

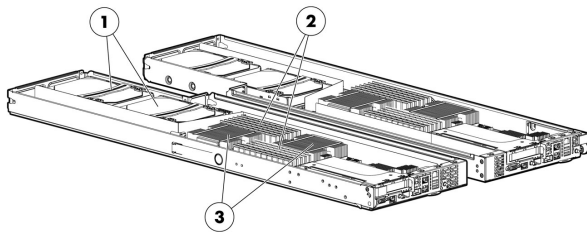
### Overview

The HP ProLiant SL390s G7 server is part of a new family, HP ProLiant SL6500 Scalable System, of HP server solutions optimized for scale-out customers to greatly reduce costs, maximize power efficiency, by sharing power supplies and fans, and maintain total flexibility.

The SL390s G7 consists of three different server trays, each with their own benefits. The 1U half width tray is designed for compute density, and the 2U and 4U half width trays are designed for GPU density, support is up to 3 GPUs in the 2U and 8 GPUs in the 4U tray. They each use the same system board and go into the 4U HP ProLiant s6500 Chassis. The SL390s G7 is a two socket Intel server with 12 DDR3 DIMM sockets, two 1 Gb Ethernet ports, one 10 Gb Ethernet port (SFP+) and an option on board InfiniBand port (QSFP).

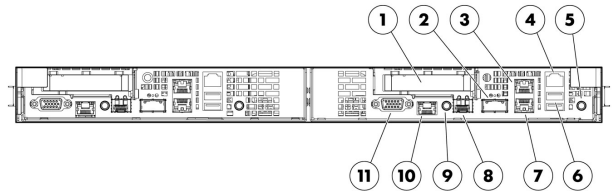
The SL390s G7 1U half width server tray support a low profile x16 gen 2 PCI-e slot and two 3.5" or four 2.5" hard drives.

The SL390s G7 2U half width server trays support a low profile x8 gen2 PCI-e slot, while also supporting three internal x16 gen2 slots dedicated for three GPU's (up to 225 watts each). The SL390s G7 4 U half width server tray support a low profile x8 gen2 PCI-e slot, while also supporting eight internal x16 gen2 slots dedicated for eight GPU's (up to 225 watts each)



#### 1U Open View:

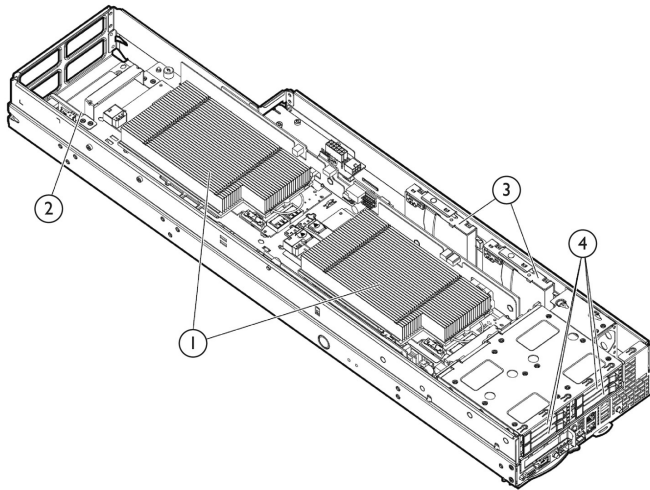
1. Two 3.5" or four 2.5" non-hot plug hard drives using a quick release drive carrier
2. 12 DDR3 DIMM Slots
3. Support for up to two Intel® 5600 sequence processors



#### 1U Front View:

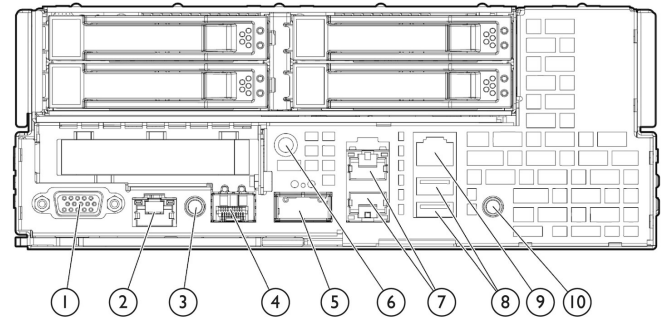
1. Low profile x16 PCI-e Gen 2
2. Optional Infiniband port (QSFP)
3. 1Gb Ethernet port
4. iLO3 dedicated management port
5. UID LED
6. 2 front USB ports
7. 1 Gb Ethernet port
8. 10Gb Ethernet port (SFP+)
9. Power Button
10. Serial port (RJ45)
11. Video Port

### Overview



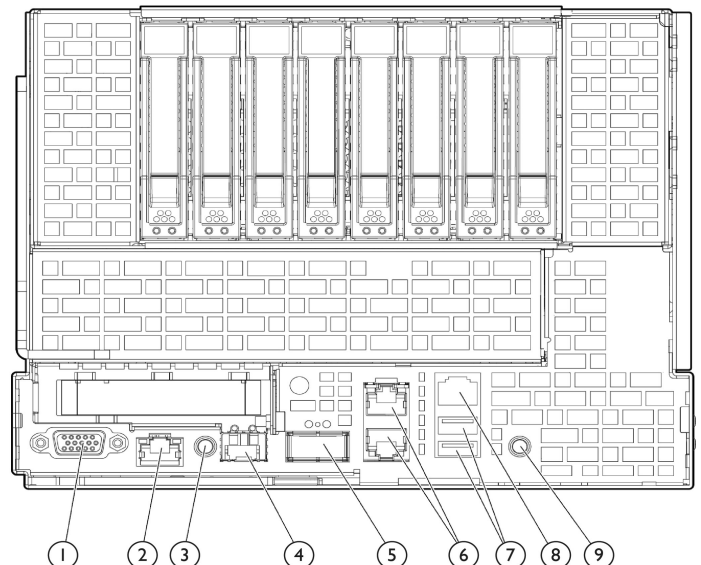
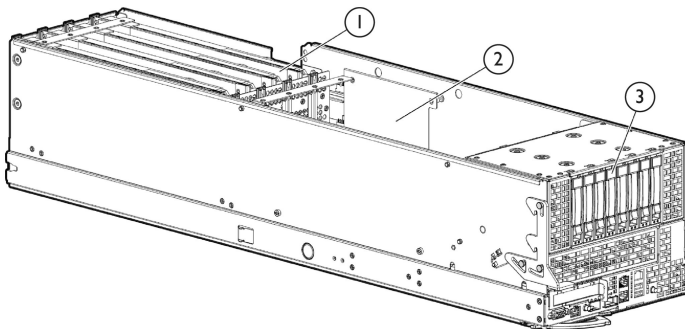
#### 2U Open View:

1. Support for up to two GPUs
2. Support for 1 GPU
3. Two internal non-hot plug 2.5" hard drives
4. Four 2.5" hot plug hard drives



#### 2U Front View:

1. Video Port
2. Serial port (RJ45)
3. Power Button
4. 10Gb Ethernet port (SFP+)
5. Optional Infiniband port (QSFP)
6. Health LED
7. (2) 1Gb Ethernet ports
8. 2 front USB ports
9. iLO3 dedicated management port
10. UID LED



### Overview

#### 4U Open View:

1. Support for 4 rear GPUs
2. Support for 4 front GPUs
3. Eight 2.5" hot plug hard drives

#### 4U Front View:

1. Video Port
  2. Serial port (RJ45)
  3. Power Button
  4. 10Gb Ethernet port (SFP+)
  5. Optional InfiniBand port (QSFP)
  6. (2) 1Gb Ethernet ports
  7. 2 front USB ports
  8. iLO3 dedicated management port
  9. UID LED
- 

### What's New

- Support for new HP hard drive

### Standard Features

**NOTE:** For the Standard Features shipped in the Factory Integrated Models, please see the "Configuration Information - Factory Integrated Models" section.

#### Processor

One of the following depending on Model

#### Six-Core Processor

Intel® Xeon® X5690 (3.46GHz/6-core/12MB/130W), DDR3-1333, HT, Turbo 1/1/1/1/2/2) Processor  
 Intel® Xeon® X5675 (3.06GHz/6-core/12MB/95W, DDR3-1333, HT, Turbo 2/2/2/2/3/3) Processor  
 Intel® Xeon® E5645 (2.40GHz/6-core/12MB/80W, DDR3-1333, HT, Turbo 1/1/1/1/2/3) Processor  
 Intel® Xeon® E5649 (2.53GHz/6-core/12MB/80W, DDR3-1333, HT, Turbo 1/1/1/1/2/2) Processor

#### Quad-Core Processors

Intel® Xeon® X5687 (3.60GHz/4-core/12MB/130W, DDR3-1333, HT, Turbo 1/1/2/2) Processor  
 Intel® Xeon® X5672 (3.20GHz/4-core/12MB/95W, DDR3-1333, HT, Turbo 1/1/2/2) Processor  
 Intel® Xeon® E5607 (2.26GHz/4-core/8MB/80W, DDR3-1333, HT, Turbo 1/1/2/2/3/3) Processor  
 Intel® Xeon® E5606 (2.13 GHz/4-core/8MB/80W,DDR3-1066, HT, Turbo 1/1/2/2/3/3) Processor  
 Intel® Xeon® E5603 (1.60GHz/4-core/4MB/80W, DDR3-1066) Processor

**NOTE:** 130 watt processors are available in all 3 form factors, and can utilize the redundant fan kit.

**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.

**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 preceding the model number indicates the performance/wattage of the processor. "X" denotes High Performance/Wattage; "E" denotes Enterprise Performance/Wattage (Mainstream), and "L" denotes Lower Wattage.

**NOTE:** Up to 2 processors supported. Mixing different processor models is not supported.

**NOTE:** GPUs are not supported with configurations consisting of a single CPU

#### Cache Memory

One of the following depending on Model

12MB (1 x 12MB) Level 3 cache

**NOTE:**For all 5600 sequence processors.

8MB (1 x 8MB) Level 3 cache

**NOTE:** For E5607 and E5606 processors.

4MB (1 x 4MB) Level 3 cache

**NOTE:** For E5603 processor.

#### Chipset

Intel® 5520 Chipset

**NOTE:** For more information regarding Intel chipsets, please see the following URL:  
<http://www.intel.com/products/server/chipsets/>

#### Upgradeability

Upgradeable to two processors

#### Memory Protection

Advanced ECC (multi-bit error protection)

Lock-step mode



### Standard Features

#### Memory

Type	DDR3 Registered (RDIMM) or Unbuffered (UDIMM)
Maximum (RDIMM) (per server tray)	192GB (12 x 16GB) for Registered Memory configurations
Maximum (UDIMM) (per server tray)	48GB (12 x 4GB) for Unbuffered Memory configurations

**NOTE:** Depending on the memory configuration and processor model, the memory speed may run at 1333MHz, 1066MHz, or 800MHz. Please see the Online Memory Configuration Tool at: [www.hp.com/go/ddr3memory-configurator](http://www.hp.com/go/ddr3memory-configurator).

**NOTE:** Kits described as LP include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, see: [www.hp.com/go/proliant-energy-efficient](http://www.hp.com/go/proliant-energy-efficient).

#### Network Controller

HP NC362i Integrated Dual Port Gigabit Server Adapter  
HP NC543i 2-port 4xQDR IB/10Gb Adapter

#### Expansion Slots

##### For SL390s 1U half width server:

- Up to one available PCI Express 2.0 slots:
- Standard Slot 1: low-profile x16 PCI-Express 2.0

##### For SL390s 2U half width server:

- Up to four available PCI Express 2.0 slots:
- Standard Slot 1: low-profile x8 PCI-Express 2.0
- Internal Slots 3: x16 PCI-express 2.0 for internal GPU (up to 225 watts) support

##### For SL390s 4U half width server:

- Up to nine available PCI Express 2.0 slots:
- Standard Slot 1: low-profile x8 PCI-Express 2.0
- Internal Slots 8: x16 PCI-express 2.0 for internal GPU (up to 225 watts/GPU) support

Expansion Slots #	Technology	Bus Width**	Connector Width	Form Factor	Notes
1	PCI-Express 2.0	x16	x16	Low Profile	3.3 volts

\*\* Indicates the number of physical electrical lanes running to the connector.

#### Storage Controller

HP Embedded Smart Array B110i SATA RAID Controller (RAID 0, 1, 10) per server node

**NOTE:** To enable RAID on Embedded SATA, use the HP Smart Array B110i SATA Raid controller, To enable use of the B110i, enter the ROM based setup utility(RBSU). The option for enabling RAID can be found in the advanced section of the RBSU. For additional details [www.hp.com/go/SATARAID](http://www.hp.com/go/SATARAID)

**NOTE:** Transfer rate: 3.0 Gb/s SATA.

**NOTE:** A HP Smart Array controller is required for SAS Hard Drives

**NOTE:** An external diskette drive, USB floppy drive key or virtual FDD using LO100 Advanced Pack is needed to install storage controller drivers during a Windows operating system installation from a CD.

### Standard Features

<b>Internal Storage Devices</b>	Diskette Drives	Via USB only	
	Optical Drives	DVD / CD drives via USB only	
		External support only.	
	Hard Drives	None ship standard	
		SL390s 1U half width server	Support for up to two 3.5" or four 2.5" non-hot plug hard drives using a quick release drive carrier
		SL390s 2U half width server	Support for up to four 2.5" hot plug hard drives Support for up to two internal 2.5" non-hot plug hard drives using a quick release drive carrier
		SL390s 4U half width server	Support for up to eight 2.5" hot plug hard drives

### Maximum Internal Storage

#### 1U Half Width tray

Non-Hot Plug SATA 3.5"	4.0 TB	2 x 2TB
Non-Hot Plug SATA 2.5"	2.0 TB	4 x 500GB
Non-Hot Plug SAS 3.5"	4.0TB	2 x 2TB
Non-Hot Plug SAS 2.5"	1.2TB	4 x 300GB
Hot Plug SATA SSD 2.5"	1.6TB	4 x 400GB
Non-Hot Plug SSD 2.5"	1.6TB	4 x 400GB

#### 2U Half width tray

Hot Plug SATA 2.5"	2.0TB	4 x 500GB
Hot Plug SAS 2.5"	3.6TB	4 x 900GB
Hot Plug SSD 2.5"	480GB	4 x 120GB
Hot Plug SATA SSD 2.5"	1.6TB	4 x 400GB
Non-Hot Plug SAS 2.5"	1.2TB	4x300GB
Non-Hot Plug SSD 2.5"	1.6TB	4x400GB

#### 4U Half width tray

Hot Plug SATA 2.5"	4.0TB	8 x 500GB
Hot Plug SAS 2.5"	4.0TB	8 x 500GB
Hot Plug SSD 2.5"	3.2TB	8 x 400GB
Hot Plug SATA SSD 2.5"	3.2TB	8 x 400GB

### Standard Features

<b>Interfaces</b>	Parallel	None
	Network RJ-45	Two 10/100/1000 NIC ports One 10GB SPF+ One optional IB (QSFP)
	Serial (RJ-45)	1
	Graphics	1
	Micro SD	1
	USB	3 (two front, 1 internal)
	Management	1 Dedicated iLO3 Management Port
	Health LED	1 front
	Power	1 front
	UID	1 front

<b>Industry Standard Compliance</b>	ACPI 2.0b Compliant
	PCI 2.2 Compliant
	WOL Support
	Microsoft® Logo certifications
	PXE Support
	USB 1.1 and 2.0 Compliant
	SMBIOS 2.6.1

<b>Graphics</b>	ATI RN50/ES1000 w/ 64MB memory
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<b>Server Power Cords</b>	One 6' Highline (IEC-IEC) power cord ships standard
	<b>NOTE:</b> HP ProLiant SL servers are primarily connected to PDU's in data center racks so they ship standard with only a PDU power cord (416151-B21).

