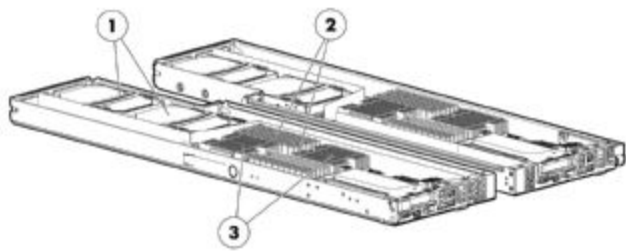
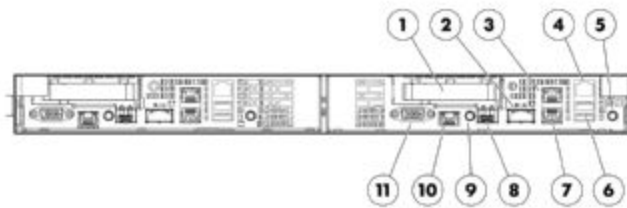


### Overview



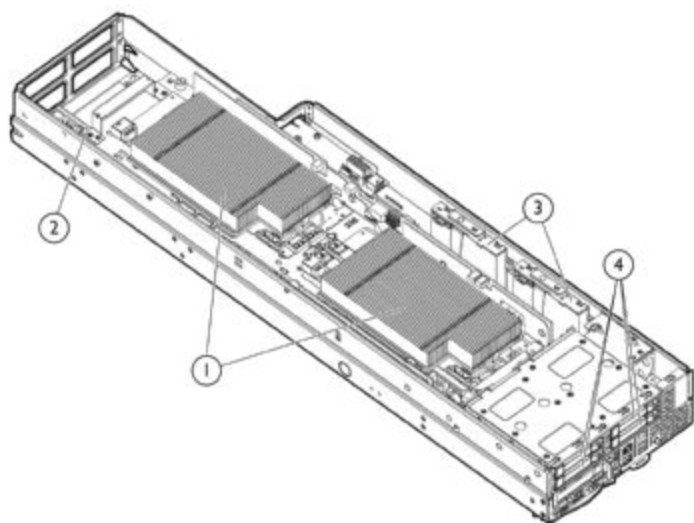
#### 1U Open View:

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



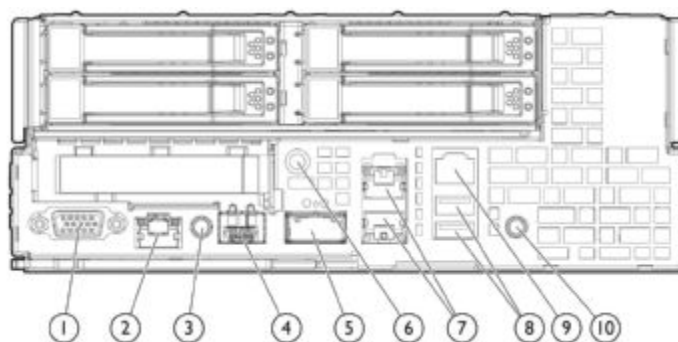
#### 1U Front View:

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



#### 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

### At A Glance

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 two different server trays, each having its own benefits. The first tray is a 1U half width tray and the second is a 2U half width tray. They both 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 1Gb Ethernet ports, one 10Gb 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.

## Overview

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)

