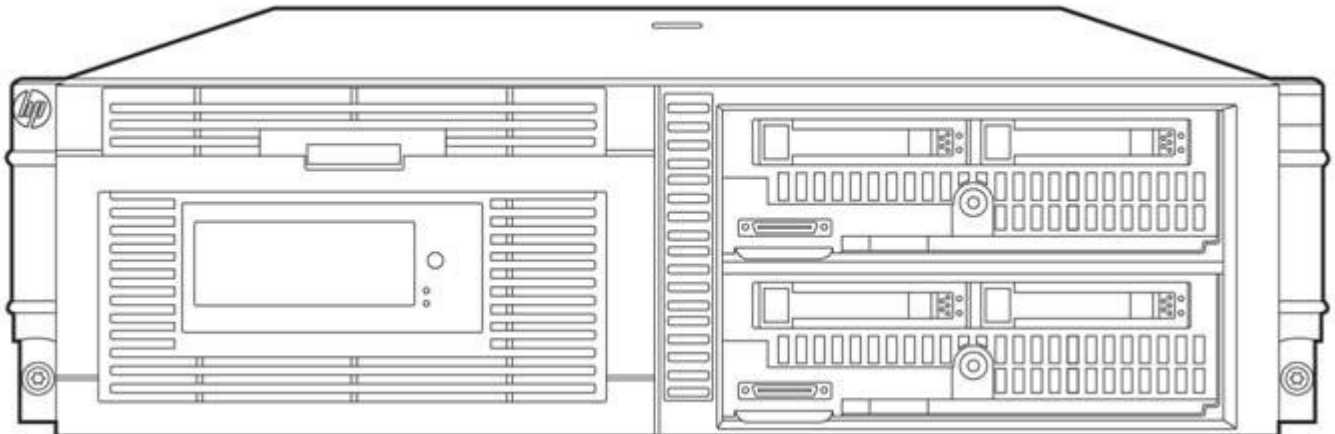


## Overview



HP E5000 Messaging System is the industry's first fully self-contained platform built for the next-generation of Microsoft Exchange to deliver enterprise-class messaging to businesses of all sizes. Built as a turnkey solution that can be up and running in a few hours vs. days, the HP E5000 Messaging System gives business users the experience they want most: large mailboxes, centralized archiving of mailboxes files and 24x7 access from any device. IT staffs benefit the solutions simplicity to setup, scale and manage and to meet new demands affordably. Ideal for multi-site enterprises as well as branch office and remote office environments, each HP Messaging System delivers greater simplicity and accelerates deployment with preconfigured solutions starting at 500 mailboxes up to 3000 mailboxes, while delivering large, 1 to 2.5GB mailbox sizes. Clients can grow by adding storage capacity or more appliances within the environment up from hundreds to thousands of mailboxes.

## HP E5000 Messaging System Models At a Glance:

- Portfolio of complete, easy to use, and highly scalable solutions for Microsoft Exchange 2010 with superior HA and DR capabilities
- Preconfigured for availability, performance and capacity for specified number of mailboxes
- Intel® Xeon® 5500 series CPU
- Availability features
  - Preconfigured two-copy Database Availability Group (DAG) Exchange 2010 configuration
  - Hot-plug hard drives
  - Redundant power supplies
- HP ProLiant Integrated Lights-Out 2 Remote Management

	E5300 12TB	E5500 16TB	E5500 32TB	E5700 40TB <sup>1</sup>	E5700 80TB <sup>1</sup>
Targeted workload	500 1.75GB mailboxes	1000 1.25GB mailboxes	1000 2.5GB mailboxes	3000 1.25GB mailboxes	3000 2.5GB mailboxes
Raw capacity	12TB MDL SAS	16TB MDL SAS	32TB MDL SAS	40TB MDL SAS	80TB MDL SAS
Server blades per solution	2 E5460sb				
CPUs per server blade	1 Xeon 5502 Dual Core MP	1 Xeon 5520 Quad Core MP		2 Xeon 5520 Quad Core MP	
Memory per server blade	12GB (3 X 4GB DIMMS)	24GB (6 X 4GB DIMMS)		48GB (12 X 4GB DIMMS)	
Supported operating System	Microsoft Windows Server 2008 R2 Enterprise Edition				
Supported Microsoft Exchange version	Exchange 2010 SP1				

### Overview

Customer self-installable	Yes
Included support and warranty	3 year 24x7 hardware and software support including Microsoft Windows Server and Exchange Server with 4 hour on-site hardware response covering all components of E5000 systems

<sup>1</sup>E5700 Systems are a combination of the E5000 System Enclosure plus 2 E5000 Expansion Nodes for a total of 40 1 or 2TB HDDs.