**NOTE:** If customers require a local power cord, they can check the power cord matrix for the appropriate cord. Please see the following power cord matrix: <http://www.hp.com/go/powercordmatrix>.

<b>HP Common Slot Power Supplies</b>	HP has a new design for ProLiant power. The new Common Slot Power Supply provides the customer with commonality in power supplies across multiple platforms to save on the cost of spares and allows HP to offer multiple power solutions to fit the customers' needs. Many HP ProLiant Servers come with or compatible with high-efficiency HP CS Power Supplies. These power supplies are designed for highest efficiency to provide power efficiency without degrading performance of the ProLiant server. HP CS Power Supplies options for this server will have efficiency ratings up to 94%. There are six power options available, depending on the configuration of your server. To make sure you select the correct power supply to meet your configuration, we suggest that you use the HP Power Advisor to decide the "Right-Size" for your configuration. All HP Common Slot power sources are UL, CE Mark Compliant, Hot Plug and Redundant (redundancy dependent on node configurations).
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### Standard Features

#### System Fans

Non redundant model - 8 fans required

Redundant model - redundant fan kit required

**NOTE:** all 8 fan bays must be populated with either redundant or non-redundant fans

**NOTE:** mixing and matching of fans is not allowed

#### Operating Systems and Virtualization Software Support for ProLiant Servers

[Microsoft Windows Server](#)

[Red Hat Enterprise Linux \(RHEL\)](#)

[SUSE Linux Enterprise Server \(SLES\)](#)

[VMware ESX](#)

**NOTE:** For more information on HP's Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server including how to purchase from HP, please visit our OS Support Site at: <http://www.hp.com/go/ossupport>

#### Form Factor

HP ProLiant s6500 Chassis - 4U

HP ProLiant SL390s G7 1U half width server tray

HP ProLiant SL390s G7 2U half width server tray

HP ProLiant SL390s G7 4U half width server tray

#### HP Insight management software

HP Insight Foundation

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.

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: [www.hp.com/go/foundation](http://www.hp.com/go/foundation).

The foundation pack includes:

- HP SmartStart
- HP Management DVD
- HP ProLiant Smart Update Firmware DVD

SmartStart version supported (minimum): SmartStart 8.40.

<http://www.hp.com/servers/smartstart>

**NOTE:** In an effort to support reducing our environmental impact, the HP Insight Foundation Suite for ProLiant media will be available as a selectable option for this server at time of order of a CTO SKU. This will allow customers to order the number of media kits that best meet their needs and eliminate receiving unnecessary duplicate media.

HP Integrated Lights-Out 3 (iLO 3)

HP Integrated Lights-Out 3 (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 suites, and Insight Dynamics for ProLiant, helping customers unleash the value of the ProLiant platform

### Standard Features

and deliver the highest possible quality of IT service. For more information, visit: [www.hp.com/go/iLO](http://www.hp.com/go/iLO)

#### Security

Power-on password  
Keyboard password  
QuickLock, Network Server Mode  
Serial interface control  
Administrator's password  
iLO 3 (Integrated Lights-Out 3) has 12 customizable user accounts and SSL encryption  
iLO 3 can be disabled via a Global Setting  
iLO Advanced supports directory services integration

#### Warranty

This product is covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners. Hardware diagnostic support and repair is available for one year from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Enhancements to warranty services are available through HP Care Pack services or customized service agreements. Hard drives have either a one year or three year warranty.

**NOTE:** Server Warranty includes 1 year Parts, 1 year Labor, 1-year on-site support with next business day response. Warranty repairs may be accomplished through the use of Customer Self Repair (CSR) parts. These parts fall into two categories: 1) Mandatory CSR parts are designed for easy replacement. A travel and labor charge will result when customers decline to replace a Mandatory CSR part; 2) Optional CSR parts are also designed for easy replacement but may involve added complexity. Customers may choose to have HP replace Optional CSR parts at no charge. Additional information regarding worldwide limited warranty and technical support is available at: <http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html>.

### Optional Features

#### HP Insight management software

HP Insight Control

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. For more information, see <http://www.hp.com/go/insightcontrol>.

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, see: <http://www.hp.com/services/insight>.

HP Insight Dynamics for ProLiant

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 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>

#### High Performance Clusters

HP Cluster Platforms

HP Cluster Platforms are specifically engineered, factory-integrated large-scale ProLiant clusters optimized for High Performance Computing, with a choice of servers, networks and software. Operating system options include specially priced offerings for Red Hat Enterprise Linux and SUSE Linux Enterprise Server, as well as Microsoft Windows HPC Server. A Cluster Platform Configurator simplifies ordering. <http://www.hp.com/go/clusters>

HP HPC Interconnects

High Performance Computing (HPC) interconnect technologies are available for this server as part of the HP Cluster Platform portfolio. These high-speed InfiniBand and Gigabit interconnects are fully supported by HP when integrated within an HP cluster. Flexible, validated solutions can be defined with the help of configuration tools. <http://www.hp.com/techservers/clusters/ucp/index.html>

HP Cluster Management Utility

HP Cluster Management Utility (CMU) is an HP-licensed and HP-supported suite of tools that are used to manage large-scale Linux ProLiant systems. CMU includes software for the centralized provisioning, management and monitoring of nodes. CMU makes the administration of clusters user friendly, efficient, and effective. <http://www.hp.com/go/cmu>

### Optional Features

**HP HPC Linux Value Pack** HP HPC Linux Value Pack (Value Pack) is an HP-licensed and HP-supported specially priced software bundle for the development and deployment of applications on HPC Cluster Platforms. Value Pack includes the Platform HPC Enterprise Edition suite of tools including the LSF workload scheduler, the HP-MPI parallelization library. Also included are the HP Unified Parallel C compiler and the HP Shmem library, as well as the execution environments for the libraries and compiler. [HP HPC Linux Value Pack](#)

### Factory Express Portfolio for Servers and Storage

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.

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 the MSAxxxx, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches.

For more information on Factory Express services for your specific server model please contact your sales representative or go to: <http://www.hp.com/go/factory-express>.

### HP Simple Configurator

SCE is a guided self service tool to help sales and non technical people provide customers with initial configurations in 3 to 5 minutes. You may then send the configuration on for configuration help, or use in your existing ordering processes. If you require "custom" rack configuration or configuration for products not available in SCE, please contact HP's Customer Business Center or an Authorized Partner for assistance. <http://www.hp.com/products/configurator>

### GPU Computing Modules

Each SL390s 2U tray will accommodate up to three GPUs, with options including HP NVIDIA Tesla M2050, M2070, M2070Q and M2090 computational accelerator modules. Each SL390s 4U tray will accommodate up to eight GPUs, with options including NVIDIA Tesla M2050, M2070, M2070Q and M2090 computational accelerator modules. The NVIDIA M2070Q module enables computational acceleration as well as high-end QUADRO® graphics. The other modules are primarily for computational acceleration.

**NOTE:** The ambient temperature for SL390s 2U systems with between one and three NVIDIA M2090 GPUs, must be 30 degrees Celsius or less. The ambient temperature for SL390s 4U systems with between five and eight NVIDIA M2090 GPUs, must be 30 degrees Celsius or less. All other SL390s systems may be operated with ambient temperatures up to 35 degrees Celsius.

**NOTE:** When adding GPU solutions to the SL390 2U & 4U servers one must utilize the HP 1200W CS Platinum Power Supply Kit, 578322-B21, for all four power supply slots.

**NOTE:** GPU power consumption is managed dynamically in order to optimize performance within acceptable GPU power limits. The power limits are system-dependent. For SL390 2U systems with up to 2 GPUs, and for SL390 4U systems with up to 6 GPUs, the GPU power-cap is set to 250 watts. For all other GPU configurations, the GPU power-cap is set to 225 watts."



### Service and Support

#### Service and Support

##### **HP Technology Services for Industry Standard Servers and BladeSystem**

Capitalizing on HP ProLiant server and HP BladeSystem capabilities requires a service partner who understands your increasingly complex business technology environment. That's why it makes sense to team up with the people who know HP infrastructure hardware and software best - the experienced professionals at HP Services.

##### **What HP ProLiant and BladeSystem Services can do for you**

HP ProLiant and BladeSystem Services can help you design, deploy, test, integrate, support, and manage IT and infrastructure solutions. This way, HP proposes services solutions that include more than just uplift of base warranty. You can get the support you need by choosing from one of a number of service packaged solutions we have designed to address wider set of customer support needs:

HP Technology Services meets business challenges with services offered in three packages - **Optimized Care Package, Standard Care Package, and Basic Care Package** - available for each product group. Such packaged solutions enable customers to optimize technology operations, minimize risk and drive better business outcomes with easy-to-buy, easy-to-use scalable support packages for servers, storage, networking and software.

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#### Optimized Care

##### **Optimized Care Package: Supports maintaining servers at optimum performance availability**

###### **HP ProLiant Server Hardware Installation**

Provides for the basic hardware installation of HP branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner <http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-9356EN>

###### **HP Installation and Startup for Insight Control Software**

Provides for the deployment and basic configuration of HP Insight Control on HP ProLiant ML and DL series servers or HP BladeSystem servers <http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA0-9972ENW.pdf>

###### **HP Proactive Care 24x7 Service**

HP recommends Proactive Care for your scalable servers to prevent problems with proactive advice and assistance, resolve issues and rapidly recover by connecting to HP's enhanced call experience and advanced technical expertise

###### **Additional Services: Data Center Transformation Service**

### Service and Support

#### Standard Care

**Standard Care Package:** Package that maintains high level of server availability

##### **HP ProLiant Server Hardware Installation**

Provides for the basic hardware installation of HP branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-9356EN>

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<http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA0-9972ENW.pdf>

##### **HP Proactive Care Next Business Day Service**

This services combines next-business-day onsite hardware reactive support with proactive services and enhanced access to call specialists to manage and prevent problems.

##### **3-Year , HP 24x7 Software Support for Insight Control**

Provides for the deployment and basic configuration of HP Insight Control on HP ProLiant ML and DL series servers or HP BladeSystem servers

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-6645EEE.pdf>

**Additional Services:** Software OS (Microsoft, Linux (SUSE/Red Hat) & VMware Installation & Start Up and Software Support); Microsoft or Linux or VMware education courses; +60 Proactive Select Credits

#### Basic Care

**Basic Care Package:** delivers minimum recommended support service level

##### **HP ProLiant Server Hardware Installation**

Provides for the basic hardware installation of HP branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-9356EN>

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##### **HP Foundation Care Next Business Day Service**

HP Foundation Care Next Business Day connects you to HP during business hours for assistance on resolving issues - features next business day hardware onsite response and software call back within two hours after opening your case. Make HP your first call for hardware or software questions; Collaborative Support is included in all Foundation Care Services for this product and provides troubleshooting assistance on software such as Microsoft Server, Red Hat Linux, VMware and more. Three years' coverage recommended with HP Care Pack Service.

##### **3-Year , HP 24x7 Software Support for Insight Control**

Provides for the deployment and basic configuration of HP Insight Control on HP ProLiant ML and DL series servers or HP BladeSystem servers

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-6645EEE.pdf>

**Additional Services:** Software OS (Microsoft, Linux (SUSE/Red Hat) & VMware Installation & Start Up and



### Service and Support

Software Support); +30 Proactive Select Credits, Factory Express

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**Insight Remote Support** The packages include HP Insight Remote Support that uses proven technology to deliver secure, reliable 24x7 remote monitoring, diagnoses, and problem resolution. It is available at no additional cost to all warranty, HP Care Pack Service, and service agreement customers.

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**For more information** To learn more on HP ProLiant servers and HP BladeSystem servers, please contact your HP sales representative or HP Authorized Channel Partner. Or visit: <http://www.hp.com/services/proliant>

### Pre-configured Models

**NOTE:** For the Standard Features shipped in the "Factory Integrated Models", please see the "Configuration Information - Factory Integrated Models" section.

**NOTE:** Pre-configured models ship with the configurations below. Options can be selected from the Core or Additional options section of this QuickSpecs.

**NOTE:** HP does not allow factory integration of options into pre-configured models. Any additional options purchased will be shipped separately.

**NOTE:** If you desire a custom configuration please see "Configuration Information - Factory Integrated Models" section of this QuickSpecs.

**NOTE:** Not all models are available in all regions. Check with your local country HP offices for availability.

**NOTE:** Server SKUs below are the server tray only, a chassis is needed to run servers.

**NOTE:** Mixing and matching of half width trays is supported - See s6500 Tray mixing support plan.

**NOTE:** 130 watt processors are available in all 3 form factors, and can utilize the redundant fan kit.

**NOTE:** The ambient temperature for SL390s 2U systems with between one and three NVIDIA M2090 GPUs, must be 30 degrees Celsius or less. The ambient temperature for SL390s 4U systems with between five and eight NVIDIA M2090 GPUs, must be 30 degrees Celsius or less. All other SL390s systems may be operated with ambient temperatures up to 35 degrees Celsius.

**NOTE:** When adding GPU solutions to the SL390 2U & 4U servers one must utilize the HP 1200W CS Platinum Power Supply Kit, 578322-B21, for all four power supply slots.