- **Processors:**
  - Supports up to two Intel® 5600 sequence processors
  - Six-Core Intel® Xeon® processors 5600 sequence with 12MB Level 3 cache (depends on model)
  - Quad-Core Intel® Xeon® processors 5600 sequence with 12MB Level 3 cache (depends on model)
  - Supports up to two Intel® 5500 sequence processors
  - Intel® 5520 Chipset
- **Memory:**
  - Up to 192GB (16GB kits populating 12 DIMM slots), using PC3-8500R DDR3 Registered (RDIMM) memory, operating at 800MHz when fully populated in 12 slots
  - Up to 48GB, using PC3-10600E DDR3 Unbuffered (UDIMM) memory, operating at 1066MHz when fully populated at 2 DIMMs per Channel in 12 slots
- **Internal Drive Support:**
  - For 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
    - Internal storage capacity of up to 4.0TB (2 x 4TB 3.5" SATA)
  - For 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
    - Storage capacity of up to 2.0TB (6 x 500GB 2.5" SATA)
- **Network Controller:**
  - HP NC362i Integrated Dual Port Gigabit Server Adapter
  - HP NC543i 2-port 4xQDR IB/10Gb Adapter
- **Storage Controllers:**
  - HP Smart Array B110i Controller (RAID 0, 1, 10)  
**NOTE: Transfer rate: up to 3 Gb/s SATA**
- **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
- **Management:**
  - HP Integrated Lights-Out 3 (iLO 3) management processor for simplified server setup, health monitoring and recovery, power and thermal control, and lights out remote administration.
  - 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, control and optimize your IT infrastructure through a single, simple management console. Insight Control supports both Windows and Linux-based central management servers.
  - HP Insight Dynamics for ProLiant, a product option, is an integrated command center that enables IT Staff personnel to continuously analyze and optimize a converged infrastructure, while automating and reducing the cost of common data center tasks by as much as 40 percent. This ultimately enables them to dynamically keep pace with the organization's changing business requirements.
- **Operating Systems and Virtualization Software Support for ProLiant Servers:**
  - Supports Windows, RHEL, SLES, VMware, and Citrix XenServer
- **USB Ports:**
  - Two USB ports (two front)
- **Optical Drive:**
  - External support only
- **Power Supply:**
  - The 2U chassis supports three power supply options:
    - Common Slot Power Supplies enable power capping and hot-pluggability
      - HP 1200W CS Platinum Power Supply (Hot Plug, Autoswitching) (optional)
      - HP 1200W CS High Efficiency Power Supply (Hot Plug, Autoswitching) (optional)
      - HP 750W CS Platinum Power Supply (Hot Plug, Autoswitching) (optional)
      - HP 750W CS High Efficiency Power Supply (Hot Plug, Autoswitching) (optional)
      - HP 460W CS Platinum Power Supply (Hot Plug, Autoswitching) (optional)
      - HP 460W CS High Efficiency Power Supply (Hot Plug, Autoswitching) (optional)
- **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
- **Deployment/Serviceability:**
  - HP ProLiant SL390s models have three different rail kits to choose from:
    - HP s6500 4U Rail KIT - Used to fit in HP 10000 series racks
    - HP s6500 4U 3rd Party Rail KIT - Used to fit in 3rd party racks
    - HP s6500 POD Rail KIT - Used to fit in HP PODs
- **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

### Overview

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. SATA hard drives have a one year warranty. SAS Midline drives have a one-year warranty. SAS Enterprise drives have a three-year warranty.

**NOTE:** Server Warranty includes 1 year Parts, 1 year labor, and 1 year on-site service. 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>.

### 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® Processor X5670 (2.93 GHz, 12MB L3 Cache, 95 Watts, DDR3-1333, HT Turbo 2/2/2/2/3/3)

Intel® Xeon® Processor X5660 (2.80 GHz, 12MB L3 Cache, 95 Watts, DDR3-1333, HT Turbo 2/2/2/2/3/3)

Intel® Xeon® Processor X5650 (2.66 GHz, 12MB L3 Cache, 95 Watts, DDR3-1333, HT Turbo 2/2/2/2/3/3)

Intel® Xeon® Processor L5640 (2.26 GHz, 12MB L3 Cache, 60 Watts, DDR3-1333, HT Turbo 2/2/3/3/4/4)

#### Quad-Core Processors

Intel® Xeon® Processor X5667 (3.0 GHz, 12MB L3 Cache, 80 Watts, DDR3-1066, HT Turbo 2/2/3/3)

Intel® Xeon® Processor E5640 (2.66 GHz, 12MB L3 Cache, 80 Watts, DDR3-1066, HT Turbo 1/1/2/2)

Intel® Xeon® Processor E5630 (2.53 GHz, 12MB L3 Cache, 80 Watts, DDR3-1066, HT Turbo 1/1/2/2)

Intel® Xeon® Processor E5620 (2.40 GHz, 12MB L3 Cache, 80 Watts, DDR3-1066, HT Turbo 1/1/2/2)

Intel® Xeon® Processor E5506 (2.13 GHz, 4MB L3 Cache, 80 Watts, DDR3-800)

Intel® Xeon® Processor L5630 (2.13 GHz, 12MB L3 Cache, 40 Watts, DDR3-1066, HT Turbo 1/1/2/2)

#### Dual-Core Processors

Intel® Xeon® Processor E5503 (2.00GHz, 4MB L3 Cache, 80 Watts, DDR3-800)

**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.

#### Cache Memory

One of the following depending on Model

12MB (1 x 12MB) Level 3 cache

**NOTE:** All 5600 sequence processor models.

4MB (1 x 4MB) Level 3 cache

**NOTE:** For processors , E5506 and E5503.

#### 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 memory protection

#### 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).

### Standard Features

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

Expansion Slots	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.