### Features and Benefits

HP E5000 Messaging System is the industry's first fully self-contained platform built for the next-generation of Microsoft Exchange to deliver enterprise-class messaging to businesses of all sizes. Built as a turnkey solution that can be up and running in a few hours vs. days, the HP E5000 Messaging System gives business users the experience they want most: large mailboxes, centralized archiving of mailboxes files and 24x7 access from any device. IT staffs benefit the solutions simplicity to setup, scale and manage and to meet new demands affordably. Ideal for multi-site enterprises as well as branch office and remote office environments, each HP Messaging System delivers greater simplicity and accelerates deployment with preconfigured solutions starting at 500 mailboxes up to 3000 mailboxes, while delivering large, 1 to 2.5GB mailbox sizes. Clients can grow by adding storage capacity or more appliances within the environment up from hundreds to as many as 15,000 mailboxes.

**A preferred solution for Exchange Server 2010** The HP E5000 Messaging System is a preferred solution for Exchange Server 2010 designed and validated by both HP and Microsoft as part of the Infrastructure-to-Applications joint business program. All E5000 Systems are designed to the high availability best practices and performance standards of both companies.

**Guided installation and verification** Wizard-based setup tools make it easy to get both Windows and Exchange configured and running quickly - and you can use the HP Sizer for more detailed configurations.

**Automatic database-level recovery from failures** Ensure continuity of service with Database Availability Groups (DAGs) that provide built in high availability and disaster recovery.

**HP and Microsoft management integration** Plug-ins for both Microsoft System Center and HP System Insight Manager support online updates and make management easy, using tools you know .iLO and Onboard Administrator give you complete management capabilities even when you are working remotely.

**Add and balance capacity and in minutes** Simply add additional storage as required - up to four additional 12TB or 24TB Expansion Nodes.

**Scale and balance workloads as demand grows** Modular, standards-based solutions let you add capacity as needed and unique tools to automatically balance workloads across multiple systems.

**Increase user productivity** Free users from the hassles of managing mailbox capacity and archives with large, 1 to 2.5Gb mailboxes and specially designed inbox productivity tools that make it easier than ever for employees to navigate and sort e-mail.

**Universal access** Give a consistent experience across PC, browser and phone with centralized archiving and security.

**Eliminate risk and aggravation of local PST files** With archives secured and accessible on a server, instead of on the user desktop, avoid permanent loss of email and potential compromise of corporate data.

## Standard Features

**Operating System** Microsoft Windows Server 2008 R2 Enterprise Edition

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## E5000 System Enclosure

**Blades per Enclosure** (2) E5460sb (equivalent to BL460c G6)

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**Storage Controller** Type P1210m 6 Gbps SAS controller + 1GB FBWC

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**Enclosure Storage** Hot Plug MDL SAS Maximum of 16 LFF drives

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## E5460sb

**Processor** Intel® Xeon® processor E5502 (1.86 GHz, 80W, 1333 MHz FSB) (E5300 only)  
 Intel® Xeon® Processor E5520 (2.26 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2)

**NOTE:** HT indicates that the processor model supports Intel® Hyper-Threading Technology.  
**NOTE:** Turbo indicates the maximum potential frequency increment when using Intel® Turbo Boost Technology, with 4, 3, 2, and 1 cores active (on 5500 series processors).  
**NOTE:** DDR3 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed.  
**NOTE:** For the Intel 5500 Series, the letter E preceding the model number denotes Enterprise Performance/Wattage (Mainstream).