### HP ProLiant SL390s G7 1U Server

#### Base Models

<b>HP ProLiant SL390s G7 1U</b> <b>Left Half Width Tray</b> <b>X5650 1P 12GB-R B110i</b> <b>Base Server</b> 625538-B21	<b>Processor(s)</b>	(1) Intel® Xeon® Processor X5650 (2.66 GHz, 12MB L3 Cache, 95 Watts, DDR3-1333, HT Turbo 2/2/2/2/3/3)
	<b>Cache Memory</b>	12MB (1 x 12MB) Level 3 cache
<b>HP ProLiant SL390s G7 1U</b> <b>Right Half Width Tray</b> <b>X5650 1P 12GB-R B110i</b> <b>Base Server</b> 625539-B21	<b>Memory</b>	12 GB (3 x 4 GB) PC3-10600R (DDR3-1333) Registered DIMM <b>NOTE: Total of 12 DIMM slots.</b>
	<b>Network Controller</b>	HP NC362i Integrated Dual Port Gigabit Server Adapter HP NC543i 2-port 4xQDR IB/10Gb Adapter
	<b>Storage Controller</b>	HP Embedded Smart Array B110i SATA RAID Controller (RAID 0, 1, 10)
	<b>Hard Drive</b>	None ship standard
	<b>Internal Storage</b>	2 LFF or 4 SFF Hard drives
	<b>Optical Drive</b>	None ship standard
	<b>Power Supply</b>	Chassis sold separately
	<b>Fans</b>	Chassis sold separately
	<b>Form Factor</b>	1U Half Width server tray
	<b>Warranty</b>	Server Warranty includes 1-Year Parts, 1-Year Labor, 1-Year onsite service

#### Entry Models

<b>HP ProLiant SL390s G7 1U</b> <b>Left Half Width Tray</b> <b>E5620 1P 6GB-R B110i</b> <b>Entry Server</b> 625536-B21	<b>Processor(s)</b>	(1) Intel® Xeon® Processor E5620 (2.40 GHz, 12MB L3 Cache, 80 Watts, DDR3-1066, HT Turbo 1/1/2/2)
	<b>Cache Memory</b>	12MB (1 x 12MB) Level 3 cache
	<b>Memory</b>	6 GB (3 x 2 GB) PC3-10600R (DDR3-1333) Registered DIMM <b>NOTE: Total of 12 DIMM slots.</b>

### Pre-configured Models

<b>HP ProLiant SL390s G7 1U Right Half Width Tray E5620 1P 6GB-R B110i Entry Server</b> 625537-B21	<b>Network Controller</b>	HP NC362i Integrated Dual Port Gigabit Server Adapter HP NC543i 2-port 4xQDR IB/10Gb Adapter
	<b>Storage Controller</b>	HP Embedded Smart Array B110i SATA RAID Controller (RAID 0, 1, 10)
	<b>Hard Drive</b>	None ship standard
	<b>Internal Storage</b>	2 LFF or 4 SFF Hard drives
	<b>Optical Drive</b>	None ship standard
	<b>Power Supply</b>	Chassis sold separately
	<b>Fans</b>	Chassis sold separately
	<b>Form Factor</b>	1U Half Width server tray
	<b>Warranty</b>	Server Warranty includes 1-Year Parts, 1-Year Labor, 1-Year onsite service

### HP ProLiant SL390s G7 2U Server

#### Base Models

<b>HP ProLiant SL390s G7 2U Left Half Width Tray X5650 1P 12GB-R B110i Base Server</b> 625544-B21	<b>Processor(s)</b>	(1) Intel® Xeon® Processor X5650 (2.66 GHz, 12MB L3 Cache, 95 Watts, DDR3-1333, HT Turbo 2/2/2/2/3/3)
	<b>Cache Memory</b>	12MB (1 x 12MB) Level 3 cache
<b>HP ProLiant SL390s G7 2U Right Half Width Tray X5650 1P 12GB-R B110i Base Server</b> 625545-B21	<b>Memory</b>	12 GB (3 x 4 GB) PC3-10600R (DDR3-1333) Registered DIMM <b>NOTE:</b> Total of 12 DIMM slots.
	<b>Network Controller</b>	HP NC362i Integrated Dual Port Gigabit Server Adapter HP NC543i 2-port 4xQDR IB/10Gb Adapter
	<b>Storage Controller</b>	HP Embedded Smart Array B110i SATA RAID Controller (RAID 0, 1, 10)
	<b>Hard Drive</b>	None ship standard
	<b>Internal Storage</b>	4 SFF Hard drives
	<b>Optical Drive</b>	None ship standard
	<b>Power Supply</b>	Chassis sold separately
	<b>Fans</b>	Chassis sold separately
	<b>Form Factor</b>	1U Half Width server tray
	<b>Warranty</b>	Server Warranty includes 1-Year Parts, 1-Year Labor, 1-Year onsite service

#### Entry Models

<b>HP ProLiant SL390s G7 2U Left Half Width Tray E5620 1P 6GB-R B110i Entry Server</b> 625542-B21	<b>Processor(s)</b>	(1) Intel® Xeon® Processor E5620 (2.40 GHz, 12MB L3 Cache, 80 Watts, DDR3-1066, HT Turbo 1/1/2/2)
	<b>Cache Memory</b>	12MB (1 x 12MB) Level 3 cache
	<b>Memory</b>	6 GB (3 x 2 GB) PC3-10600R (DDR3-1333) Registered DIMM <b>NOTE:</b> Total of 12 DIMM slots.
	<b>Network Controller</b>	HP NC362i Integrated Dual Port Gigabit Server Adapter HP NC543i 2-port 4xQDR IB/10Gb Adapter
<b>HP ProLiant SL390s G7 2U Right Half Width Tray E5620 1P 6GB-R B110i Entry Server</b>	<b>Storage Controller</b>	HP Embedded Smart Array B110i SATA RAID Controller (RAID 0, 1, 10)
	<b>Hard Drive</b>	None ship standard

### Pre-configured Models

625543-B21	<b>Internal Storage</b>	4 SFF Hard drives
	<b>Optical Drive</b>	None ship standard
	<b>Power Supply</b>	Chassis sold separately
	<b>Fans</b>	Chassis sold separately
	<b>Form Factor</b>	1U Half Width server tray
	<b>Warranty</b>	Server Warranty includes 1-Year Parts, 1-Year Labor, 1-Year onsite service

### HP ProLiant SL390s G7 4U Server

#### Performance Models

<b>HP ProLiant SL390s G7 4U Left Half Width Tray X5672 2P 24GB Server</b> 626448-B21	<b>Processor(s)</b>	(2) Intel® Xeon® Processor X5672 (3.20 GHz, 12MB L3 Cache, 95 Watts, DDR3-1066, HT Turbo 2/2/3/3)
	<b>Cache Memory</b>	12MB (1 x 12MB) Level 3 cache
	<b>Memory</b>	24 GB (6 x 4 GB) PC3-10600R (DDR3-1333) Registered DIMM <b>NOTE:</b> Total of 12 DIMM slots.
<b>HP ProLiant SL390s G7 4U Right Half Width Tray X5672 2P 24GB Server</b> 626449-B21	<b>Network Controller</b>	HP NC362i Integrated Dual Port Gigabit Server Adapter HP NC543i 2-port 4xQDR IB/10Gb Adapter
	<b>Storage Controller</b>	HP Embedded Smart Array B110i SATA RAID Controller (RAID 0, 1, 10)
	<b>Hard Drive</b>	None ship standard
	<b>Internal Storage</b>	8 SFF Hard drives
	<b>Optical Drive</b>	None ship standard
	<b>Power Supply</b>	Chassis sold separately
	<b>Fans</b>	Chassis sold separately
	<b>Form Factor</b>	1U Half Width server tray
	<b>Warranty</b>	Server Warranty includes 1-Year Parts, 1-Year Labor, 1-Year onsite service

#### Base Models

<b>HP ProLiant SL390s G7 4U Left Half Width Tray X5650 1P 12GB Server</b> 626446-B21	<b>Processor(s)</b>	(1) Intel® Xeon® Processor X5650 (2.66 GHz, 12MB L3 Cache, 95 Watts, DDR3-1333, HT Turbo 2/2/2/2/3/3)
	<b>Cache Memory</b>	12MB (1 x 12MB) Level 3 cache
	<b>Memory</b>	12 GB (3 x 4 GB) PC3-10600R (DDR3-1333) Registered DIMM <b>NOTE:</b> Total of 12 DIMM slots.
<b>HP ProLiant SL390s G7 4U Right Half Width Tray X5650 1P 12GB Server</b> 626447-B21	<b>Network Controller</b>	HP NC362i Integrated Dual Port Gigabit Server Adapter HP NC543i 2-port 4xQDR IB/10Gb Adapter
	<b>Storage Controller</b>	HP Embedded Smart Array B110i SATA RAID Controller (RAID 0, 1, 10)
	<b>Hard Drive</b>	None ship standard
	<b>Internal Storage</b>	8 SFF Hard drives
	<b>Optical Drive</b>	None ship standard
	<b>Power Supply</b>	Chassis sold separately
	<b>Fans</b>	Chassis sold separately

### Pre-configured Models

<b>Form Factor</b>	1U Half Width server tray
<b>Warranty</b>	Server Warranty includes 1-Year Parts, 1-Year Labor, 1-Year onsite service

### HP ProLiant s6500 chassis

<b>HP ProLiant s6500 3/1200 Redundant Fan Chassis</b> 629236-B21	<b>Power Supply</b>	(3) 1200W (94% efficient) Hot Plug Power Supplies
	<b>Fans</b>	(8) hot plug redundant fans
	<b>Form Factor</b>	4U chassis
	<b>Tray blank</b>	1 tray blank
	<b>Power supply blanks</b>	1 power supply blank

<b>HP ProLiant s6500 2/1200 Non Redundant Fan Chassis</b> 629235-B21	<b>Power Supply</b>	(2) 1200W (94% efficient) Hot Plug Power Supplies
	<b>Fans</b>	(8) cold plug fans
	<b>Form Factor</b>	4U chassis
	<b>Tray blank</b>	1 tray blank
	<b>Power supply blanks</b>	2 power supply blank

### S6500 tray mixing support plan

**NOTE:** s6500 is a 4U chassis and has a left and a right side.

**NOTE:** The picture below show how each half of the chassis can be configured.

**NOTE:** This shows mixing and matching of half width trays.

**NOTE:** 2U half width tray is NOT supported in middle 2 bays.

1U ½ Width
1U ½ Width
1U ½ W
1U ½ W

2U ½ W
2U ½ W

1U ½ W
1U ½ W
2U ½ W

2U ½ W
1U ½ W
1U ½ W

4U ½ W
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### Pre-configured Models

**NOTE:** This section lists some of the steps required to configure a Factory Integrated Model. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for information on configurable product offerings and requirements.

**NOTE:** Configure-to-order (CTO) servers must start with a CTO Chassis.

**NOTE:** FIO indicates that this option is only available as a factory installable option.

**NOTE:** If you already have an s6500 chassis skip to Step 1A.

### Step 1: Select Nodes

**NOTE:** Mixing and matching of half width trays is supported in the s6500 chassis.

**NOTE:** If you do not fill up chassis with servers, the HP node blank Kit 622372-B21 needs to be ordered for each half width 1U space unpopulated.

<b>HP Server Nodes</b>	HP ProLiant SL390s G7 1U Right Tray Node Server	605078-B21
	HP ProLiant SL390s G7 1U Left Tray Node Server	612217-B21
	HP ProLiant SL390s G7 2U Right Half Tray Node Server	605080-B21
	HP ProLiant SL390s G7 2U Left Half Tray Node Server	605081-B21
	HP ProLiant SL390s G7 4U Right Half Tray Node Server	612227-B21
	HP ProLiant SL390s G7 4U Left Half Tray Node Server	612228-B21

### Step 2: Choose Required Node Options (only one of the following from each list unless otherwise noted)

#### HP Processors

**NOTE:** If 2 processors are desired, select one xxxxx-L21 and one xxxxxx-B21.

**NOTE:** 130 watt processors are available in all 3 form factors, and can utilize the redundant fan kit.

#### Six-Core Processors

HP SL390s G7 Intel® Xeon® X5690 (3.46GHz/6-core/12MB/130W) FIO Processor Kit	638867-L21
HP SL390s G7 Intel® Xeon® X5675 (3.06GHz/6-core/12MB/95W) FIO Processor Kit	638871-L21
HP SL390s G7 Intel® Xeon® E5645 (2.53GHz/6-core/12MB/80W) FIO Processor Kit	638894-L21
HP SL390s G7 Intel® Xeon® E5649 (2.53GHz/6-core/12MB/80W) FIO Processor Kit	638892-L21

#### Quad-Core Processors

HP SL390s G7 Intel® Xeon® X5687 (3.60GHz/4-core/12MB/130W) FIO Processor Kit	638869-L21
HP SL390s G7 Intel® Xeon® X5672 (3.20GHz/4-core/12MB/95W) FIO Processor Kit	638890-L21
HP SL390s G7 Intel® Xeon® E5603 (1.60GHz/4-core/4MB/80W) FIO Processor Kit	638900-L21

### Configuration Information - Factory Integrated Models

#### HP Memory

##### Registered DIMMs (RDIMMs)

HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500656-B21
HP 4GB (1x4GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500658-B21
HP 4GB (1x4GB) Single Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	593339-B21
HP 4GB (1x4GB) Single Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit	604504-B21

**NOTE:** Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.

HP 16GB (1x16GB) Quad Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit	500666-B21
HP 8GB (1x8GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500662-B21
HP 8GB (1x8GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit	604506-B21
HP 16GB (1x16GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 LP Memory Kit	627812-B21
HP 32GB (1x32GB) Quad Rank x4 PC3L-8500 (DDR3-1066) Registered CAS-7 LP Memory Kit	627814-B21

**NOTE:** Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.

##### Unbuffered with ECC DIMMs (UDIMMs)

HP 1GB (1x1GB) Single Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500668-B21
HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500670-B21
HP 4GB (1x4GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500672-B21
HP 4GB (1x4GB) Dual Rank x8 PC3L-10600 (DDR3-1333) Unbuffered CAS-9 Low Power Memory Kit	619488-B21

**NOTE:** For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: [www.hp.com/go/ddr3memory-configurator](http://www.hp.com/go/ddr3memory-configurator).

**NOTE:** There is a maximum support limitation of 8 ranks per memory channel (maximum of 2 quad rank DIMMs per channel)

**NOTE:** PC3L is a low voltage memory.

**NOTE:** Memory Min and Max depends on number of processors and type of memory:

1. Processor -> R-Dimm: Min 1 // Max 6 U-Dimm: Min 1 // Max 12
2. Processors -> R-Dimm: Min 2 // Max 6 U-Dimm: Min 2 // Max 12

### Configuration Information - Factory Integrated Models

#### Step 3: Choose Additional Factory Integratable Options (only one of the following from each list unless otherwise noted)

<b>Riser Cards</b>	HP SL390 PCIe Riser x16 FIO Card Kit <b>NOTE:</b> For additional Riser card options refer to the Unique Options section of this QuickSpecs. Only FIO options are displayed here.	615149-B21
<b>HP Storage Controllers</b>	HP Smart Array P212/256 BBWC 1-ports Int/1-ports Ext PCIe x8 FIO SAS Controller <b>NOTE:</b> HP P212 SAS 4HDD Cable Kit is required when adding SAS hard drives using the P212 controller (574001-B21)	491191-B21
	HP Smart Array P410/ZM 2-ports Int PCIe x8 FIO SAS Controller <b>NOTE:</b> HP P410 SAS 4HDD Cable Kit is required when adding SAS hard drives using the P410 controller (583997-B21)	462860-B21
	HP Smart Array P410/256 BBWC 2-ports Int PCIe x8 FIO SAS Controller <b>NOTE:</b> HP P410 SAS 4HDD Cable Kit is required when adding SAS hard drives using the P410 controller (583997-B21)	491195-B21
	HP Smart Array P411/256 BBWC 2-ports Ext PCIe x8 FIO SAS Controller <b>NOTE:</b> For additional Storage Controller options refer to the Additional Options section of this QuickSpecs. Only FIO options are displayed here.	491193-B21

#### Step 4: Choose Additional Options for Factory Integration

**NOTE:** For additional options, please refer to the "Core Options" and "Additional Options" section below.

### Core Options

**NOTE:** Some options may not be integrated at the factory. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for additional information.