**Internal Storage Devices**

Diskette Drives	Via USB only
Optical Drives	DVD / CD drives via USB only
Hard Drives	None ship standard
	Up to 2 Non-hot plug SATA or SAS 3.5" drives (1 drive for each system board)
	Up to 4 Non-hot plug SATA, SAS, or SSD 2.5" drives (requires SFF drive cage) (2 drives for each system board)

**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
Non-Hot Plug SSD 2.5"	480GB	4 x 120GB
2U Half width tray		
Hot Plug SATA 2.5"	2.0TB	4 x 500GB
Hot Plug SAS 2.5"	2.0TB	4 x 500GB
Hot Plug SSD 2.5"	480GB	4 x 120GB

**Interfaces**

Parallel	None
Network RJ-45	Two 10/100/1000 NIC ports One 10GB SPF+
Serial (RJ-45)	1
Graphics	1
USB	2 (two front) <b>NOTE:</b> Please see the following URL for additional information regarding USB support: <a href="http://h18004.www1.hp.com/products/servers/platforms/usb-support.html">http://h18004.www1.hp.com/products/servers/platforms/usb-support.html</a> .
Management	1 Dedicated iLO3 Management Port
Health LED	1 front
Power	1 front
UID	1 front

### Standard Features

#### Server Power Cords

One 6' Highline (IEC-IEC) power cord ships standard

**NOTE:** 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). If a user wishes to power a ProLiant SL server using a 110V receptacle (NEMA-15), the NEMA power cord (227099-001) must be ordered separately.

**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>.

#### UPS and PDU Power Cord Matrix

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).

#### Power Supply

HP has a new design for ProLiant power. The new Common Slot Power Supply bay. This design 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 Common Slot, High Efficiency and Right-Size Power Supplies. Common Slot (CS) designates commonality of the power supply across multiple ProLiant servers. HP's new Common Slot power supplies are designed for highest efficiency to provide power efficiency without degrading performance of the ProLiant. Power Supplies will have efficiency ratings up to 92%. There are three Right Size 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 Calculator 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).

**Common Slot ProLiant** It is highly recommended that you use the HP Power Calculator in defining the "Right-Size" power supply for your needs. HP offers three Power Supply Options:

- HP 460Watts, Common Slot,92% Efficiency
- HP 460Watts, Common Slot,94% Efficiency
- HP 750Watts, Common Slot, 92% Efficiency
- HP 750Watts, Common Slot, 94% Efficiency
- HP 1200Watts, Common Slot, 90% Efficiency
- HP 1200Watts, Common Slot, 94% Efficiency

The HP ProLiant Common Slot Power supplies meet multiple Energy Efficiency Initiatives: Climate Savers Computing Initiative GOLD and ECOS Consulting 80PLUS GOLD for the 460w and 750w Power Supplies and Climate Savers Computing Initiative Silver, ECOS Consulting 80PLUS Silver for 1200w Power Supply. HP has also been working with the EPA on developing an ENERGY STAR? Computer Server specification and plans on offering models that meet the requirements when they are published. Please visit the ENERGY STAR website at: [www.energystar.gov](http://www.energystar.gov) for updates on the specification development process and approved platforms.

Optional power supplies can be purchased through power supply option kits (see Power Supply Options for part numbers).

#### System Fans

Non redundant model - 8 fans required

Redundant model - redundant fan kit required

**Operating Systems and** [Microsoft Windows Server](#)

**Virtualization Software** [Microsoft Windows Server Hyper-V](#)

**Support for ProLiant** [Microsoft HPC Server 2008](#)

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

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

[Oracle Solaris](#)

[VMware ESX](#)

[Citrix Essentials for XenServer](#)

**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, please visit our Support Matrix at: <http://www.hp.com/go/ossupport> and our driver download page [www.hp.com/support/sl390g7](http://www.hp.com/support/sl390g7).

### Standard Features

#### 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 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
- HP ProLiant Firmware Maintenance

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 ProLiant Essentials Foundation Pack 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 and deliver the highest possible quality of IT service. For more information, visit:

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

#### 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.

Two versions of Insight Control are available, to serve environments requiring either a Linux-based or a Windows-based central management server: HP Insight Control for Linux, and HP Insight Control. See [www.hp.com/go/insightcontrol](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, please visit: <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 StorageWorks 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.

