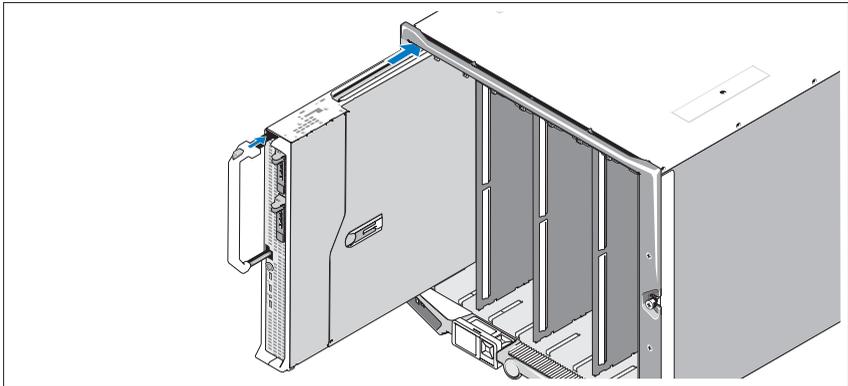
Connect the CMC and KVM Modules

Connect the serial cable and network cable from the management system to the CMC module. If a second, optional CMC module is installed, connect it as well. (If your chassis was shipped with M805 or M905 blades pre-installed, the included CMC firmware will be version 1.2 or greater.)

Connect the keyboard, mouse, and monitor to the optional iKVM module.
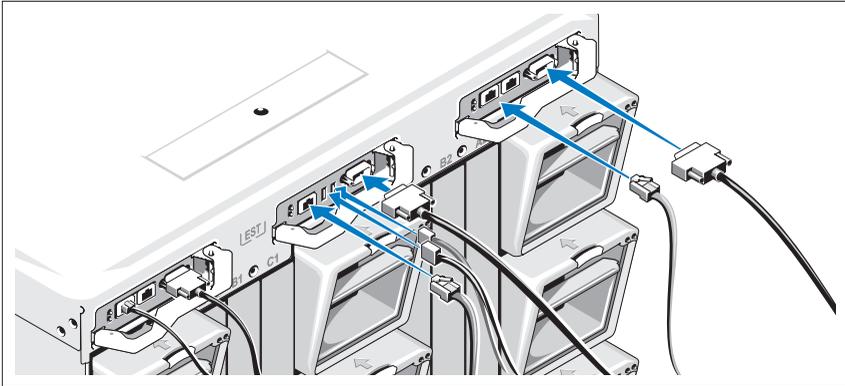
Connect the System to Power

Connect the system's power cables to the system power supplies.

NOTICE: To prevent the power cables from being disconnected accidentally, use the plastic clip on each power supply to secure the power cable to the power supply, and use the Velcro strap to secure the cable to the strain-relief bar.

Next, plug the other end of the power cables into a separate power source such as an uninterruptible power supply (UPS) or a power distribution unit (PDU).
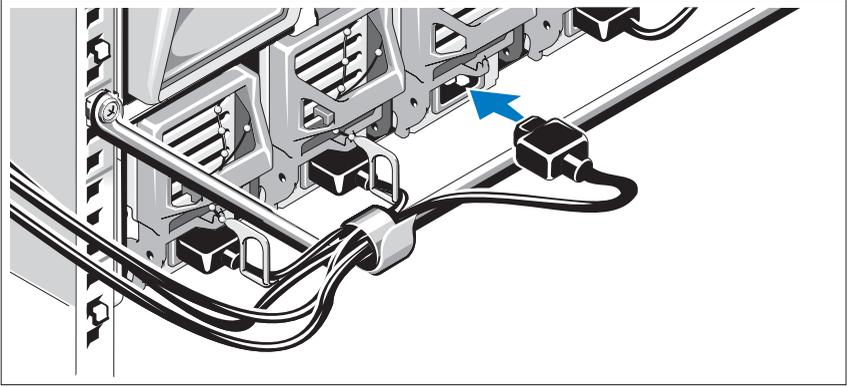
Turn on the System