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**Memory** Type DDR3 Registered (RDIMM)  
 Maximum (RDIMM) 48GB (12 x 4 GB)

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**Network Controllers** NC532i 2-port 1Gb Ethernet  
 NC382m 2-port 1Gb Ethernet (E5500 and E5700)

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**Integrated Manageability** HP Integrated Lights-Out 2 (iLO 2) management processor

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**Storage Controller** Type P410i 256MB cache, no battery  
 P1210m 6 Gbps SAS controller + 1GB FBWC

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**Internal Storage** Hot Plug SAS 2 x 300GB 10K 6G 2.5 SAS DP HDD

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**Graphics** Integrated ATI RN-50, 32 MB video memory

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## Standard Features

<b>Graphics Resolution Supported</b>	Resolution Color Depths	<p>1600 x 1200, 64K, 256, 16            1280 x 1024, 16.7M, 64k, 256, 16            1024 x 768, 16.7M, 64k, 256, 16            800 x 600, 16.7M, 64k, 256, 16            640 x 480, 16.7M, 64k, 256, 16</p> <p><b>NOTE:</b> Maximum resolution available via HP Integrated Lights-Out 2 (iLO 2) remote console is 1280 x 1024.</p>
<hr/>		
<b>HP Insight management software</b>	HP Insight Foundation	<p>Managing the growing number of servers can be complex and expensive for your organization. IT managers need to address changing business needs with tools that meet the challenges of managing today's complex Datacenters.</p> <p>HP provides management solutions that are designed to simplify a server's installation, configuration and maintenance throughout the entire server lifecycle. This provides the customer with higher levels of operational efficiency and highly reliable systems:  <a href="http://www.hp.com/go/foundation">http://www.hp.com/go/foundation</a>.</p> <p>The foundation pack includes:</p> <ul style="list-style-type: none"> <li>● HP SmartStart</li> <li>● HP Management</li> <li>● HP ProLiant Firmware Maintenance</li> </ul> <p>SmartStart version supported (minimum): SmartStart 8.20.  <a href="http://www.hp.com/servers/smartstart">http://www.hp.com/servers/smartstart</a></p>
	HP Integrated Lights-Out (iLO)	<p>HP Integrated Lights-Out (iLO) simplifies server setup, health monitoring, power and thermal control, and lights-out remote administration of ProLiant ML, DL, and BL servers. HP iLO functions without additional software and can be accessed from any location via a web browser. HP iLO works hand-in-hand with HP Systems Insight Manager, Insight Control, and Insight Dynamics for ProLiant, helping customers unleash the value of the ProLiant platform and deliver the highest possible quality of IT service. For more information, visit:  <a href="http://www.hp.com/go/iLO">www.hp.com/go/iLO</a></p>
	HP Insight Control	<p>HP Insight Control, a product option, delivers essential infrastructure management that can help save time and money by making it easy to deploy, migrate, monitor, remote control, and optimize your IT infrastructure through a single, simple management console.</p> <p>Two versions of Insight Control are available, to serve environments requiring either a Linux-based or a Windows-based central management server: HP Insight Control for Linux, and HP Insight Control. See <a href="http://www.hp.com/go/insightcontrol">www.hp.com/go/insightcontrol</a></p> <p>HP Insight Control includes one year of 24 x 7 HP Software Technical Support and Update Service ensuring rapid access to HP support staff and proactive delivery of software updates. For more information about this service, please visit: <a href="http://www.hp.com/services/insight">http://www.hp.com/services/insight</a>.</p>
	HP Insight Dynamics for ProLiant	<p>HP Insight Dynamics for ProLiant, a product option, is advanced infrastructure management software that enables IT staff to instantly adjust their environments to meet dynamic business demands by provisioning, optimizing and protecting complex infrastructure in minutes. It's a powerful toolkit, integrated-by-design, that accelerates complex technology projects and simplifies daily operations, transforming data center economics. With Insight Dynamics IT</p>

### Standard Features

professionals can plan capacity and power continuously, balance workloads across physical and virtual resources, and ensure cost-effective high availability. It also enables IT organizations to provision infrastructure consistently and automatically from pools of shared resources using a self-service portal. Resources provisioned can range from a single virtual machine to complex multi-tier environments and their associated physical and virtual resource requirements. In addition to the previous functional benefits, it also provides a cost-effective disaster recovery for physical and virtual environments that works with HP Continuous Access software for both the Enterprise Virtual Array and the XP storage array allowing application environments to be reactivated in minutes with the touch of a button to a remote location.