### Standard Features

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

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<b>Security</b>	<p>Power-on password</p> <p>Keyboard password</p> <p>QuickLock, Network Server Mode</p> <p>Serial interface control</p> <p>Administrator's password</p> <p>iLO 3 (Integrated Lights-Out 3) has 12 customizable user accounts and SSL encryption</p> <p>iLO 3 can be disabled via a Global Setting</p> <p>iLO Advanced supports directory services integration</p>
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<b>Warranty</b>	<p>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.</p> <p><b>NOTE:</b> 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: <a href="http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html">http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html</a>.</p>
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<b>GPU Computing Modules</b>	Each SL390s 2U tray will accommodate up to three HP Tesla M1060 and M2050 computational accelerator modules.
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<b>Core Infrastructure Management</b>	<p>HP Systems Insight Manager</p> <p>HP Systems Insight Manager (HP SIM) provides a unified, secure and extensible standards-based environment to centrally manage servers, storage and other infrastructure devices, (both HP and non-HP) across multiple operating system platforms.</p>	<p>For additional information, please see: <a href="http://www.hp.com/go/insight">http://www.hp.com/go/insight</a>.</p>
	<p>Subscriber's Choice</p> <p>Subscriber's Choice Driver and Support Alerts/Notifications is a web-based email subscription service that provides software and driver change notifications for ProLiant products. Sign up at: <a href="http://www.hp.com/go/subscriberschoice">http://www.hp.com/go/subscriberschoice</a> and customize your profile to receive various new alerts as they become available, on a weekly or monthly basis.</p>	
	<p>ROMPq, software and latest drivers</p> <p>The latest software, drivers, and firmware fully optimized and tested for your ProLiant server and options; downloaded from Software and Drivers download pages website at: <a href="http://www.hp.com/go/support">http://www.hp.com/go/support</a> and from <a href="http://www.hp.com/servers/easyssetup">www.hp.com/servers/easyssetup</a>. Contains the following:</p> <ul style="list-style-type: none"> <li>● HP Insight Management Agents for Systems Insight Manager (SIM) Integration</li> <li>● HP Systems Management Homepage</li> <li>● Array Configuration Utility (ACU)</li> <li>● Array Diagnostics Utility (ADU)</li> <li>● HP Insight Diagnostics</li> </ul>	

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### Standard Features

#### 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 Novell SLES, as well as Microsoft Windows HPC Server. A Cluster Platform Configurator simplifies ordering. <a href="http://www.hp.com/go/clusters">http://www.hp.com/go/clusters</a> .
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. <a href="http://www.hp.com/techservers/clusters/ucp/index.html">http://www.hp.com/techservers/clusters/ucp/index.html</a>
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. <a href="http://www.hp.com/go/cmu">http://www.hp.com/go/cmu</a>
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 LSF workload scheduler, the HP-MPI parallelization library, 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 Enterprise Configurator

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

### Service and Support

#### **Service and Support For increased uptime, productivity and ROI - HP Care Pack packaged services for Servers**

These days, you need to get the most out of your server investment - you can't afford not to. When you buy HP server products and solutions, it's also a good time to think about what levels of service and support you may need. To help take the worry out of deploying, designing, maintaining, and managing your environment, we've designed a portfolio of service options that are as: flexible, reliable and scalable as your server. Unlike server-only vendors, we take a holistic approach to your entire environment, bridging storage, servers, blades, software and network infrastructures with our HP Care Pack packaged services for Servers.

#### **Protect your business beyond the warranty**

When it comes to robustness and reliability, standard warranties on today's computing equipment have matured just as the technologies have matured. Good news on some fronts - but also a source of potential problems and subsequent consequences that come from depending on standard warranties alone. Standard warranty protects against product defects and some causes of downtime - but not the business. By using a standard approach to warranty uplifts, such as HP Care Pack Services, you can reduce downtime risks and be more certain of operational consistency for both mission-critical and standard business computing. Simply put, HP Care Pack Services normalize the warranty of combined products - helping you proactively guard against unplanned downtime.

#### **Extending warranties with HP Care Pack Services**

For cost-effective upgrading or extending your standard warranty, HP Care Pack Services offer a suite of standard reactive hardware and software support services that are sold separately, or combined as with our Support Plus and Support Plus 24 services. The portfolio also provides a combination of proactive and reactive services, such as Proactive 24 Service and Critical Service. In addition, with HP Proactive Select we offer an innovative approach to service delivery that gives you the flexibility to acquire the specific proactive services you need today, then add services as your needs evolve. HP Proactive Select offers a broad set of technical or per-event type service options - including server, storage, and network, SAN device, and software, environment, installation and education services. Services that you can mix and match depending on your specific requirements, from preliminary planning and equipment delivery to installation, configuration, integration, and testing, through every level of ongoing support. Our HP Care Pack packaged services for Servers assures help when you need it most. And for many products, post-warranty HP Care Pack Services are available when your original warranty has expired.

#### **HP Server Services: Offering reliability, flexibility and value - just like your storage**

HP Server Services offers a full spectrum of customer care, from technology support to complex migrations to complete completely managed services. HP Factory Express provides customization, integration and deployment services for turnkey solutions. HP Education offers flexible, comprehensive training on server networking and server software to help your IT staff get the most out of your investments. And HP Financial solutions extend innovative financing and asset management programs to cost-effective buy, manage and eventually retire your older equipment.