Press the power button on the enclosure. The power indicator should light.
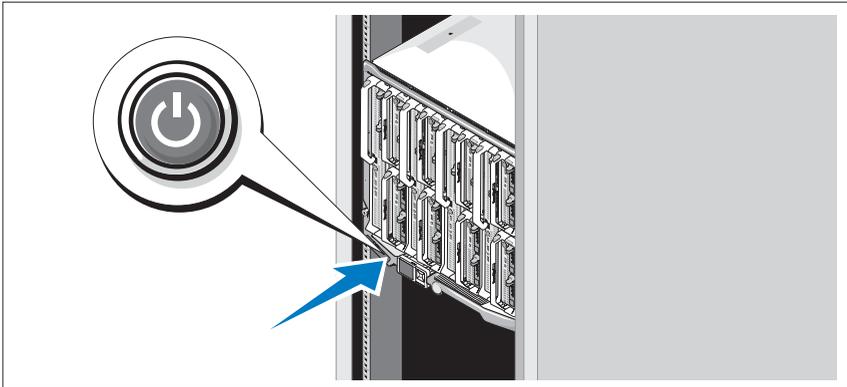
Turn on the Blades

Press the power button on each blade, or power on the blades using the systems management software.
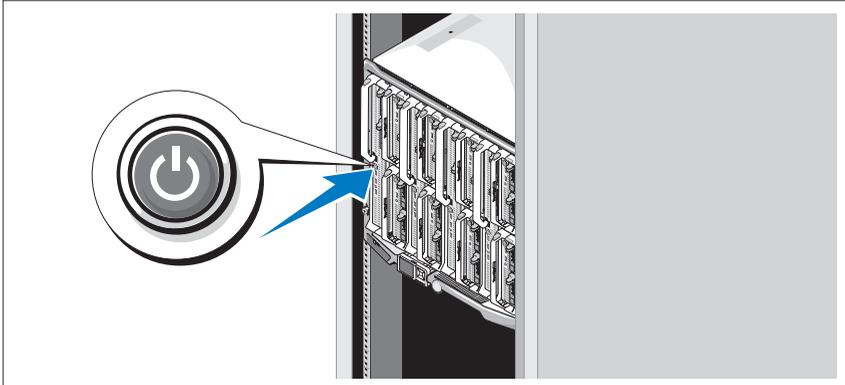
Complete the Operating System Setup

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

Blade Specifications

Processor	
Processor type	
PowerEdge M905	Four dual-core or quad-core AMD Opteron 8000 Series processors
PowerEdge M805	Two dual-core or quad-core AMD Opteron 2000 Series processors
PowerEdge M600	One or two dual-core or quad-core Intel Xeon processors
PowerEdge M605	One or two dual-core or quad-core AMD Opteron 2000 Series processors

Memory	
Architecture	
PowerEdge M600	FBD memory modules, rated for 677-MHz operation
PowerEdge M905, M805, M605	DDR2 memory modules, rated for 677-MHz operation
Memory module sockets	
PowerEdge M905	24 240-pin sockets
PowerEdge M805	16 240-pin sockets
PowerEdge M605, M600	Eight 240-pin sockets
Memory module capacities	512 MB (PowerEdge M605 and M600), 1 GB, 2 GB, 4 GB, or 8 GB
Minimum RAM	Two memory modules per processor
PowerEdge M905	8 GB (Eight 1-GB memory modules)
PowerEdge M805	4 GB (Four 1-GB memory modules)
PowerEdge M600, M605	1 GB (two 512-MB memory modules)

Memory	
Maximum RAM	
PowerEdge M905	192 GB
PowerEdge M805	128 GB
PowerEdge M600, M605	64 GB

Drives	
Hard Drives	
PowerEdge M805, M905	One or two 2.5-inch SAS hard drives
PowerEdge M600, M605	
SATA configuration	One or two 2.5-inch SATA hard drives
SAS configuration	One or two 2.5-inch SAS hard drives **NOTE:** SAS and SATA hard drives cannot be mixed within a M600 or M605 blade.

Connectors	
External	
USB	
PowerEdge M805, M905	Three 4-pin, USB 2.0 compliant
PowerEdge M600, M605	Two 4-pin, USB 2.0 compliant
Internal	
SD Card (PowerEdge M805, M905)	One SD card connector

Ethernet Controllers	
Chipset	
PowerEdge M805, M905	Four Ethernet ports with TOE and iSCSI boot support, provided by two integrated dual-port Broadcom 5709S Ethernet controllers
PowerEdge M600, M605	Two Ethernet ports with TOE and iSCSI boot support, provided by two integrated Broadcom 5708S controllers