**NOTE:** For more information, visit:  
<http://www.hp.com/go/insightdynamics>

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<b>Availability</b>	<ul style="list-style-type: none"><li>• Two (2) hot-plug SAS/SATA hard drive bays and integrated RAID (HP Smart Array P410i Controller)</li><li>• Redundant ROM</li><li>• Advanced ECC Memory</li></ul>
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<b>Industry Standard Compliance</b>	ACPI 2.0 Compliant PCI 2.2 Compliant WOL Support Microsoft® Logo certifications USB 2.0 Support
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<b>Security</b>	<ul style="list-style-type: none"><li>• Power-on password</li><li>• Administrator's password</li><li>• Integrated Lights-Out 2 has 12 customizable user accounts and SSL encryption</li><li>• Integrated Lights-Out 2 can be disabled via a Global Setting</li></ul>
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<b>Factory Express Portfolio for Servers and Storage</b>	HP Factory Express offers configuration, customization, integration and deployment services for HP servers and storage products. Customers can choose how their factory solutions are built, tested, integrated, shipped and deployed.
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Factory Express offers service packages for simple configuration, racking, installation, complex configuration and design services as well as individual factory services, such as image loading, asset tagging, and custom packaging. HP products supported through Factory Express include a wide array of servers and storage: HP Integrity, HP ProLiant, HP ProLiant Server Blades, HP BladeSystem, HP 9000 servers as well as HP Storage products.

For more information on Factory Express services on your specific server model please contact your sales representative or go to:

<http://h71028.www7.hp.com/enterprise/cache/97688-0-0-225-121.html>

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### Standard Features

#### HP Enterprise Configurator

The HP e-Configure Enterprise Configurator now provides factory default racking for our HP hardware portfolio. This approach is aligned with our strategic direction to meet the needs and expectations of our valued customers. If you require "custom" rack configuration, please contact HP's Customer Business Center or an Authorized Partner for assistance.  
<http://www.hp.com/products/configurator>

#### Warranty

The HP E5000 Messaging System for Microsoft Exchange is covered by a global limited warranty. Warranty includes 3 years parts exchange, 3 years labor and 3 years 4 hour on-site hardware response.

Beyond the warranty, 3 year 24x7 support is included as a part of the standard offering, providing both hardware and software support covering all components including the Microsoft Windows Server 2008 R2 and Microsoft Exchange Server 2010. Customers may upgrade to higher support levels or extended durations. See the Ordering Support Care Packs section.

### Models

#### HP E5300 Messaging System

Blade Servers	Description	Notes
Processor type	Intel® Xeon® Processor E5502	Dual-Core 1.86 GHz, 4MB L3 Cache, 80W, DDR3-800
Memory	12GB	(3) 4GB DIMMs
Internal blade storage	(2) 300GB SFF SAS	Boot disks
Blade storage controller	P410i	256MB cache, no battery
Enclosure storage controller	P1210m	6 Gbps SAS controller 1GB Flash Back Write Cache
Networking	NC532i	NC532i 2-port 1Gb Ethernet
Enclosure storage	(12) 1TB 6G 7.2K LFF MDL SAS HDD	

#### HP E5500 Messaging System 16TB

Blade Servers	Description	Notes
Processor type	Intel® Xeon® Processors E5520	Quad-Core 2.26 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2
Memory	24GB	(6) 4GB DIMMs
Internal blade storage	(2) 300GB SFF SAS	Boot disks
Blade storage controller	P410i	256MB cache, no battery
Enclosure storage controller	P1210m	6 Gbps SAS controller 1GB Flash Back Write Cache
Networking	NC532i NC382m	NC532i 2-port 1Gb Ethernet NC382m 2-port 1Gb Ethernet
Enclosure storage	(16) 1TB 6G 7.2K LFF MDL SAS HDD	

#### HP E5500 Messaging System 32TB

Blade Servers	Description	Notes
Processor type	Intel® Xeon® Processors E5520	Quad-Core 2.26 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2
Memory	24GB	(6) 4GB DIMMs
Internal blade storage	(2) 300GB SFF SAS	Boot disks
Blade storage controller	P410i	256MB cache, no battery
Enclosure storage controller	P1210m	6 Gbps SAS controller 1GB Flash Back Write Cache
Networking	NC532i NC382m	NC532i 2-port 1Gb Ethernet NC382m 2-port 1Gb Ethernet
Enclosure storage	(16) 2TB 6G 7.2K LFF MDL SAS HDD	