HP Server Services, the trusted business technology experts who manage your technology in action, because when technology works, business works. <http://www.hp.com/services/servers>, <http://www.hp.com/services/storage>

HP Care Pack Services are sold by HP and HP Authorized Service Partners:

- Services for customers purchasing from HP or an enterprise reseller are quoted using HP order configuration tools.
- Customers purchasing from a commercial reseller can find HP Care Pack Services at: <http://www.hp.com/go/lookuptool>

**NOTE:** Care Pack Services availability may vary by product and country.

### Service and Support

#### Recommended HP Care Pack Services for optimal satisfaction with your HP product

##### Recommended Services

##### **3-Year HP Hardware Support Onsite Service, 4-hour response, 13x5**

Delivering increased equipment availability and productivity with rapid-response onsite and remote support for your HP hardware, as well as selected multivendor equipment, this flexible HP Care Pack Service covers desktops, workstations, servers, storage systems, network equipment, and printing.

Choose 4-Hour Same Business Day Hardware Support when you need to:

Extend your hardware warranty coverage with prompt service for key systems and devices

Obtain easy-to-buy, easy-to-use onsite services

Improve hardware performance and uptime

Increase the return on your HP and multivendor hardware investments

Enjoy consistent service coverage across geographically dispersed sites

Optional Defective Media Retention Service

Service feature highlights

- Help improve or maintain system uptime
- Convenient onsite support
- Committed response time

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5982-6547EEE>

##### **3-Year HP Hardware Support Onsite Service, 4-hour response, 24x7**

4-Hour response coverage increases equipment availability and productivity with round-the-clock onsite and remote support for your HP hardware, as well as selected multivendor equipment.

This flexible HP Care Pack Service covers desktops, workstations, servers, storage systems, and network equipment.

Choose 4-Hour 24x7 Same Day Hardware Support when you need to:

Extend your hardware warranty coverage with prompt, anytime service for key systems and devices

Obtain easy-to-buy, easy-to-use onsite services

Improve hardware performance and uptime

Increase the return on your HP and multivendor hardware investments

Enjoy consistent service coverage across geographically dispersed sites

Optional Defective Media Retention Service

This service provides a trained HP service specialist to perform an installation that meets HP quality standards, for:

- Help improve or maintain system uptime
- Convenient onsite support
- Committed response time

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5982-6547EEE>

##### **ProLiant Servers Installation and Startup Service**

HP Installation Service provides for the basic installation of HP branded servers, workstations, desktop systems, notebook PCs, thin clients, storage devices, printers, networking, and software products. The Installation Service is part of a suite of HP deployment services that are designed to give you the peace of mind that comes from knowing your HP and HP-supported products have been installed by an HP specialist in accordance with the manufacturer's product documentation.

- Expedited installation, with all service prerequisites met before the installation is performed
- Installation in accordance with manufacturer's specifications, enhancing the supportability of your HP-installed hardware and software
- Service delivery at a mutually scheduled time
- Allows your IT resources to stay focused on their core tasks and priorities
- Availability of an HP service specialist to answer questions during the onsite delivery of this service

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

### Service and Support

#### Optional HP Care Pack Services that will enhance your HP product experience

##### Optional Services      **3-Year HP Hardware Support Onsite Call-to-Repair (CTR) Service - 24-hour CTR**

As an alternative to our recommended support level, for customers who need committed 24 hour call-to-repair for server hardware.

HP Hardware Support Onsite 24x7 24-Hour Call-to-Repair Service provides your IT manager access to a team of support specialists. They will quickly begin troubleshooting the system to help return the hardware to operating condition within a maximum of 24 hours from the initial service request.

HP is committed to repairing your hardware within a maximum of six hours. The benefits include:

- Improved system uptime
- Predictable repair times
- More effective IT resource planning
- Consistent level of hardware support across your multi-technology systems
- Optional defective media retention service

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-6636ENN>

##### **3-Year HP Hardware Support Onsite Call-to-Repair (CTR) Service - 6-hour CTR**

As an alternative to our recommended support level, for customers who need committed 6 hour call-to-repair for server hardware.

HP Hardware Support Onsite 24x7 6-Hour Call-to-Repair Service provides your IT manager access to a team of support specialists. They will quickly begin troubleshooting the system to help return the hardware to operating condition within a maximum of six hours from the initial service request.

HP is committed to repairing your hardware within a maximum of six hours. The benefits include:

- Improved system uptime
- Predictable repair times
- More effective IT resource planning
- Consistent level of hardware support across your multi-technology systems
- Optional defective media retention service

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-6636ENN>

##### **3-Year HP Hardware Support Onsite Service, Next-day response (9x5)**

An enhancement to warranty support for products with limited warranty entitlement

Provides high-quality remote assistance and onsite support for your covered hardware, helping you to improve product uptime.