<b>HP Unique Options</b>	HP SL390s Small Form Factor (SFF) Enablement Kit	625034-B21
	<b>NOTE:</b> required for every 2 SFF drives being added to the 1U tray.	
	HP SL390 2 Graphics Processing Unit Riser Kit	614839-B21
	<b>NOTE:</b> riser need when adding 2 GPUs to 2U tray.	
	HP SL390 Single Graphics Processing Unit Riser Kit	614840-B21
	<b>NOTE:</b> needed when adding 1 GPU to 2U tray.	
	<b>NOTE:</b> also needed if adding 3rd GPU to 2U tray.	

### HP Processors

#### Six-Core Processors

HP SL390s G7 Intel® Xeon® X5690 (3.46GHz/6-core/12MB/130W) Processor Kit	638867-B21
HP SL390s G7 Intel® Xeon® X5675 (3.06GHz/6-core/12MB/95W) Processor Kit	638871-B21
HP SL390s G7 Intel® Xeon® E5645 (2.40GHz/6-core/12MB/80W) Processor Kit	638894-B21
HP SL390s G7 Intel® Xeon® E5649 (2.53GHz/6-core/12MB/80W) Processor Kit	638892-B21

#### Quad-Core Processors

HP SL390s G7 Intel® Xeon® X5687 (3.60GHz/4-core/12MB/130W) Processor Kit	638869-B21
HP SL390s G7 Intel® Xeon® X5672 (3.20GHz/4-core/12MB/95W) Processor Kit	638890-B21
HP SL390s G7 Intel® Xeon® E5607 (2.26GHz/4-core/8MB/80W) Processor Kit	638896-B21
HP SL390s G7 Intel® Xeon® E5606 (2.13GHz/4-core/8MB/80W) Processor Kit	638898-B21
HP SL390s G7 Intel® Xeon® E5603 (1.60GHz/4-core/4MB/80W) Processor Kit	638900-B21

**NOTE:** 130 watt processors are available in all 3 form factors, and can utilize the redundant fan kit.

**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.

**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 preceding the model number indicates the performance/wattage of the processor. "X" denotes High Performance/Wattage; "E" denotes Enterprise Performance/Wattage (Mainstream); and "L" denotes Lower Wattage.

### Core Options

#### HP Memory

##### Registered DIMMs (RDIMMs)

HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500656-B21
HP 4GB (1x4GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500658-B21
HP 4GB (1x4GB) Single Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	593339-B21
HP 4GB (1x4GB) Single Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit	604504-B21

**NOTE:** Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.

HP 16GB (1x16GB) Quad Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit	500666-B21
HP 8GB (1x8GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500662-B21
HP 8GB (1x8GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit	604506-B21
HP 16GB (1x16GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 LP Memory Kit	627812-B21
HP 32GB (1x32GB) Quad Rank x4 PC3L-8500 (DDR3-1066) Registered CAS-7 LP Memory Kit	627814-B21

**NOTE:** Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.

##### Unbuffered with ECC DIMMs (UDIMMs)

HP 1GB (1x1GB) Single Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500668-B21
HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500670-B21
HP 4GB (1x4GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500672-B21
HP 4GB (1x4GB) Dual Rank x8 PC3L-10600 (DDR3-1333) Unbuffered CAS-9 Low Power Memory Kit	619488-B21

**NOTE:** For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: [www.hp.com/go/ddr3memory-configurator](http://www.hp.com/go/ddr3memory-configurator).

**NOTE:** There is a maximum support limitation of 8 ranks per memory channel (maximum of 2 quad rank DIMMs per channel)

**NOTE:** PC3L is a low voltage memory.

**NOTE:** Memory Min and Max depends on number of processors and type of memory:

1. Processor -> R-Dimm: Min 1 // Max 6 U-Dimm: Min 1 // Max 12
2. Processors -> R-Dimm: Min 2 // Max 6 U-Dimm: Min 2 // Max 12

#### HP Hard Drives

**NOTE:** The components of a storage subsystem (e.g. the drive, the HBA/controller, firmware, and the server backplane) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components.

**NOTE:** Hard drives have either a one year or three year warranty.

**NOTE:** The non-hot plug hard drives use a quick release carrier.

**NOTE:** Hot plug hard drives are for 2U and 4U trays only.

**NOTE:** non hot plug with quick release carrier are used in 1U tray and internal to the 2U tray.

##### SAS Hot Plug SFF (2.5-inch) Enterprise (ENT) Drives



### Core Options

HP 900GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	619291-B21
HP 600GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	581286-B21
HP 300GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	507127-B21
HP 300GB 6G SAS 15K rpm SFF (2.5-inch) Hot Plug Enterprise 3 yr Warranty Hard Drive	627117-B21
HP 146GB 6G SAS 15K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	512547-B21

#### **SAS Hot Plug SFF (2.5-inch) Midline (MDL) Drives**

HP 1TB 6G SAS 7.2K rpm SFF (2.5-inch) Dual Port Midline 1yr Warranty Hard Drive	605835-B21
HP 500GB 6G SAS 7.2K rpm SFF (2.5-inch) Dual Port Midline 1yr Warranty Hard Drive	507610-B21

#### **SAS Quick Release SFF (2.5-inch) Enterprise (ENT) Drives**

HP 300GB 6G SAS 10K rpm SFF (2.5-inch) Quick-release Dual Port Enterprise 3yr Warranty Hard Drive	574879-B21
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#### **SAS Quick Release LFF (3.5-inch) Enterprise (ENT) Drives**

HP 600GB 6G SAS 15K rpm LFF (3.5-inch) Quick-release Dual Port Enterprise 3yr Warranty Hard Drive	574758-B21
HP 300GB 6G SAS 15K rpm LFF (3.5-inch) Quick-release Dual Port Enterprise 3yr Warranty Hard Drive	585980-B21

#### **SAS Quick Release LFF (3.5-inch) Midline (MDL) Drives**

HP 2TB 6G SAS 7.2K rpm LFF (3.5-inch) Quick-release Dual Port Midline 1yr Warranty Hard Drive	574761-B21
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**NOTE:** Please see the QuickSpecs for Technical Specifications and additional information:

[http://h18000.www1.hp.com/products/quickspecs/12244\\_div/12244\\_div.html](http://h18000.www1.hp.com/products/quickspecs/12244_div/12244_div.html)  
(Worldwide)

#### **SATA Hot Plug SFF (2.5-inch) Midline (MDL) Drives**

HP 1TB 3G SATA 7.2K rpm SFF (2.5-inch) Hot Plug Midline 1yr Warranty Hard Drive	625609-B21
HP 500GB 3G SATA 7.2K rpm SFF (2.5-inch) Midline 1yr Warranty Hard Drive	507750-B21

#### **SATA Quick Release SFF (2.5-inch) Midline (MDL) Drives**

HP 500GB 3G SATA 7.2K rpm SFF (2.5-inch) Quick-release Midline 1yr Warranty Hard Drive	574953-B21
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#### **SATA Quick Release LFF (3.5-inch) Midline (MDL) Drives**

HP 3TB 3G SATA 7.2K rpm LFF (3.5-inch) Quick Release Midline 1yr Warranty Hard Drive	642098-B21
HP 2TB 3G SATA 7.2K rpm LFF (3.5-inch) Quick-release Midline 1yr Warranty Hard Drive	574755-B21
HP 1TB 3G SATA 7.2K rpm LFF (3.5-inch) Quick-release Midline 1yr Warranty Hard Drive	574025-B21
HP 500GB 3G SATA 7.2K rpm LFF (3.5-inch) Quick-release Midline 1yr Warranty Hard Drive	574023-B21

**NOTE:** Please see the QuickSpecs for Technical Specifications and additional information:

[http://h18000.www1.hp.com/products/quickspecs/13021\\_div/13021\\_div.html](http://h18000.www1.hp.com/products/quickspecs/13021_div/13021_div.html)  
(Worldwide)

#### **3G SATA MLC Hot Plug SFF (2.5-inch) Enterprise Mainstream Solid State Drives**

HP 400GB 3G SATA MLC SFF (2.5-inch) Enterprise Mainstream 3yr Warranty Solid State Drive	636597-B21
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### Core Options

HP 200GB 3G SATA MLC SFF (2.5-inch) Enterprise Mainstream 3yr Warranty Solid State Drive	636595-B21
HP 100GB 3G SATA MLC SFF (2.5-inch) Enterprise Mainstream 3yr Warranty Solid State Drive	636593-B21
<b>3G SATA MLC Quick Release SFF (2.5-inch) Enterprise Mainstream Solid State Drives</b>	
HP 400GB 3G SATA MLC SFF (2.5-inch) Quick-release Enterprise Mainstream 3yr Wty Solid State Drive	636625-B21
HP 200GB 3G SATA MLC SFF (2.5-inch) Quick-release Enterprise Mainstream 3yr Wty Solid State Drive	636623-B21
HP 100GB 3G SATA MLC SFF (2.5-inch) Quick-release Enterprise Mainstream 3yr Wty Solid State Drive	636621-B21
<b>6G SAS SLC Hot Plug Enterprise Performance Solid State Drives</b>	
HP 400GB 6G SAS SLC SFF (2.5-inch) Enterprise Performance 3yr Warranty Solid State Drive	632494-B21
HP 200GB 6G SAS SLC SFF (2.5-inch) Enterprise Performance 3yr Warranty Solid State Drive	632492-B21
<b>6G SAS MLC Hot Plug Enterprise Mainstream Solid State Drives</b>	
HP 800GB 6G SAS MLC SFF (2.5-inch) Enterprise Mainstream 3yr Warranty Solid State Drive	632506-B21
HP 400GB 6G SAS MLC SFF (2.5-inch) Enterprise Mainstream 3yr Warranty Solid State Drive	632504-B21
HP 200GB 6G SAS MLC SFF (2.5-inch) Enterprise Mainstream 3yr Warranty Solid State Drive	632502-B21
<b>RECOMMENDATION:</b> For best performance of SSD drives it is recommended that any Smart Array Controller use a max of 4 drives. For this product a second Smart Array option can be used for the second set of 4 SSD drives.	
<b>NOTE:</b> Please see the QuickSpecs for Technical Specifications and additional information: <a href="http://h18000.www1.hp.com/products/quickspecs/14038_div/14038_div.html">http://h18000.www1.hp.com/products/quickspecs/14038_div/14038_div.html</a>	
<b>NOTE:</b> HP P212 SAS 4HDD Cable Kit (574001-B21) is needed when adding more than two 2.5" hard drives.	
<b>NOTE:</b> The non-hot plug hard drives use a quick release carrier.	
<b>NOTE:</b> When Adding SAS to the 4U, the SL390s 4U SAS enablement kit (641764-B21) plus an HP Smart Array controller must be ordered	
<b>NOTE:</b> When Adding SAS to the 2U, the SL390s 2U SAS enablement kit (620000-B21) plus an HP Smart Array controller must be ordered	
<b>NOTE:</b> When Adding SAS to the 1U one of 4 options needs to be added	
HP 2x170 P212 SAS 2 Hard Drive Power Cable Kit	
<b>NOTE:</b> this is required when add two 3.5" SAS drive to the 1U tray. 589234-B21	
HP z6000 P212 SAS 4 Hard Drive Power Cable Kit	
<b>NOTE:</b> this is required when add four 3.5" SAS drive to the 1U tray. 574001-B21	
<b>NOTE:</b> Hot plug hard drives are for 2U and 4U tray only.	
<b>NOTE:</b> non hot plug with quick release carrier are used in 1U tray and internal to the 2U tray.	



### Core Options

#### HP Networking

##### Gigabit Ethernet Adapters

HP NC112T PCI Express Gigabit Server Adapter	503746-B21
HP NC360T PCI-E Dual Port Gigabit Server Adapter	412648-B21
HP NC365T 4-port Ethernet Server Adapter	593722-B21
HP NC373F PCI-E Multifunction 1000SX Gigabit Svr Adapter	394793-B21
HP NC373T PCI-E Multifunction Gigabit Server Adapter	394791-B21
HP NC375T PCI Express Quad Port Gigabit Server Adapter	538696-B21
HP NC382T PCI Express Dual Port Multifunction Gigabit Server Adapter	458492-B21

##### 10 Gigabit Ethernet adapters

**NOTE:** The SL390s G7 supports only the low-profile version of the 10GbE Ethernet Adapters.

**NOTE:** A minimum of two Gigabytes (2 GB) of server memory is required per each adapter.

**NOTE:** Direct Attach Cable (DAC) for copper environments or fiber transceivers and cables for fiber-optic environments must be purchased separately.

HP NC522SFP Dual Port 10GbE Gigabit Server Adapter	468332-B21
HP NC550SFP Dual Port 10GbE Server Adapter	581201-B21
HP NC552SFP 10Gb 2-port Ethernet Server Adapter	614203-B21

**NOTE:** Please see the QuickSpecs for Technical Specifications and additional information: [www.hp.com/go/ProLiantNICs](http://www.hp.com/go/ProLiantNICs)

HP 10 GbE PCI-e G2 Dual Port Network Interface Card	516937-B21
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#### HP InfiniBand

HP InfiniBand 4X QDR ConnectX-2 PCIe G2 Dual Port HCA	592520-B21
QLogic InfiniBand 4X QDR PCI-E G2 Dual Port HCA	583211-B21
HP InfiniBand Enablement Kit	614841-B21

**NOTE:** Please see the QuickSpecs for additional information:  
[http://h18000.www1.hp.com/products/quickspecs/13078\\_div/13078\\_div.html](http://h18000.www1.hp.com/products/quickspecs/13078_div/13078_div.html)

#### HP I/O Expansion Options

HP SL390 2 Graphics Processing Unit Riser Kit	614839-B21
HP SL390 Single Graphics Processing Unit Riser Kit	614840-B21

### Additional Options

**NOTE:** Some options may not be integrated at the factory. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for additional information.