### Models

#### HP E5700 Messaging System 40TB

Blade Servers	Description	Notes
<b>Processor type</b>	(2) Intel® Xeon® Processors E5520	Quad-Core 2.26 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2
<b>Memory</b>	48GB	(12) 4GB DIMMs
<b>Internal blade storage</b>	(2) 300GB SFF SAS	Boot disks
<b>Blade storage controller</b>	P410i	256MB cache, no battery
<b>Enclosure storage controller</b>	P1210m	6 Gbps SAS controller 1GB Flash Back Write Cache
<b>Networking</b>	NC532i NC382m	NC532i 2-port 1Gb Ethernet NC382m 2-port 1Gb Ethernet
<b>Enclosure storage</b>	(16) 1TB 6G 7.2K LFF MDL SAS HDD	
<b>External storage</b>	(2) E5000 12TB Expansion Nodes	(24) 1TB 6G 7.2K LFF MDL SAS HDD

#### HP E5700 Messaging System 80TB

Blade Servers	Description	Notes
<b>Processor type</b>	(2) Intel® Xeon® Processors E5520	Quad-Core 2.26 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2
<b>Memory</b>	48GB	(12) 4GB DIMMs
<b>Internal blade storage</b>	(2) 300GB SFF SAS	Boot disks
<b>Blade storage controller</b>	P410i	256MB cache, no battery
<b>Enclosure storage controller</b>	P1210m	6 Gbps SAS controller 1GB Flash Back Write Cache
<b>Networking</b>	NC532i NC382m	NC532i 2-port 1Gb Ethernet NC382m 2-port 1Gb Ethernet
<b>Enclosure storage</b>	(16) 2TB 6G 7.2K LFF MDL SAS HDD	
<b>External storage</b>	(2) E5000 24TB Expansion Nodes	(24) 2TB 6G 7.2K LFF MDL SAS HDD

### Service and Support, HP Care Pack, and Warranty Information

**HP Care Pack Services** HP Care Pack services provide total care and support expertise with committed response designed to meet your IT and business needs.

3yr 24x7 hardware and software support is included with the HP E5000 systems. Customers have the opportunity to extend the duration or upgrade the service level to Proactive 24 Service or Critical Service, or to add Proactive Select to these reactive support Care Packs.

To upgrade support levels, one of the following support offers may be selected:

- **HP Support Plus 24 - 4yr or 5yr**
  - For a higher return on your server and storage technology, our 4 or 5 -year combined reactive support service delivers integrated onsite hardware/software support services available 24x7x365, including access to HP technical resources, 4-hour response onsite hardware support and software updates.
- **HP Proactive 24 Service - 3yr, 4yr or 5yr**
  - Provides improved stability, availability and operational effectiveness with an integrated hardware and software support service that combines industry-leading reactive technical assistance with proactive account services, giving your IT manage support from a team of service specialists.
- **HP Critical Service - 3yr, 4yr or 5yr**
  - Provides comprehensive proactive and reactive support designed for businesses that run essential mission-critical applications where downtime is not an option.
- **HP Proactive Select - 3yr, 4yr, or 5yr**
  - Provides a flexible way to purchase HP best-in-class consultancy and technical services. You can buy Proactive Select Service Credits when you purchase your hardware and then use the credits over the next 12 months.
- Installation and startup can be performed by customers. Additionally, installation & mailbox migration services are available from HP & HP resellers as detailed at <http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA0-7546ENW.pdf>

#### Installation and Startup

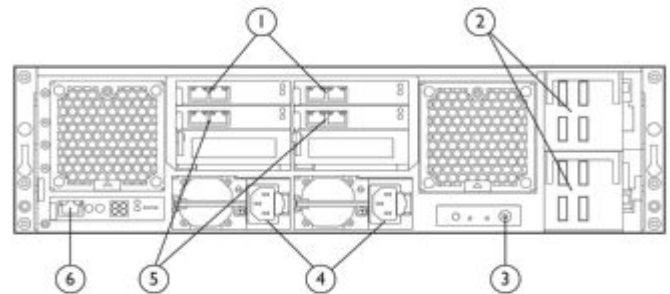
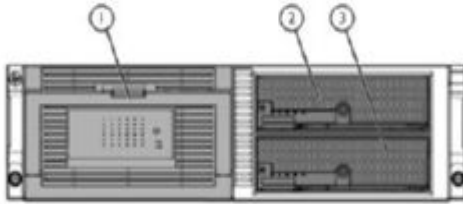
#### Additional Services Information