You have the flexibility to choose between different service-level options featuring different response times and coverage windows, as well as between several coverage periods to address your specific service needs.

##### **Service benefits**

- Help improve or maintain system uptime
- Convenient onsite support
- Reliable response times

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5982-6547EEE>

### Service and Support

#### eSupport

HP eSupport is a portfolio of technology-based services that assist you with managing your business environment - from the desktop to the data center.

#### Support Portal

The HP support portal provides one-stop access to the information, tools and services you need to manage the daily operations of your IT environment.

#### Features include:

- Access to self-solve tools (including search technical knowledge base)
- Efficient logging and tracking of support cases
- Collaboration with other business and IT professionals
- Download of patches and drivers
- Access to diagnostic tools
- Proactive notification of relevant information

Access to certain features of the support portal requires an HP service agreement. To access the support portal, visit: <http://www.hp.com/support>

HP Insight Remote Support software delivers secure remote support for your HP Servers and Storage, 24 X 7, so you can spend less time solving problems and more time focused on your business. You can have your systems remotely monitored for hardware failure using secure technology that's been proven at thousands of companies around the world. In many cases, you can avoid problems before they occur.

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#### Customer Technical Training

HP Services continues to be recognized for service and support excellence by customers, partners, industry organizations and publications around the world. Recent honors and award reflect our services team's dedications, technical expertise, professionalism and uncompromising commitment to customer satisfaction. For a list of all our awards, please visit: <http://h20219.www2.hp.com/services/cache/433028-0-0-225-121.htm>

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#### HP Services Awards

HP Services continues to be recognized for service and support excellence by customers, partners, industry organizations and publications around the world. Recent honors and award reflect our services team's dedications, technical expertise, professionalism and uncompromising commitment to customer satisfaction. For a list of all our awards, please visit: <http://h20219.www2.hp.com/services/cache/433028-0-0-225-121.htm>

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#### Additional Services Information

For more information about HP Care Pack Services for Servers, please visit: <http://www.hp.com/services/servers>

To learn more on HP ProLiant servers and HP BladeSystem, please contact your HP sales representative or HP Authorized Channel Partner, or visit: [www.hp.com/services/proliant](http://www.hp.com/services/proliant) or [www.hp.com/services/bladeSystem](http://www.hp.com/services/bladeSystem).

### Configuration Information - Factory Integrated 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.

#### Step 1: Base Configuration (choose one from each list unless otherwise noted)

<b>HP Chassis</b>	HP ProLiant s6500 Chassis <b>NOTE:</b> You must choose Power Supplies and fans as the chassis does not include them.	614167-B21
<b>HP Chassis Fans</b>	HP s6500 Redundant Fan Kit <b>NOTE:</b> It is required that the entire chassis be filled with fans - Part number only contains 1 fan, 8 must be purchased.	617856-B21
	HP s6500 Non-Redundant Fan Kit <b>NOTE:</b> It is required that the entire chassis be filled with fans - Part number only contains 1 fan, 8 must be purchased.	617858-B21
<b>HP Server Nodes</b>	HP ProLiant SL390s 1U Right Half Width tray	605078-B21
	HP ProLiant SL390s 1U Left Half Width tray	612217-B21
	HP ProLiant SL390s 2U Right Half Width tray	605080-B21
	HP ProLiant SL390s 2U Left Half Width tray	605081-B21
<b>HP Rail Kits</b>	HP s6500 4U 3rd Party Rail KIT	601946-B21
	HP s6500 4U Rail KIT	599109-B21
	HP s6500 POD Rail KIT	599108-B21
<b>HP Power Supplies</b>	<b>NOTE:</b> Refer to HP Power Advisor when selecting a power supply for your configuration, <a href="http://www.hp.com/go/hppoweradvisor">www.hp.com/go/hppoweradvisor</a> . Many HP ProLiant Servers now offer new power options, including Common Slot Power Supplies. These power supplies come in multiple power ratings and higher efficiency levels to offer the Right Size solution to fit your configuration. This provides improved power delivery and the advantage of reclaiming lost power. Prior to making a power supply selection it is "highly recommended" that the "HP Power Advisor" is run to determine the right size power supply for your server configuration. The HP Power Advisor is located at: " <a href="http://www.hp.com/go/proliant-energy-efficient">www.hp.com/go/proliant-energy-efficient</a> " or <a href="http://www.hp.com/go/hppoweradvisor">www.hp.com/go/hppoweradvisor</a>	
	HP 460W HE 12V Hot Plug AC Power Supply Kit	503296-B21
	HP 460W Common Slot Platinum Power Supply Kit	593188-B21
	HP 750W Common Slot High Efficiency Power Supply Kit	512327-B21
	HP 750W Common Slot Platinum Power Supply Kit	593831-B21
	HP 1200W 12V Hot Plug AC Power Supply	500172-B21
	HP 1200W Common Slot High Efficiency Power Supply Kit	578322-B21
	<b>NOTE:</b> Option Kits contain optional power supply, an IEC power cable and PDU IEC cables.	