#### HP Insight Software

#### HP Insight Control

HP Insight Control including 1yr 24x7 Technical Support and Updates Flexible Quantity License 452149-B22

HP Insight Management Media Kit 436222-B21

**NOTE:** HP Insight Management Media Kit contains DVDs without licenses. Contains HP Systems Insight Manager, HP Insight Control, HP Matrix Operating Environment, and Virtual Connect Enterprise Manager software. Uses an integrated installer to perform quick and accurate software installation and updates.

#### HP Integrated Lights-Out (iLO) Advanced for ProLiant Remote Management

HP iLO Advanced including 1yr 24x7 Technical Support and Updates Electronic License TA850AAE

HP iLO Advanced Electronic License with 3yr 24x7 Tech Support and Updates BD506AAE

HP iLO Advanced including 1yr 24x7 Technical Support and Updates Flexible Quantity License 512486-B21

HP iLO Advanced Flexible Qty License with 3yr 24x7 Tech Support and Updates BD506A

HP iLO Advanced including 1yr 24x7 Technical Support and Updates Tracking License 512487-B21

HP iLO Advanced Tracking License with 3yr 24x7 Tech Support and Updates BD507A

**NOTE:** This license allows 1 server to be deployed and managed via HP iLO Advanced. Customer will receive a printed license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support Service.

**NOTE:** For additional license kits, including electronic delivery options, please see the iLO QuickSpecs at:

[http://h18004.www1.hp.com/products/quickspecs/14276\\_div/14276\\_div.html](http://h18004.www1.hp.com/products/quickspecs/14276_div/14276_div.html)

#### HP Insight Control server deployment

HP Insight Control Server Deployment including 1yr 24x7 Support Electronic License T9082AAE

HP Insight Control Server Deployment including 1yr 24x7 Support Single Server License 452151-B21

**NOTE:** Electronic and Flexible-Quantity licenses can be used to purchase multiple licenses with a single activation key.

**NOTE:** Customer will receive a license entitlement certificate. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support and Update Service.

**NOTE:** Licenses ship without media. The HP Insight Management Media Kit can be ordered separately, or can be downloaded at: <http://www.hp.com/go/insightupdates>.

**NOTE:** For additional license options please see the Insight Control QuickSpecs at: [http://h18000.www1.hp.com/products/quickspecs/12631\\_div/12631\\_div.html](http://h18000.www1.hp.com/products/quickspecs/12631_div/12631_div.html)

### Additional Options

#### High Performance Clusters

##### HP Cluster Management Utility

HP Insight Cluster Management Utility 1yr 24x7 Flexible License

QL803B

**NOTE:** This part number can be used to purchase one certificate for multiple licenses with a single activation key. Each license is for one node (server). Customer will receive a printed end user license agreement and license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online in order to obtain a license key.

HP Insight Cluster Management Utility 3yr 24x7 Flexible License

BD476A

**NOTE:** These part numbers can be used to purchase one certificate for multiple licenses and support with a single activation key. Each license is for one node (server). Customer will receive a printed end user license agreement and license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online in order to obtain a license key. Customer also will receive a support agreement.

HP Insight Cluster Management Utility Media

BD477A

**NOTE:** For additional license kits please see the QuickSpecs at:

[http://h18004.www1.hp.com/products/quickspecs/12612\\_div/12612\\_div.html](http://h18004.www1.hp.com/products/quickspecs/12612_div/12612_div.html)

##### HP HPC Linux Value Pack

HP High Performance Computing Linux Value Pack 1 Processor Flexible License for ProLiant Servers

TC293B

**NOTE:** This part number can be used to purchase one certificate for multiple licenses with a single activation key. Each license is for one socket (a.k.a. processor). Customer will receive a printed end user license agreement and license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online in order to obtain a license key.

HP High Performance Computing Linux Value Pack Media Kit for ProLiant Servers

TC294A

**NOTE:** This part number can be used to purchase media including software and documentation, which will be delivered to the customer.

**NOTE:** For additional license kits please see the QuickSpecs at:

[http://h18004.www1.hp.com/products/quickspecs/13485\\_div/13485\\_div.html](http://h18004.www1.hp.com/products/quickspecs/13485_div/13485_div.html)

#### GPU Computing Modules

**NOTE:** The Tesla modules can only be accommodated in SL390s 2U or 4U trays.

**NOTE:** When only one Tesla module is to be configured in a 2U tray, a GPU Riser Kit (single GPU or 2 GPU) must be ordered.

**NOTE:** When two Tesla modules are to be configured in a 2U tray, either order one 2 GPU Riser kit, or order one single GPU Riser Kit plus a 2 GPU Riser Kit. In the second case, one Tesla module would be placed in each of the two Riser Kits, resulting in increased total GPU bandwidth.

**NOTE:** When three Tesla modules (the maximum allowed) are to be configured in a 2U tray, order one single GPU Riser Kit plus a 2 GPU Riser Kit.

**NOTE:** Power supplies must be configured to accommodate the power requirements of the Tesla modules. For example, the M2075 modules each have a peak power requirement of 225 watts.

**NOTE:** The ambient temperature for SL390s 2U systems with between one and three NVIDIA M2090 GPUs, must be 30 degrees Celsius or less. The ambient temperature for SL390s 4U systems with between five and eight NVIDIA M2090 GPUs, must be 30 degrees Celsius or less. All other SL390s systems may be operated with ambient temperatures up to 35 degrees Celsius.

### Additional Options

**NOTE:** When adding GPU solutions to the SL390 2U & 4U servers one must utilize the HP 1200W CS Platinum Power Supply Kit, 578322-B21, for all four power supply slots.

NVIDIA Tesla M2070 6GB Module	SH886A
NVIDIA Tesla M2070Q 6GB GPU Graphics Module	A0C39A
NVIDIA Tesla M2090 6GB Module	A0J99A
NVIDIA Tesla M2075 6GB Computational Module	A0R41A

**NOTE:** For additional license kits please see the QuickSpecs at:

[http://h18004.www1.hp.com/products/quickspecs/13743\\_div/13743\\_div.html](http://h18004.www1.hp.com/products/quickspecs/13743_div/13743_div.html)

### HP Storage Controllers

#### SAS Controllers

##### Smart Array P212 Controller

HP Smart Array P212/ZM 1-ports Int/1-ports Ext PCIe x8 SAS Controller	462828-B21
HP Smart Array P212/256 1-ports Int/1-ports Ext PCIe x8 SAS Controller	462834-B21

##### Smart Array P410 Controller

HP Smart Array P410/256 2-ports Int PCIe x8 SAS Controller	462862-B21
HP Smart Array P410/512 BBWC 2-ports Int PCIe x8 SAS Controller	462864-B21
HP Smart Array P410/512 FBWC 2-ports Int PCIe x8 SAS Controller	578230-B21
HP Smart Array P410/1G FBWC 2-ports Int PCIe x8 SAS Controller	572532-B21

##### Smart Array P411 Controller

HP Smart Array P411/256 2-ports Ext PCIe x8 SAS Controller	462830-B21
HP Smart Array P411/512 BBWC 2-ports Ext PCIe x8 SAS Controller	462832-B21
HP Smart Array P411/512 FBWC 2-ports Ext PCIe x8 SAS Controller	578229-B21
HP Smart Array P411/1G FBWC 2-ports Ext PCIe x8 SAS Controller	572531-B21

##### Optional Upgrades

HP 256MB P-series Cache Upgrade	462968-B21
HP 512MB P-Series Battery Backed Write Cache Upgrade	462967-B21
HP 1GB Flash Backed Cache	534562-B21
HP 512MB Flash Backed Write Cache	534916-B21
HP 650 mAh P-Series Battery	462969-B21

**NOTE:** HP z6000 BBWC HDWR KIT (582653-B21) is required when adding BBWC

**NOTE:** To enable BBWC on the 256MB cache.

HP z6000 P212 SAS 4 Hard Drive Power Cable Kit	574001-B21
HP z6000 Battery Back Write Cache Hardware Kit	582653-B21
HP 2x170 P212 SAS 2 Hard Drive Power Cable Kit	589234-B21
HP Smart Array Advanced Pack including 1yr 24x7 Technical Support and Updates Single Server License	516471-B21

**NOTE:** This part number can be used to purchase a single license or to order multiple licenses with a single activation key. Customers will receive a license entitlement certificate via e-mail. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Include one year of 24x7 HP Software Technical Support Services.

**NOTE:** Please see the QuickSpecs for Technical Specifications and additional

### Additional Options

information:

[http://h18000.www1.hp.com/products/quickspecs/13203\\_div/13203\\_div.html](http://h18000.www1.hp.com/products/quickspecs/13203_div/13203_div.html)

(Smart Array P212 Controller)

[http://h18000.www1.hp.com/products/quickspecs/13201\\_div/13201\\_div.html](http://h18000.www1.hp.com/products/quickspecs/13201_div/13201_div.html)

(Smart Array P410 Controller)

[http://h18000.www1.hp.com/products/quickspecs/13202\\_div/13202\\_div.html](http://h18000.www1.hp.com/products/quickspecs/13202_div/13202_div.html)

(Smart Array P411 Controller)

[http://h18000.www1.hp.com/products/quickspecs/13200\\_div/13200\\_div.html](http://h18000.www1.hp.com/products/quickspecs/13200_div/13200_div.html)

(Smart Array Advanced Pack)

#### SCSI HBA

HP SC11Xe Ultra320 Single Channel/ PCIe x4 SCSI Host Bus Adapter

412911-B21

**NOTE:** Recommended HBA for SCSI tape drive connect.

**NOTE:** Please see the QuickSpecs for additional information:

[http://h18000.www1.hp.com/products/quickspecs/12566\\_div/12566\\_div.html](http://h18000.www1.hp.com/products/quickspecs/12566_div/12566_div.html)

(SC11Xe HBA)

### HP Tape Backup

**NOTE:** For the complete range of tape drives, autoloaders, libraries and media see:

<http://www.hp.com/go/tape>. For hardware and software compatibility of HP tape

backup products see: <http://www.hp.com/storage/SPOCK>

HP StoreEver LTO-6 Ultrium 6250 Tape Drive in 1U Rack-mount Kit

COL99A

HP StoreEver LTO-6 Ultrium 6650 Internal Tape Drive

EH963A

HP StoreEver LTO-6 Ultrium 6650 External Tape Drive

EH964A

HP StoreEver LTO-6 Ultrium 6250 Internal Tape Drive

EH969A

HP StoreEver LTO-6 Ultrium 6250 External Tape Drive

EH970A

### HP Storage Options

#### Storage Fibre Channel HBA

**NOTE:** The following is a list of all Fibre Channel Host Bus Adapters for Windows and Linux. For detailed compatibility information please see:

<http://h18006.www1.hp.com/storage/saninfrastructure/hba.html>

#### Brocade Fibre Channel HBAs

HP 81B 8Gb 1-port PCIe Fibre Channel Host Bus Adapter

AP769B

HP 82B 8Gb 2-port PCIe Fibre Channel Host Bus Adapter

AP770B

HP 41B 4Gb 1-port PCIe Fibre Channel Host Bus Adapter

AP767B

HP 42B 4Gb 2-port PCIe Fibre Channel Host Bus Adapter

AP768B

#### Emulex Fibre Channel HBAs

HP 81E 8Gb 1-port PCIe Fibre Channel Host Bus Adapter

AJ762A

HP 82E 8Gb 2-port PCIe Fibre Channel Host Bus Adapter

AJ763A

HP FC2142SR 4Gb 1-port PCIe Fibre Channel Host Bus Adapter

A8002A

HP FC2242SR 4Gb 2-port PCIe Fibre Channel Host Bus Adapter

A8003A

HP SN1000E 16Gb 2-port PCIe Fibre Channel Host Bus Adapter

QR559A

HP SN1000E 16Gb 1-port PCIe Fibre Channel Host Bus Adapter

QR558A

#### QLogic Fibre Channel HBAs

HP 81Q 8Gb 1-port PCIe Fibre Channel Host Bus Adapter

AK344A

### Additional Options

HP 82Q 8Gb 2-port PCIe Fibre Channel Host Bus Adapter	AJ764A
HP FC1142SR 4Gb 1-port PCIe Fibre Channel Host Bus Adapter	AE311A
HP FC1242SR 4Gb 2-port PCIe Fibre Channel Host Bus Adapter	AE312A
<b>Converged Network Adapter</b>	
HP CN1100E Dual Port Converged Network Adapter	BK835A
HP CN1000E Dual Port Converged Network Adapter	AW520B

### HP Uninterruptible Power Systems HP Rack-mountable UPS

#### HP R1500 G3 Uninterruptible Power Supply (UPS)

HP R1.5kVA G3 1U INTL Uninterruptible Power System	AF471A
HP R1.5kVA G3 1U JP/TW Uninterruptible Power System	AF470A
HP R1.5kVA G3 1U NA Uninterruptible Power System	AF469A

**NOTE:** Please see the QuickSpecs for additional information:

[http://h18000.www1.hp.com/products/quickspecs/14059\\_div/14059\\_div.html](http://h18000.www1.hp.com/products/quickspecs/14059_div/14059_div.html)  
(Worldwide)

#### HP R/T3000 G2 Uninterruptible Power System (UPS)

HP R/T3000 G2 2U Detachable Cord High Voltage INTL Uninterruptible Power System	AF468A
HP R/T3000 G2 2U L530 Low Voltage NA/JP Uninterruptible Power System	AF466A
HP R/T3000 G2 2U L620 High Voltage NA/JP Uninterruptible Power System	AF467A

**NOTE:** Please see the QuickSpecs for additional information:

[http://h18000.www1.hp.com/products/quickspecs/14058\\_div/14058\\_div.html](http://h18000.www1.hp.com/products/quickspecs/14058_div/14058_div.html)  
(Worldwide)

#### R5000 Uninterruptible Power System (UPS)

HP R5KVA 3U IEC309-32A High Voltage INTL Uninterruptible Power System	AF461A
HP R5KVA 3U L630 High Voltage NA/JP Uninterruptible Power System	AF460A

**NOTE:** Please see the QuickSpecs for additional information:

[http://h18000.www1.hp.com/products/quickspecs/14109\\_div/14109\\_div.html](http://h18000.www1.hp.com/products/quickspecs/14109_div/14109_div.html)  
(Worldwide)

#### R7000 Uninterruptible Power System (UPS)

HP R7KVA 4U 50A High Voltage NA/JP Uninterruptible Power System	AF462A
HP R7KVA 4U IEC-32A High Voltage INTL Uninterruptible Power System	AF463A

**NOTE:** Please see the QuickSpecs for additional information:

[http://h18000.www1.hp.com/products/quickspecs/14110\\_div/14110\\_div.html](http://h18000.www1.hp.com/products/quickspecs/14110_div/14110_div.html)  
(Worldwide)

**NOTE:** For additional information on sizing your HP UPS, please reference:

<http://www.upssizer.com>

**NOTE:** Please see the UPS and PDU cable matrix's on the HP Power Protection and Management page. Under Power Cords, click on the "HP Power Cord Matrix" link. That link will list cable descriptions, requirements, and specifications for UPS and PDU units. Please see the following link: [www.hp.com/products/powercords](http://www.hp.com/products/powercords).