For more information about HP Care Pack Services, please visit: <http://www.hp.com/hps/storage>

If you have specific questions, contact your local HP representative. Contact information for a representative in your area can be found at "Contact HP" <http://www.hp.com>

## Configuration Options

### HP E5000 Messaging System for Microsoft Exchange



#### Front View:

1. Disk enclosure
2. Server blade, Bay 1
3. Server blade, Bay 2

#### Rear View:

1. LOM module (2)
2. SAS I/O module (2)
3. Power button
4. Power supply (2)
5. I/O module (2)
6. iLO2 management port (1)

### Step 1 - E5000 Base Configuration - choose a model that best fits your needs

System Configuration	Model Description	Part Number
	HP E5300 12TB LFF MDL SAS Messaging System - 500 1.75 GB mailboxes	BV839A
	HP E5500 16TB LFF MDL SAS Messaging System - 1000 1.25 GB mailboxes	BV895A
	HP E5500 32TB LFF MDL SAS Messaging System - 1000 2.5 GB mailboxes	BV840A
	HP E5700 40TB LFF MDL SAS Messaging System - 3000 1.25 GB mailboxes	BV896A
	<ul style="list-style-type: none"> <li>• Requires (2) HP E5000 12TB LFF MDL SAS Expansion Node</li> </ul>	BV844A
	HP E5700 80 TB LFF MDL SAS Messaging System - 3000 2.5 GB mailboxes	BV841A
	<ul style="list-style-type: none"> <li>• Requires (2) HP E5000 24TB LFF MDL SAS Expansion Node</li> </ul>	BV845A

### Step 2 - Options

E5000 Upgrade Options	Options	Part Number
	HP E5000 12TB LFF MDL SAS Expansion Node	BV844A
	Up to four Expansion Nodes can be added for additional storage for all 1TB drive versions of E5000 Systems connected via the P1201m 6Gbps SAS storage controller.	
	HP E5000 24TB LFF MDL SAS Expansion Node	BV845A
	Up to four Expansion Nodes can be added for additional storage for all 2TB drive versions of E5000 Systems connected via the P1201m 6Gbps SAS storage controller.	
	HP 2-port 1Gb Ethernet Module	BV897A
	Additional NC382m 2-port 1Gb Ethernet for E5300 only	
	HP 82B PCIe 8Gb Fibre Channel Dual Port Host Bus Adapter	AP770A
	HP 82E PCIe 8Gb Fibre Channel Dual Port Host Bus Adapter	AJ763A
	HP 82Q PCIe 8Gb Fibre Channel Dual Port Host Bus Adapter	AJ764A

### Configuration Options

#### Step 3 - Other E5000 Options

**HP Rack Series** HP Rack 10000 G2 Series (Carbon/Graphite Metallic)  
10642 G2 (42U) Rack Cabinet - Pallet  
10642 G2 (42U) Rack Cabinet - Shock Pallet

**NOTE:** It is mandatory to use a shock pallet when shipping racks with equipment installed.

**NOTE:** Please see the QuickSpecs for Technical Specifications and additional information:  
[http://h18000.www1.hp.com/products/quickspecs/12402\\_div/12402\\_div.html](http://h18000.www1.hp.com/products/quickspecs/12402_div/12402_div.html)  
(Worldwide)

**NOTE:** For additional information regarding Rack Cabinets, please see the following URL: <http://www.hp.com/go/rackandpower>

**Cable Options** Cables used for connecting the E5000 to E5000 Expansion Nodes

Mini SAS 4x 2M Cable All	407339-B21*
Mini SAS 4x 4M Cable All	432238-B21*

\* #0D1 will appear after this part number on your sales order if factory integration is indicated.

**NOTE:** The E5000 ships with 2 mini SAS 4X 2M cables, order above cables only if the E5000 Expansion Node is configured so that the 2M cable does not suffice.