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

<b>HP Processors</b>	<b>Six-Core Processors</b>	
	Intel® Xeon® Processor X5670 (2.93 GHz, 12MB L3 Cache, 95 Watts, DDR3-1333, HT Turbo 2/2/2/2/3/3)	611141-L21
	Intel® Xeon® Processor X5660 (2.80 GHz, 12MB L3 Cache, 95 Watts, DDR3-1333, HT Turbo 2/2/2/2/3/3)	611142-L21
	Intel® Xeon® Processor X5650 (2.66 GHz, 12MB L3 Cache, 95 Watts, DDR3-1333, HT Turbo 2/2/2/2/3/3)	611143-L21
	Intel® Xeon® Processor L5640 (2.26 GHz, 12MB L3 Cache, 60 Watts, DDR3-1333, HT Turbo 2/2/3/3/4/4)	611149-L21
	<b>Quad-Core Processors</b>	
	Intel® Xeon® Processor X5667 (3.0 GHz, 12MB L3 Cache, 80 Watts, DDR3-1066, HT Turbo 2/2/3/3)	618883-L21
	Intel® Xeon® Processor E5640 (2.66 GHz, 12MB L3 Cache, 80 Watts, DDR3-1066, HT Turbo 1/1/2/2)	611146-L21
	Intel® Xeon® Processor E5630 (2.53 GHz, 12MB L3 Cache, 80 Watts, DDR3-1066, HT Turbo 1/1/2/2)	611144-L21
	Intel® Xeon® Processor E5620 (2.40 GHz, 12MB L3 Cache, 80 Watts, DDR3-1066, HT Turbo 1/1/2/2)	611145-L21
	Intel® Xeon® Processor E5506 (2.13 GHz, 4MB L3 Cache, 80 Watts, DDR3-800)	611147-L21

### Configuration Information - Factory Integrated Models

Intel® Xeon® Processor L5630 (2.13 GHz, 12MB L3 Cache, 40 Watts, DDR3-1066, HT Turbo 1/1/2/2) 611150-L21

#### Dual-Core Processors

Intel® Xeon® Processor E5503 (2.00GHz, 4MB L3 Cache, 80 Watts, DDR3-800) 611148-L21

### 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) Quad Rank x8 PC3-8500 (DDR3-1066) Registered CAS-7 Low Power Memory Kit 500660-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 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

**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

#### Unbuffered with ECC DIMMs (UDIMMs)

**NOTE:** Maximum 12 DIMMs supported per node.

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

**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

#### HP Hard Drives

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

**NOTE:** Hot plug hard drives are for 2U tray only.

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

#### Hot Plug Hard drives - for 2U tray

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

HP 300GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive 507127-B21

HP 146GB 6G SAS 15K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive 512547-B21

HP 146GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive 507125-B21

HP 72GB 6G SAS 15K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive 512545-B21

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

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

**NOTE:** SAS Enterprise drives have a 3 year warranty. 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)

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

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

HP 160GB 3G SATA 7.2K rpm SFF (2.5-inch) Midline 1yr Warranty Hard Drive 530888-B21

##### SATA Hot Plug SFF (2.5-inch) Entry (ETY) Drives

HP 250GB 3G SATA 5.4K rpm SFF (2.5-inch) Entry 1yr Warranty Hard Drive 460355-B21

**NOTE:** SATA drives have a 1 year warranty. 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)

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

HP 60GB 3G SATA SFF (2.5-inch) Midline 1yr Warranty Solid State Drive 572071-B21

HP 120GB 3G SATA SFF (2.5-inch) Midline 1yr Warranty Solid State Drive 572073-B21

**RECOMMENDATION:** 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.

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

[http://h18000.www1.hp.com/products/quickspecs/13415\\_div/13415\\_div.html](http://h18000.www1.hp.com/products/quickspecs/13415_div/13415_div.html)