Video Controller	
Video type	ATI RN50 video controller
Video memory	32 MB

Physical	
PowerEdge M905, M805	
Height	38.5cm (15.2 in)
Width	5 cm (2 in)
Depth	48.6 cm (19.2 in)
Weight (maximum configuration)	11.1 kg (24.5 lb)
PowerEdge M605, M600	
Height	18.9 cm (7.4 in)
Width	5 cm (2 in)
Depth	48.6 cm (19.2 in)
Weight (maximum configuration)	5.2-6.4 kg (11.5-14.0 lb)

Battery	
Blade battery	CR 2032 3.0-V lithium ion coin cell

System Enclosure Specifications

Physical	
Height	44.0 cm (17.3 in)
Width	44.7 cm (17.6 in)
Depth	75.5 cm (29.7 in)
Weight (maximum configuration)	178.3 kg (392.2 lb)
Weight (empty)	44.6 kg (98.1 lb)

Power Supply Module

AC/DC power supply (per power supply)

Wattage	2360 W
Connector	NEMA C20 receptacle
Heat dissipation	**1205** 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.

System Voltage Requirements   200 - 240V, 16A, 3-Phase, 50 /60Hz
200 - 240V, 40.5A, Single Phase, 50 /60Hz

Optional Avocent iKVM Module

Rear externally accessible connectors

USB	Two 4-pin, USB 2.0-compliant connectors for keyboard and mouse support
ACI port	RJ-45
Video	15-pin VGA

Chassis Management Controller Module

Externally accessible connectors

Remote management	Two dedicated 10/100/1000 Mb RJ-45 ports for integrated Ethernet remote access controller.
Serial	9-pin, DTE, 16550-compatible
Video	15-pin VGA
Battery	CR 2032 3.0-V lithium ion coin cell
SD Card	One dedicated internal SD (Secure Digital) flash card memory slot for FlexAddress support.

Enclosure Control Panel

Externally accessible connectors	
USB	
PowerEdge M905, M805	Three 4-pin, USB 2.0-compliant connectors for keyboard and mouse support
PowerEdge M605, M600	Two 4-pin, USB 2.0-compliant connectors for keyboard and mouse support
Video	15-pin VGA
Navigation Panel	
Features	Four cursor-control keys, one select key, LCD screen

I/O Module Specifications

PowerConnect M6220 Ethernet Switch Module

Externally accessible connectors	
10/100/1000 Mbps Ethernet	Four autonegotiating RJ-45 ports
Serial	One 4-pin, USB 2.0 type A connector. (Use provided USB type A to DB9 adapter to connect to terminal)
Optional Modules	Two option bays. Each bay supports a module with two 24-Gb stacking ports, two 10-Gb CX4 copper uplinks, or two 10-Gb optical XFPs.

Cisco M7000E Infiniband Switch Module

Externally accessible connectors	Eight DDR Infiniband uplink ports

Gb Ethernet Pass-Through Module

Externally accessible connectors	Sixteen RJ-45 Ethernet ports

Fibre Channel Pass-Through Module

Externally accessible connectors

Fibre Channel transceiver	Sixteen external SFP ports that support 1/2/4-Gbps FC speeds

Brocade Fibre Channel Switch Module

Externally accessible connectors

Fibre Channel	Eight physical FC ports (four enabled by default, upgradeable to eight) supporting 1/2/4-Gbps Fibre Channel connections
Serial Port	RJ-45

Environmental

NOTE: For additional information about environmental measurements for specific system configurations, see **dell.com/environmental_datasheets**. The system is not for use in an office environment.

Temperature

Operating	10° to 35°C (50° to 95°F)
	NOTE: Decrease the maximum temperature by 1°C (1.8°F) per 300 m (985 ft) above 900 m (2955 ft).
Storage	–40° to 65°C (–40° to 149°F)

Relative humidity

Operating	8% to 85% (noncondensing) with a maximum humidity gradation of 10% per hour
Storage	5% to 95% (noncondensing)

Maximum vibration

Operating	0.26 Grms at 10–350 Hz for 15 min
Storage	1.54 Grms at 10–250 Hz for 15 min

Environmental *(continued)*

Maximum shock

    Operating   One shock pulse in the positive z axis of 31 G for up to 2.6 ms

    Storage

        PowerEdge M905, M805   Six consecutively-executed shock pulses in the positive and negative x, y, and z axis of 71 G up to 2 ms

        PowerEdge M605, M600   Six consecutively-executed shock pulses in the positive and negative x, y, and z axis of 71 G 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)