**NOTE:** For additional information on HP Uninterruptible Power Systems please go to: [www.hp.com/servers/rackups](http://www.hp.com/servers/rackups).

### Additional Options

#### HP Power Distribution Units

##### HP Monitored Power Distribution Unit: Full Rack Version

HP 8.6kVA 24A Single Input Three Phase NA/JP Monitored Power Distribution Unit	AF504A
HP 8.3kVA 40A Single Input Single Phase NA/JP Monitored Power Distribution Unit	AF506A
HP 11kVA 16A Single Input Three Phase INTL Monitored Power Distribution Unit	AF508A
HP 7.3kVA 32A Single Input Single Phase INTL Monitored Power Distribution Unit	AF510A

##### HP Monitored Power Distribution Unit: Half Rack Version

HP 4.9kVA 24A Single Input Single Phase NA/JP Monitored Power Distribution Unit	AF914A
HP 7.3kVA 32A Single Input Single Phase INTL Monitored Power Distribution Unit	AF915A

**NOTE:** Please see the following QuickSpecs for additional information:

[http://h18000.www1.hp.com/products/quickspecs/12118\\_div/12118\\_div.html](http://h18000.www1.hp.com/products/quickspecs/12118_div/12118_div.html)  
(Worldwide)

##### Modular PDUs 1U/0U

**NOTE:** 1U/0U mounting brackets shipped with the unit (optimized for 10000 G2 and 9000 series racks).

HP 3.6kVA 16A High Voltage INTL Modular Power Distribution Unit	252663-B24
HP 4.9kVA 24A High Voltage NA/JP Modular Power Distribution Unit	252663-D72
HP 2.8kVA 24A Low Voltage NA/JP Modular Power Distribution Unit	252663-D71
HP 7.3kVA 32A High Voltage INTL Modular Power Distribution Unit	252663-B31

**NOTE:** For additional information on HP Power Distribution Units including accessories please go to: [www.hp.com/go/pdu](http://www.hp.com/go/pdu).

**NOTE:** Please see the UPS and PDU cable matrix's on the HP Power Protection and Management page. Under Power Cords, click on the "HP Power Cord Matrix" link. That link will list cable descriptions, requirements, and specifications for UPS and PDU units. Please see the following link: [www.hp.com/products/powercords](http://www.hp.com/products/powercords).

**NOTE:** This PDU has a detachable input power cord and allows for adaptability to country specific power requirements.

**NOTE:** Please see the following QuickSpecs for additional options including shorter jumper cables and country specific power cords:

[http://h18000.www1.hp.com/products/quickspecs/11041\\_div/11041\\_div.html](http://h18000.www1.hp.com/products/quickspecs/11041_div/11041_div.html)  
(Worldwide)



### Additional Options

#### HP Intelligent Power

#### Distribution Units (iPDU)

#### iPDU Core Units

HP 4.9kVA 24A Single Phase NA/JP Core Intelligent Modular Power Distribution Unit	AF520A
HP 8.6kVA 24A Three Phase NA/JP Core Intelligent Modular Power Distribution Unit	AF522A
HP 7.3kVA 32A Single Phase INTL Core Intelligent Modular Power Distribution Unit	AF525A
HP 11kVA 16A Three Phase INTL Core Intelligent Modular Power Distribution Unit	AF526A

#### iPDU Extension Bars

HP 5xC13 Intelligent PDU Extension Bar G2 Kit	AF547A
HP 5xC13 Outlets Power and UID LEDs Pair Standard Extension Bar	AF528A

**NOTE:** Please see the QuickSpecs for Technical Specifications and additional information:

[http://h18000.www1.hp.com/products/quickspecs/13650\\_div/13650\\_div.html](http://h18000.www1.hp.com/products/quickspecs/13650_div/13650_div.html)  
(Worldwide)

#### HP Rack Options

#### HP USB Keyboard and Mouse

HP USB BFR with PVC Free US Keyboard/Mouse Kit	631341-B21
HP USB BFR with PVC Free UK Keyboard/Mouse Kit	631344-B21
HP USB BFR with PVC Free FR Keyboard/Mouse Kit	631346-B21
HP USB BFR with PVC Free ES Keyboard/Mouse Kit	631348-B21
HP USB BFR with PVC Free DE Keyboard/Mouse Kit	631358-B21
HP USB BFR with PVC Free JP Keyboard/Mouse Kit	631360-B21
HP USB BFR with PVC Free IT Keyboard/Mouse Kit	631362-B21
HP USB BFR with PVC Free CN Keyboard/Mouse Kit	631364-B21
HP USB BFR with PVC Free AE Keyboard/Mouse Kit	638212-B21
HP USB BFR with PVC Free RU Keyboard/Mouse Kit	638214-B21
HP USB BFR with PVC Free AP-Intl Keyboard/Mouse Kit	672097-373
HP USB BFR with PVC Free Intl Keyboard/Mouse Kit	672097-B33
HP USB BFR with PVC Free PT Keyboard/Mouse Kit	672097-133
HP USB BFR with PVC Free TR Keyboard/Mouse Kit	672097-143
HP USB BFR with PVC Free CZ Keyboard/Mouse Kit	672097-223
HP USB BFR with PVC Free FI Keyboard/Mouse Kit	672097-353
HP USB BFR with PVC Free SE Keyboard/Mouse Kit	672097-103
HP USB BFR with PVC Free CH Keyboard/Mouse Kit	672097-113
HP USB BFR with PVC Free KR Keyboard/Mouse Kit	672097-KD3
HP USB BFR with PVC Free IN Keyboard/Mouse Kit	672097-D63

**NOTE:** Please see the QuickSpecs for Technical Specifications and additional information:

[http://h18000.www1.hp.com/products/quickspecs/13972\\_div/13972\\_div.html](http://h18000.www1.hp.com/products/quickspecs/13972_div/13972_div.html)  
(Worldwide)

#### HP TFT7600 G2 KVM Console Rackmount Keyboard Monitor

HP TFT7600 G2 KVM Console Rackmount Keyboard US Monitor	AZ870A
HP TFT7600 G2 KVM Console Rackmount Keyboard UK Monitor	AZ871A

### Additional Options

HP TFT7600 G2 KVM Console Rackmount Keyboard DE Monitor	AZ872A
HP TFT7600 G2 KVM Console Rackmount Keyboard FR Monitor	AZ873A
HP TFT7600 G2 KVM Console Rackmount Keyboard IT Monitor	AZ874A
HP TFT7600 G2 KVM Console Rackmount Keyboard ES Monitor	AZ875A
HP TFT7600 G2 KVM Console Rackmount Keyboard DK Monitor	AZ876A
HP TFT7600 G2 KVM Console Rackmount Keyboard NO Monitor	AZ877A
HP TFT7600 G2 KVM Console Rackmount Keyboard SE/FI Monitor	AZ878A
HP TFT7600 G2 KVM Console Rackmount Keyboard CH Monitor	AZ879A
HP TFT7600 G2 KVM Console Rackmount Keyboard PT Monitor	AZ880A
HP TFT7600 G2 KVM Console Rackmount Keyboard BE Monitor	AZ881A
HP TFT7600 G2 KVM Console Rackmount Keyboard JP Monitor	AZ882A
HP TFT7600 G2 KVM Console Rackmount Keyboard RU Monitor	AZ883A
HP TFT7600 G2 KVM Console Rackmount Keyboard Intl Monitor	AZ884A
HP TFT7600 G2 KVM Console Rackmount Keyboard US TAA Monitor	AZ885A

**NOTE:** Please see the QuickSpecs for Technical Specifications and additional information:

[http://h18000.www1.hp.com/products/quickspecs/13731\\_div/13731\\_div.html](http://h18000.www1.hp.com/products/quickspecs/13731_div/13731_div.html)  
(Worldwide)

#### HP Server Console Switches

HP Server Console 0x2x8 Port Analog Switch	AF616A
HP Server Console 0x2x16 Port Analog Switch	AF617A
HP TAA 0x2x16xKVM Server Console G2 Switch	AF626A

**NOTE:** Please see the QuickSpecs for Technical Specifications and additional information:

[http://h18000.www1.hp.com/products/quickspecs/11834\\_div/11834\\_div.html](http://h18000.www1.hp.com/products/quickspecs/11834_div/11834_div.html)  
(Worldwide)

#### HP Server Console Switch G2 with Virtual Media & CAC

HP 0x2x16 KVM Server Console Switch G2 with Virtual Media CAC Software	AF618A
HP 0x2x32 KVM Server Console Switch G2 with Virtual Media CAC Software	AF619A
HP KVM CAT5 1-pack USB Interface Adapter	336047-B21

**NOTE:** Please see the QuickSpecs for Technical Specifications and additional information:

[http://h18000.www1.hp.com/products/quickspecs/13475\\_div/13475\\_div.html](http://h18000.www1.hp.com/products/quickspecs/13475_div/13475_div.html)  
(Worldwide)

#### HP IP Console Switch G2 with Virtual Media & CAC

HP 1x4 USB/PS2 KVM Console Switch	AF611A
HP 1x1Ex8 KVM IP Console Switch G2 with Virtual Media CAC Software	AF620A
HP 2x1Ex16 KVM IP Console Switch G2 with Virtual Media CAC Software	AF621A
HP 4x1Ex32 KVM IP Console Switch G2 with Virtual Media CAC Software	AF622A

**NOTE:** Please see the QuickSpecs for Technical Specifications and additional information:

[http://h18000.www1.hp.com/products/quickspecs/13474\\_div/13474\\_div.html](http://h18000.www1.hp.com/products/quickspecs/13474_div/13474_div.html)  
(Worldwide)

### Additional Options

<b>HP USB and SD Options</b>	HP USB 2-Button Optical Scroll Mouse	DC172B
	HP USB 04 Standard Keyboard	DT528A#ABA
	HP 4GB Micro SDHC Flash Media Kit	647444-B21
<b>HP Care Pack Services</b>	HP 3 year Next business day ProLiant s6500 Hardware Support	UR398E
	HP 3 year Next business day with Defective Media Retention ProLiant s6500 Hardware Support	UR399E
	HP 3 year 4 hour 13x5 ProLiant s6500 Hardware Support	UR400E
	HP 3 year 4 hour 13x5 with Defective Media Retention ProLiant s6500 Hardware Support	UR401E
	HP 3 year 4 hour 24x7 ProLiant s6500 Hardware Support	UR402E
	HP 3 year 4 hour 24x7 with Defective Media Retention ProLiant s6500 Hardware Support	UR403E
	HP 3 year 6 hour 24x7 Call to Repair ProLiant s6500 Hardware Support	UR404E
	HP 3 year 6 hour 24x7 Call to Repair with Defective Media Retention s6500 Hardware Support	UR405E
	HP 3 year 4 hour 24x7 ProLiant s6500 Collaborative Support	U1M52E
	HP 3 year 4 hour 24x7 ProLiant s6500 Proactive Care Service	U3C72E
	HP 3 year Next business day ProLiant s6500 Collaborative Support	U1M46E
	HP 3 year Next business day ProLiant s6500 Proactive Care Service	U3C66E
	HP 4 year Next business day ProLiant s6500 Hardware Support	UR406E
	HP 4 year Next business day with Defective Media Retention ProLiant s6500 Hardware Support	UR407E
	HP 4 year 4 hour 13x5 ProLiant s6500 Hardware Support	UR408E
	HP 4 year 4 hour 13x5 with Defective Media Retention ProLiant s6500 Hardware Support	UR409E
	HP 4 year 4hour 24x7 ProLiant s6500 Hardware Support	UR410E
	HP 4 year 4 hour 24x7 with Defective Media Retention ProLiant s6500 Hardware Support	UR411E
	HP 4 year 6 hour 24x7 Call to Repair ProLiant s6500 Hardware Support	UR412E
	HP 4 year 6 hour Call to Repair 24x7 with Defective Media Retention ProLiant s6500 Hardware Support	UR413E
	HP 5 year Next business day ProLiant s6500 Hardware Support	UR414E
	HP 5 year Next business day with Defective Media Retention ProLiant s6500 Hardware Support	UR415E
	HP 5 year 4 hour 13x5 ProLiant s6500 Hardware Support	UR416E
	HP 5 year 4 hour 13x5 with Defective Media Retention ProLiant s6500 Hardware Support	UR417E
	HP 5 year 4 hour 24x7 ProLiant s6500 Hardware Support	UR418E
	HP 5 year 4 hour 24x7 with Defective Media Retention ProLiant s6500 Hardware Support	UR419E

### Additional Options

HP 5 year 6 hour 24x7 Call to Repair ProLiant s6500 Hardware Support	UR420E
HP 5 year 6 hour 24x7 Call to Repair with Defective Media Retention s6500 Hardware Support	UR421E
HP 3 year 24x7 24 hour Call to Repair ProLiant s6500 Hardware Support	UR425E
HP 3 year 24x7 24 hour Call to Repair with Defective Media Retention ProLiant s6500 Hardware Support	UR426E
HP 4 year 24x7 24 hour Call to Repair ProLiant s6500 Hardware Support	UR427E
HP 4 year 24x7 24 hour Call to Repair with Defective Media Retention ProLiant s6500 Hardware Support	UR428E
HP 5 year 24x7 24 hour Call to Repair ProLiant s6500 Hardware Support	UR429E
HP 5 year 24x7 24 hour Call to Repair with Defective Media Retention ProLiant s6500 Hardware Support	UR430E

**NOTE:** For more information, customer/resellers can contact:

<http://www.hp.com/services/carepack>.