**Power Cord Options** If customers require a power cord other than the included PDU style cords, they can check the power cord matrix for the appropriate SKU. Please see the following power cord matrix for details: [www.hp.com/products/powercords](http://www.hp.com/products/powercords)

**NOTE:** An optional longer 2 meter PDU power cable ( C14 to C13 style connector) for customers who would like additional length for connections to existing power distribution modules located on the right side of the rack. This is purely optional as the included .7meter power cables will also reach the right sides of the rack. If desired, the quantity to order is 1 AF573A HP RDNT 2m,10A, C13-C14 JMPR CORD

## Technical Specifications

<b>E5000 System Enclosure</b>	<b>Dimensions</b> (H x W x D)	5.19 x 17.64 x 34.01 in (13.18 x 44.80 x 86.38 cm) (with bezel)	
	<b>Weight</b> (approximate)	Maximum (16 hard drives, power supplies, and blades installed)	152.0 lb. (68.95kg)
		Minimum (one hard drive, <i>all power supplies</i> , and <i>blades</i> installed)	127.6 lb. (57.88 kg)
<b>Input Power Requirements</b> (both power supplies)	<b>Rated Line Voltage</b>	90 -- 132 VAC, 180 - 264 VAC	
	<b>Rated Input Current</b> (nominal)	5.2 A (at 120 VAC), 2.5 A (at 240 VAC)	
	<b>Rated Input Current</b> (maximum)	6.7 A (at 120 VAC), 3.1 A (at 240 VAC)	
	<b>Rated Input Frequency</b>	47 to 63 Hz	
	<b>Rated Input Power</b> (nominal)	620 W (at 120 VAC), 600 W (at 240 VAC)	
	<b>Rated Input Power</b> (maximum)	800 W (at 120 VAC), 740 W (at 240 VAC)	
	<b>BTU Rating</b>	<b>Nominal</b>	2116 BTU/hr (at 120 VAC) 2047 BTU/hr (at 240 VAC)
<b>Maximum</b>		2730 BTU/hr (at 120 VAC) 2525 BTU/hr (at 240 VAC)	
<b>System Inlet Temperature</b>	<b>Operating</b>	10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 10°C/hr (18°F/hr). The upper limit may be limited by the type and number of options installed.	
	<b>Non-operating</b>	System performance may be reduced if operating with a fan fault or above 30°C (86°F).	
<b>Relative Humidity</b> (non-condensing)	<b>Operating</b>	-30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr).	
	<b>Non-operating</b>	10 to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.	
<b>Altitude</b>	<b>Operating</b>	5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.	
	<b>Non-operating</b>	3050 m (10,000 ft). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 457 m/min (1500 ft/min).	
<b>Acoustic Noise</b>	<b>Operating</b>	9144 m (30,000 ft). Maximum allowable altitude change rate is 457 m/min (1500 ft/min).	
	<b>Non-operating</b>	Listed are the declared A-Weighted sound power levels (LWAd) and	



## Technical Specifications

declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109). The listed sound levels apply to standard shipping configurations. Additional options may result in increased sound levels.

Idle		2 server blades
	<i>LWAd</i>	7.3 B
	<i>LpAm</i>	55 dBA
Operating		
	<i>LWAd</i>	7.4 B
	<i>LpAm</i>	56 dBA

**E5000 Expansion Node Dimensions** (H x W x D) 3.47 x 17.99 x 22.3 in (8.8 x 45.0 x 56.7 cm) (with bezel)

<b>Weight</b> (approximate)	Maximum (12 hard drives)	50 lb. (22.6 kg)
	Minimum (base unit - no hard drives)	38 lb. (17.2 kg)

<b>Input Power Requirements</b>	Rated Input Voltage	100 to 240 VAC
	Rated Input Frequency	50 to 60 Hz
	Rated Input Current	2.68A at 115 VAC typical, 4A Maximum
	Input Power (max)	300 W

<b>BTU Rating</b>	Maximum	964 BTU/hr
	Operating	50° to 95° F (10° to 35° C)
<b>System Inlet Temperature</b>	Non-operating	-40° to 150° F (-40° to 66° C)

<b>Relative Humidity</b>	Operating	10 to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.
	Non-operating	5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.

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The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

For hard drives, 1GB = 1 billion bytes. Actual formatted capacity is less.