### Memory

#### HP ProLiant SL390s G7 Server

**NOTE:** Memory configurations listed do not apply to "Factory Integrated Models".

**NOTE:** Chart does not represent all possible memory configurations.

#### DDR3 memory population guidelines

For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool:

[www.hp.com/go/ddr3memory-configurator](http://www.hp.com/go/ddr3memory-configurator)

Some DIMM installation guidelines are summarized below:

- For servers with Twelve (12) memory slots
- There are three (3) channels per processor; six (6) channels per server
- There are two (2) DIMM slots per memory channel; (12) total slots
- DIMM slots that are white should be populated first
- Do not mix Unbuffered memory (UDIMMs) with Registered memory (RDIMMs)
- Do not install DIMMs if the corresponding processor is not installed
- If only one processor is installed in a 2CPU system, only half of the DIMM slots are available
- To maximize performance, balance the total memory capacity between all installed processors
- It is not required, but it is recommended to load the channels similarly if possible
- You can only have up to eight (8) ranks installed per channel
- You can only install two quad-rank DIMMs per channel
- You can only install two UDIMMs per channel; if available, the third slot in the channel must remain empty
- Populate DIMMs from heaviest load (quad-rank) to lightest load (single-rank) within a channel
- Heaviest load (DIMM with most ranks) within a channel goes furthest from the chipset
- If mixing DIMM voltage is a requirement, please note that the DIMMs will run at 1.5V since all 1.35V are capable of supporting 1.5V operations

DIMM slot/capacity/populated speed table												
DIMM Type	Registered DIMMS (RDIMMs)									Unbuffered with ECC DIMMs (UDIMMs)		
	Single Rank (1R)	Dual Rank (2R)					Quad Rank (4R)			Single Rank (1R)	Dual Rank (2R)	
DIMM Rank												
DIMM Capacity	4GB	2GB	4GB	8GB	8GB	16GB	4GB	16GB	32GB	1GB	2GB	4GB
DIMM Native Speed (MHz)	1333	1333	1333	1066	1333	1333	1066	1066	1066	1333	1333	1333
<b>SLOTS THAT CAN BE POPULATED</b>												
12 slot servers	12	12	12	12	12	12	12	12	12	12	12	12
<b>MAXIMUM CAPACITY (GB)</b>												
	48	24	48	96	96	192	48	192	384	12	24	48
<b>POPULATED DIMM SPEED (MHz)</b>												
1 DIMM Per Channel	1333	1333	1333	1066	1333	1333	1066	1066	1066	1333	1333	1333

### Memory

2 DIMM Per Channel	1333*	1333*	1333*	1066	1333*	1066/ 1333**	800	800	800	1333	1333	1333*
*Supported at 1333 via setting in ROM based setup utility (RBSU) **2DPC: LV runs at 1066, Std voltage runs at 1333												

### NOTES:

- PC3-10600 DIMMs have a maximum speed of 1333MHz. PC3-8500 DIMMs have a maximum speed of 1066MHz
- Mixing DIMM speeds is allowed, but the system processor speed rules always override the DIMM capabilities
- If you do mix DIMM speeds, the memory bus will default to the minimum clock rate of all DIMMs in the system - even if the slower DIMM is on the other processor
- If you install 1x 1066MHz DIMM in channel 1 and 1x 1333MHz DIMM in channel 2, the maximum speed will be 1066MHz If you install 1x 1066MHz DIMM in channel 1 and 5x 1333MHz DIMMs with 1 DIMM Per Channel (DPC) in each of the other channels, the maximum speed will be 1066MHz
- Maximum memory speed will also depend on the processor installed
- References to the above MHz speeds are for the various speeds of DDR3 DIMMs; 1333 refers to DDR3-1333, etc.

### DIMM slot and configuration diagrams

#### Basic memory slot & population diagram

- Population order; start with "A" first, "B" second, "C" third, etc.

12 DIMM SLOTS (8 per CPU node)					
	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	A	1	A	Chnl 1
	2	D	2	D	
Chnl 2	3	B	3	B	Chnl 2
	4	E	4	E	
Chnl 3	5	C	5	C	Chnl 3
	6	F	6	F	

#### Standard memory configuration (1 CPU model)

- 6GB, consisting of three (3) 2GB dual-rank PC3-10600E UDIMMs

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	A; 2GB DIMM	1	A; empty	Chnl 1
	2	D; empty	2	D; empty	
Chnl 2	3	B; 2GB DIMM	3	B; empty	Chnl 2
	4	E; empty	4	E; empty	
Chnl 3	5	C; 2GB DIMM	5	C; empty	Chnl 3
	6	F; empty	6	F; empty	

### Memory

#### Standard memory plus optional memory (1 CPU model)

- 12GB, consisting of three (3) 2GB UDIMMs plus three (3) 2GB UDIMMs
  - 6x 2GB dual-rank PC3-10600E UDIMMs

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	A; 2GB DIMM	1	A; empty	Chnl 1
	2	D; 2GB DIMM	2	D; empty	
Chnl 2	3	B; 2GB DIMM	3	B; empty	Chnl 2
	4	E; 2GB DIMM	4	E; empty	
Chnl 3	5	C; 2GB DIMM	5	C; empty	Chnl 3
	6	F; 2GB DIMM	6	F; empty	

#### Standard memory replaced with optional memory (1 CPU model)

##### RDIMM maximum configuration

- 96GB, consisting of eight (8) 16GB dual-rank PC3-8500 RDIMMs

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	A; 16GB DIMM	1	A; empty	Chnl 1
	2	D; 16GB DIMM	2	D; empty	
Chnl 2	3	B; 16GB DIMM	3	B; empty	Chnl 2
	4	E; 16GB DIMM	4	E; empty	
Chnl 3	5	C; 16GB DIMM	5	C; empty	Chnl 3
	6	F; 16GB DIMM	6	F; empty	

#### Standard memory replaced with optional memory (2 CPU model)

##### RDIMM maximum configuration

- 384GB, consisting of twelve (12) 32GB PC3-8500 RDIMMs

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	A; 32GB DIMM	1	A; 32GB DIMM	Chnl 1
	2	D; 32GB DIMM	2	D; 32GB DIMM	
Chnl 2	3	B; 32GB DIMM	3	B; 32GB DIMM	Chnl 2
	4	E; 32GB DIMM	4	E; 32GB DIMM	
Chnl 3	5	C; 32GB DIMM	5	C; 32GB DIMM	Chnl 3
	6	F; 32GB DIMM	6	F; 32GB DIMM	

Memory

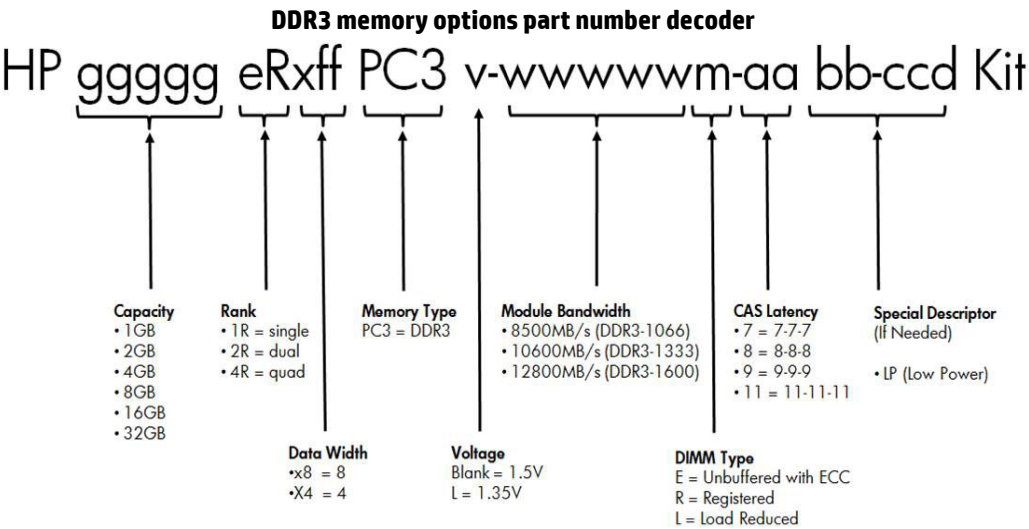
UDIMM maximum configuration

- 48GB, consisting of twelve (12) 4GB dual-rank PC3-10600 UDIMMs

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	A; 4GB DIMM	1	A; 4GB DIMM	Chnl 1
	2	D; 4GB DIMM	2	D; 4GB DIMM	
Chnl 2	3	B; 4GB DIMM	3	B; 4GB DIMM	Chnl 2
	4	E; 4GB DIMM	4	E; 4GB DIMM	
Chnl 3	5	C; 4GB DIMM	5	C; 4GB DIMM	Chnl 3
	6	F; 4GB DIMM	6	F; 4GB DIMM	

**NOTE:** Capacity references are rounded to the common Gigabyte values.

- 1GB = 1024MB
- 2GB = 2048MB
- 4GB = 4096MB
- 8GB = 8192MB
- 16GB = 16384MB
- 32GB = 32768MB





### Memory

Following are memory options available from HP:

#### HP Memory

##### Registered DIMMs (RDIMMs)

HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500656-B21
HP 4GB (1x4GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500658-B21
HP 4GB (1x4GB) Single Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	593339-B21
HP 4GB (1x4GB) Single Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit	604504-B21

**NOTE:** Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.

HP 16GB (1x16GB) Quad Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit	500666-B21
HP 8GB (1x8GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500662-B21
HP 8GB (1x8GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit	604506-B21
HP 16GB (1x16GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 LP Memory Kit	627812-B21
HP 32GB (1x32GB) Quad Rank x4 PC3L-8500 (DDR3-1066) Registered CAS-7 LP Memory Kit	627814-B21

**NOTE:** Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.

##### Unbuffered with ECC DIMMs (UDIMMs)

HP 1GB (1x1GB) Single Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500668-B21
HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500670-B21
HP 4GB (1x4GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500672-B21
HP 4GB (1x4GB) Dual Rank x8 PC3L-10600 (DDR3-1333) Unbuffered CAS-9 Low Power Memory Kit	619488-B21

**NOTE:** For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: [www.hp.com/go/ddr3memory-configurator](http://www.hp.com/go/ddr3memory-configurator).

**NOTE:** There is a maximum support limitation of 8 ranks per memory channel (maximum of 2 quad rank DIMMs per channel)

**NOTE:** PC3L is a low voltage memory.

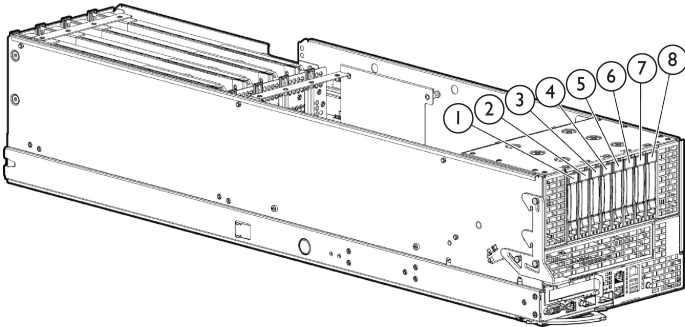
**NOTE:** Memory Min and Max depends on number of processors and type of memory:

1. Processor -> R-Dimm: Min 1 // Max 6 U-Dimm: Min 1 // Max 12
2. Processors -> R-Dimm: Min 2 // Max 6 U-Dimm: Min 2 // Max 12

### Storage

#### 4U Tray

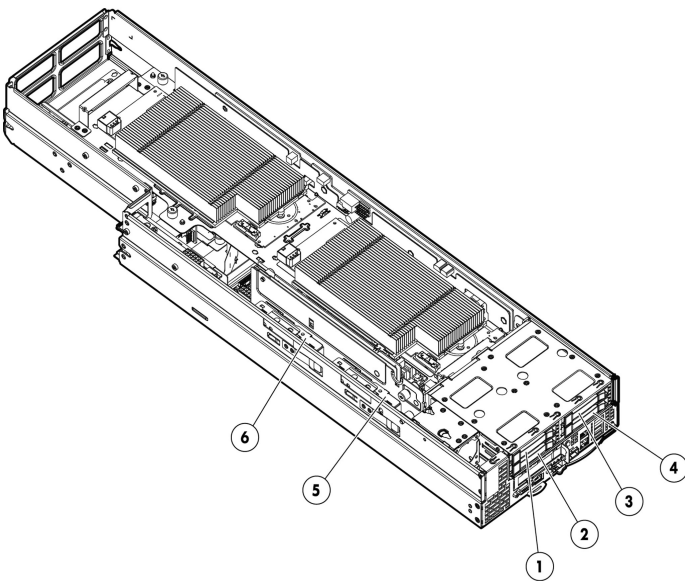
- 1-8 Up to eight 2.5" hot plug hard drive bays



#### 2U Tray

- 1-4 Up to four 2.5" hot plug hard drive bays

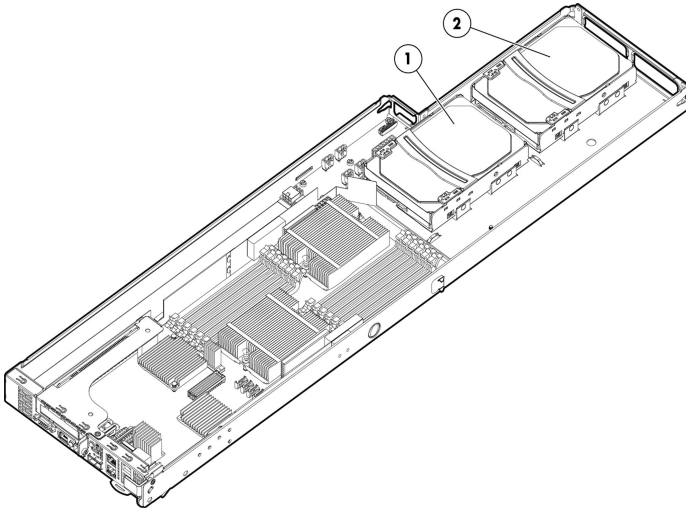
- 5-6 Up to two 2.5" hard drives use quick release carrier



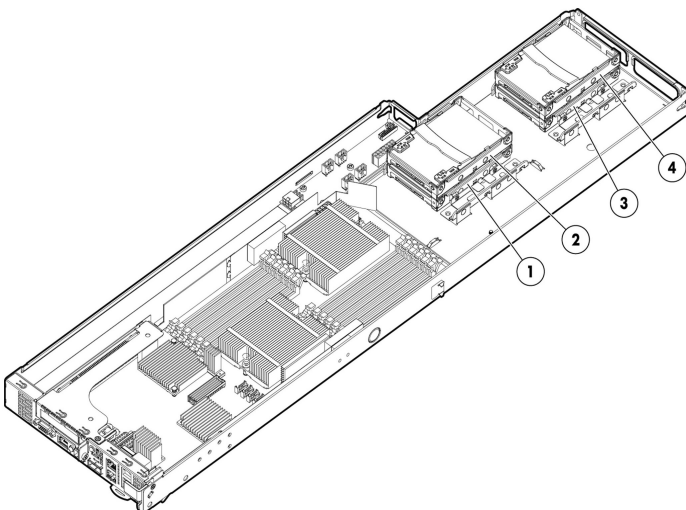
#### 1U Tray

### Storage

1-2 Up to two 3.5" hard drives use quick release carrier



1-4 Up to four 2.5" hard drives use quick release carrier



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## Drive Support

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### Hard Drives

**NOTE:** The components of a storage subsystem (e.g. the drive, the HBA/controller, firmware, and the server backplane) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components.

**NOTE:** Hard drives have either a one year or three year warranty.

### 4U Tray

### SAS Hot Plug SFF (2.5-inch) Enterprise (ENT) Drives

### Storage

	Quantity Supported	Position Supported	Controller
900GB 6G SAS 10K	Up to 8	1-8	HP Smart Array P212/Zero Memory Controller
600GB 6G SAS 10K			HP Smart Array P212/256 MB Controller
300GB 6G SAS 10K			HP Smart Array P410/256 MB Controller
146GB 6G SAS 15K			HP Smart Array P410/512 MB BBWC Controller
146GB 6G SAS 10K			

#### SAS Hot Plug SFF (2.5-inch) Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller
1TB 6G SAS 7.2K	Up to 8	1-8	HP Smart Array P212/Zero Memory Controller
500GB 6G SAS 7.2K			HP Smart Array P212/256 MB Controller
			HP Smart Array P410/256 MB Controller
			HP Smart Array P410/512 MB BBWC Controller

#### SATA Hot Plug SFF (2.5-inch) Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller
500GB 3G SATA 7.2K	Up to 4	1-4	HP Embedded Smart Array B110i SATA RAID Controller (RAID 0, 1, 10)

#### SATA Hot Plug 2.5" Enterprise Mainstream Solid State Drives

	Quantity Supported	Position Supported	Controller
400GB 3.0G SATA	Up to 4	1-4	HP Embedded Smart Array B110i SATA RAID Controller (RAID 0, 1, 10)
200GB 3.0G SATA			
100GB 3.0G SATA			

### 2U Tray

#### SAS Hot Plug SFF (2.5-inch) Enterprise (ENT) Drives

	Quantity Supported	Position Supported	Controller
300GB 6G SAS 10K	Up to 4	1-4	HP Smart Array P212/Zero Memory Controller
146GB 6G SAS 15K			HP Smart Array P212/256 MB Controller
146GB 6G SAS 10K 72GB			HP Smart Array P410/256 MB Controller
6G SAS 15K			HP Smart Array P410/512 MB BBWC Controller

#### SAS Hot Plug SFF (2.5-inch) Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller
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### Storage

500GB 6G SAS 7.2K	Up to 4	1-4	HP Smart Array P212/Zero Memory Controller HP Smart Array P212/256 MB Controller HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB BBWC Controller
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#### SATA Hot Plug SFF (2.5-inch) Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller
500GB 3G SATA 7.2K 160GB 3G SATA 7.2K	Up to 4	1-4	HP Embedded Smart Array B110i SATA RAID Controller (RAID 0, 1, 10)

#### SATA Hot Plug Midline (MDL) Solid State Drives

	Quantity Supported	Position Supported	Controller
120GB 3.0G SATA	Up to 4	1-4	HP Embedded Smart Array B110i SATA RAID Controller (RAID 0, 1, 10)

### 1U Tray

#### SAS Non-Hot Plug LFF (3.5-inch) Enterprise (ENT) Drives - with quick-release (QR) carrier

	Quantity Supported	Position Supported	Controller
600GB 6G SAS 15K 300GB 6G SAS 15K	Up to 2	1-2	HP Embedded Smart Array B110i SATA RAID Controller (RAID 0, 1, 10)

#### SAS Non-Hot Plug SFF (2.5-inch) Enterprise (ENT) Drives - with quick-release (QR) carrier

	Quantity Supported	Position Supported	Controller
300GB 6G SAS 10K	Up to 4	1-4	HP Embedded Smart Array B110i SATA RAID Controller (RAID 0, 1, 10)

#### SAS Non-Hot Plug LFF (3.5-inch) Midline (MDL) Drives - with quick-release (QR) carrier

	Quantity Supported	Position Supported	Controller
2TB 6G SAS 7.2K	Up to 2	1-2	HP Embedded Smart Array B110i SATA RAID Controller (RAID 0, 1, 10)

#### SATA Non-Hot Plug LFF (3.5-inch) Midline (MDL) Drives - with quick-release (QR) carrier

Quantity Supported	Position Supported	Controller
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### Storage

3TB 3G SATA 7.2K	Up to 2	1-2	HP Embedded Smart Array B110i SATA RAID Controller (RAID 0, 1, 10)
2TB 3G SATA 7.2K			
1TB 3G SATA 7.2K			
500GB 3G SATA 7.2K			

### SATA Non-Hot Plug SFF (2.5-inch) Midline (MDL) Drives - with quick-release (QR) carrier

	Quantity Supported	Position Supported	Controller
500GB 3G SATA 7.2K	Up to 4	1-4	HP Embedded Smart Array B110i SATA RAID Controller (RAID 0, 1, 10)

### 6G SAS Hot Plug Enterprise Performance Solid State Drives

	Quantity Supported	Position Supported	Controller
400GB 6G SAS SLC SFF	Up to 4	1-4	HP Embedded Smart Array B110i SATA RAID Controller (RAID 0, 1, 10)
200GB 6G SAS SLC SFF			

### 6G SAS Hot Plug Enterprise Mainstream Solid State Drives

	Quantity Supported	Position Supported	Controller
800GB 6G SAS MLC SFF	Up to 4	Up to 4	HP Embedded Smart Array B110i SATA RAID Controller (RAID 0, 1, 10)
400GB 6G SAS MLC SFF			
200GB 6G SAS MLC SFF			

### Power Specifications

HP 750W Common Slot Gold Hot Plug Power Supply Kit							
Part Number	512327-B21						
Input Voltage Range ( V rms )	100 to 240						
Frequency Range (Nominal) ( Hz )	50/60						
Nominal Input Voltage ( Vrms )	<b>100</b>	<b>120</b>	<b>200</b>	<b>208</b>	<b>220</b>	<b>230</b>	<b>240</b>
Maximum Rated Output Wattage Rating	750	750	750	750	750	750	750
Nominal Input Current ( A rms )	8.9	7.4	4.3	4.1	3.9	3.7	3.6
Maximum Rated Input Wattage Rating ( Watts )	857	847	824	824	820	820	820
Maximum Rated VA ( Volt-Amp )	894	884	859	854	854	854	
Efficiency ( % )	87.5	88.5	91	91	91.5	91.5	91.5
Power Factor	0.97						
Leakage Current ( mA )	0.42	0.50	0.83	0.87	0.92	0.96	1.00
Maximum Inrush Current ( A peak )	30						
Maximum Inrush Current duration ( mS )	20						
Maximum British Thermal Unit Rating ( BTU-Hr )	2925	2892	2812	2812	2797	2797	2797

HP 750W Common Slot Platinum Hot Plug Power Supply Kit							
Part Number	593831-B21						
Input Voltage Range ( V rms )	100 to 240						
Frequency Range (Nominal) ( Hz )	50/60						
Nominal Input Voltage ( Vrms )	<b>100</b>	<b>120</b>	<b>200</b>	<b>208</b>	<b>220</b>	<b>230</b>	<b>240</b>
Maximum Rated Output Wattage Rating	750	750	750	750	750	750	750
Nominal Input Current ( A rms )	8.6	7.1	4.2	4.0	3.8	3.6	3.4
Maximum Rated Input Wattage Rating ( Watts )	841	828	809	808	807	806	805
Maximum Rated VA ( Volt-Amp )	863	850	830	829	828	827	826
Efficiency ( % )	89.2	90.6	92.7	92.8	93	93.1	93.2
Power Factor	0.985						
Leakage Current ( mA )	0.42	0.50	0.83	0.87	0.92	0.96	1.00
Maximum Inrush Current ( A peak )	30						
Maximum Inrush Current duration ( mS )	20						
Maximum British Thermal Unit Rating ( BTU-Hr )	2868	2825	2761	2757	2753	2749	2747

### Power Specifications

HP 1200W Common Slot Silver Hot Plug Power Supply Kit							
Part Number	500172-B21						
Input Voltage Range ( V rms )	100 to 240						
Frequency Range (Nominal) ( Hz )	50/60						
Nominal Input Voltage ( Vrms )	<b>100</b>	<b>120</b>	<b>200</b>	<b>208</b>	<b>220</b>	<b>230</b>	<b>240</b>
Maximum Rated Output Wattage Rating	800	900	1200	1200	1200	1200	1200
Nominal Input Current ( A rms )	9.7	9.0	7.0	6.8	6.4	6.1	5.9
Maximum Rated Input Wattage Rating ( Watts )	930	1034	1348	1348	1348	1348	1348
Maximum Rated VA ( Volt-Amp )	970	1079	1406	1406	1406	1406	1406
Efficiency ( % )	86	87	89	89	89	89	89
Power Factor	0.97						
Leakage Current ( mA )	0.42	0.50	0.83	0.87	0.92	0.96	1.00
Maximum Inrush Current ( A peak )	30						
Maximum Inrush Current duration ( mS )	20						
Maximum British Thermal Unit Rating ( BTU-Hr )	3174	3530	4600	4600	4600	4600	4600

HP 1200W Common Slot Platinum Hot Plug Power Supply Kit							
Part Number	578322-B21						
Input Voltage Range ( V rms )	100 to 240						
Frequency Range (Nominal) ( Hz )	50/60						
Nominal Input Voltage ( Vrms )	<b>100</b>	<b>120</b>	<b>200</b>	<b>208</b>	<b>220</b>	<b>230</b>	<b>240</b>
Maximum Rated Output Wattage Rating	800	900	1200	1200	1200	1200	1200
Nominal Input Current ( A rms )	9.3	8.6	6.7	6.5	6.1	5.8	5.6
Maximum Rated Input Wattage Rating ( Watts )	889	989	1290	1290	1290	1290	1290
Maximum Rated VA ( Volt-Amp )	927	1031	1345	1345	1345	1345	1345
Efficiency ( % )	90	91	93	93	93	93	93
Power Factor	0.97						
Leakage Current ( mA )	0.42	0.50	0.83	0.87	0.92	0.96	1.00
Maximum Inrush Current ( A peak )	30						
Maximum Inrush Current duration ( mS )	10						
Maximum British Thermal Unit Rating ( BTU-Hr )	3033	3375	4403	4403	4403	4403	4403

To review typical system power ratings use the Active Answers HP Power Advisor which is available via the online tool located at URL: [www.hp.com/go/proliant-energy-efficient](http://www.hp.com/go/proliant-energy-efficient) or [www.hp.com/go/hppoweradvisor](http://www.hp.com/go/hppoweradvisor)



### Technical Specifications

<b>System Unit</b>	<b>Chassis Dimensions</b> (H x W x D) Add fan extension kit (with bezel) 6.96 x 17.638 x 35.236in (17.68 x 44.8 x 89.55cm)	
	<b>Weight</b> (approximate)	Maximum (all hard drives, power supplies, and processors installed) 220lb (99.8kg)
<b>Input Requirements</b> (per power supply)	Rated Line Voltage	90 to 140 VAC 180 to 264 VAC
	Rated Input Current	7.31A at 115VAC 3.6A at 230VAC
	Rated Input Frequency	47 to 63 Hz
	Rated Input Power	855W (at 100 VAC), 840.72W (at 200 VAC)
<b>Power Specifications</b>	To review typical system power ratings use the HP Power Advisor which is available via the online tool located at URL: <a href="http://www.hp.com/go/proliant-energy-efficient">www.hp.com/go/proliant-energy-efficient</a>	
<b>Power Supply Output</b> (per power supply)	Rated Steady-State Power	653.10W (at 100 VAC), 653.08W (at 200 VAC)
<b>System Inlet Temperature</b>	Operating	50° to 95° F (10° to 35° C) at sea level with an altitude derating of 1.8°F per every 1000 ft (1.0°C per every 305 m) above sea level to a maximum of 10,000 ft (3050 m), no direct sustained sunlight. Maximum rate of change is 18°F/hr (10°C/hr). The upper limit may be limited by the type and number of options installed. System performance may be reduced if operating with a fan fault or above 86°F (30°C).
	Non-operating	-22° to 140° F (-30° to 60° C) Maximum rate of change is 36°F/hr (20°C/hr).
<b>Relative Humidity</b> (non-condensing)	Operating	10% to 90% relative humidity (Rh), 82.4°F (28°C) maximum wet bulb temperature, non-condensing.
	Non-operating	5% to 95% relative humidity (Rh), 101.7°F (38.7°C) maximum wet bulb temperature, non-condensing.
<b>Altitude</b>	Operating	10,000 ft (3050 m). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 1500 ft/min (457 m/min).
	Non-operating	30,000 ft (9144 m). Maximum allowable altitude change rate is 1500 ft/min (457 m/min).
<b>Acoustic Noise</b>	Listed are the declared A-Weighted sound power levels (LWAd) and 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	

### Technical Specifications

with ISO 9296 (ECMA 109).

#### Idle

LWAd	6.4
LpAm	45dBA

#### Operating

LWAd	6.7
LpAm	51dBA

#### Emissions Classification (EMC)

FCC Rating	Class A
Normative Standards	CISPR 22; EN55022; EN55024; FCC CFR 47, Pt 15; ICES-003; CNS13438; GB9254; K22;K24; EN 61000-3-2; EN 61000-3-3; EN 60950-1; IEC 60950-1

**NOTE:** Product conformance to cited product specifications is based on sample (type) testing, evaluation, or assessment. This product or family of products is eligible to bear the appropriate compliance logos and statements.

#### Embedded NC362i PCIe Gigabit Server Adapter

##### Network Interface

Integrated 10/100/1000BASE-T Transceiver  
Combines a triple-speed IEEE 802.3TM - Compliant Media Access Controller (MAC) with a triple-speed Ethernet transceiver.

##### Data Transfer Method Controller

Compliant to x4 PCIe Specification  
Intel® 82576

##### Network Transfer Rate

10Base-T (Half-Duplex)	10 Mb/s
10Base-T (Full-Duplex)	20 Mb/s
100Base-TX (Half-Duplex)	100 Mb/s
100Base-TX (Full-Duplex)	200 Mb/s
1000Base-TX (Half and Full-Duplex)	2000Mb/s

##### Connector

RJ-45 connector

##### Cable Support

Performs all the physical layer functions for 10BASE-T, 100BASE-T, and 1000BASE-T Ethernet on standard Category 5 UTP

#### HP NC543i 2-port 4x QDR InfiniBand /10 GB Adapter

##### Data Transfer Method

Compliant to x8 PCIe Gen2 Specification.

##### Network Transfer Rate

X4 IB: 10 Gb/s (SDR), 20 Gb/s (DDR), 40Gb/s (QDR)  
10Gb/s Ethernet: Full-duplex single lane XFI

##### Connector

QSFP - IB  
SFP+ - 10Gb/s Ethernet.

##### Cable Support

IB: HP copper and optical IB cables.  
10Gb/s: HP copper and optical SFP+ cables.

### Technical Specifications

#### Environment-friendly Products and Approach

#### End-of-life Management and Recycling

Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: <http://www.hp.com/go/green>. To recycle your product, please go to: <http://www.hp.com/go/green> or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.

The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: <http://www.hp.com/go/green>. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

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