#### Non-Hot plug using Quick release carrier - for 1U and 2U (internal drives)

##### SAS Enterprise (ENT) Drives - with quick-release (QR) carrier

HP 600GB 6G SAS 15K 3.5in QR DP ENT HDD 574758-B21

HP 300GB 6G SAS 15K 3.5in QR DP ENT HDD 585980-B21

HP 300GB 6G SAS 10K 2.5in QR DP ENT HDD 574879-B21

##### SATA Entry (ETY) Drives - with quick-release (QR) carrier

HP 160GB 3G SATA 7.2K 3.5in QR ETY HDD 574021-B21

##### SATA Midline (MDL) Drives - with quick-release (QR) carrier

HP 2TB 3G SATA 7.2K 3.5in QR MDL HDD 574755-B21

HP 1TB 3G SATA 7.2K 3.5in QR MDL HDD 574025-B21

HP 500GB 3G SATA 7.2K 3.5in QR MDL HDD 574023-B21

HP 500GB 3G SATA 7.2K 2.5in QR MDL HDD 574953-B21

HP 160GB 3G SATA 7.2K 2.5in QR MDL HDD 574893-B21

**NOTE:** HP P212 SAS 4HDD Cable Kit (574001-B21) is needed when adding more than two 2.5" hard drives.

##### SATA Midline (MDL) Solid State Drives - with quick-release (QR) carrier

HP 120GB 3G SATA 2.5in QR MDL SSD 586587-B21

HP 60GB 3G SATA 2.5in QR MDL SSD 586585-B21



### Configuration Information - Factory Integrated Models

<b>HP Storage Controllers</b>	HP P212/256 FIO SA Cntrlr w/Battery	491191-B21
	<b>NOTE:</b> HP P212 SAS 4HDD Cable Kit is required when adding SAS hard drives using the P212 controller (574001-B21)	
	HP Smart Array P410/ZM FIO Controller	462860-B21
	<b>NOTE:</b> HP P410 SAS 4HDD Cable Kit is required when adding SAS hard drives using the P410 controller (583997-B21)	
	HP Smart Array P410/256 MB w/ Battery FIO	491195-B21
	<b>NOTE:</b> HP P410 SAS 4HDD Cable Kit is required when adding SAS hard drives using the P410 controller (583997-B21)	
	HP Smart Array P411/256 MB w/ Battery FIO	491193-B21

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

HP Insight Software

### 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>	<p>HP IB Enablement Kit 614841-B21  <b>NOTE:</b> Needed to enable Infiniband using QSFP port on system board.</p> <p>HP SL390s IOH Loopback Kit 614838-B21  <b>NOTE:</b> this is required when purchasing 2U tray without GPUs.</p> <p>HP SL390s 2U SAS Enablement Kit 620000-B21  <b>NOTE:</b> needed if use SAS drives instead of SATA drives.</p> <p>HP SL390s NHP SATA Cable Kit 621024-B21  <b>NOTE:</b> This is needed when using internal non hot plug drive in 2U tray.</p> <p>HP SL390s SFF Enablement Kit 625034-B21  <b>NOTE:</b> required for every 2 SFF drives being added to the 1U tray.</p> <p>HP P212 SAS 2HDD Cable Kit 589234-B21  <b>NOTE:</b> this is required when add two 3.5" SAS drive to the 1U tray.</p> <p>HP P212 SAS 4HDD Cable Kit 574001-B21  <b>NOTE:</b> this is required when add four 3.5" SAS drive to the 1U tray.</p> <p>HP SL390 2 GPU Riser Kit 614839-B21  <b>NOTE:</b> riser need when adding 2 GPUs to 2U tray.</p> <p>HP SL390 PCIe Riser x16 FIO Kit 615149-B21</p> <p>HP SL390 Single GPU 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.</p> <p>HP s6500 Redundant Fan Kit 617856-B21  <b>NOTE:</b> It is required that the entire chassis be filled with fans - Part number only contains 1 fan, 8 must be purchased.</p> <p>HP s6500 Non-Redundant Fan Kit 617858-B21  <b>NOTE:</b> It is required that the entire chassis be filled with fans - Part number only contains 1 fan, 8 must be purchased.</p> <p>HP s6500 CHASSIS HANDLES Kit 608477-B21</p> <p>HP s6500 Half Width Service Tray Kit 601948-B21  <b>NOTE:</b> service tray needed when removing ½ width tray for service.</p> <p>HP SL390s node blank Kit 622372-B21  <b>NOTE:</b> Node blank is needed when not completely filling s6500 chassis.</p> <p>HP s6500 4U 3rd Party Rail KIT 601946-B21</p> <p>HP s6500 4U Rail KIT 599109-B21</p> <p>HP s6500 POD Rail KIT 599108-B21</p>
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### HP Processors

#### Six-Core Processors

Intel® Xeon® Processor X5670 (2.93 GHz, 12MB L3 Cache, 95 Watts, DDR3-1333, HT Turbo 2/2/2/2/3/3)	611141-B21
Intel® Xeon® Processor X5660 (2.80 GHz, 12MB L3 Cache, 95 Watts, DDR3-1333, HT Turbo 2/2/2/2/3/3)	611142-B21
Intel® Xeon® Processor X5650 (2.66 GHz, 12MB L3 Cache, 95 Watts, DDR3-1333, HT Turbo 2/2/2/2/3/3)	611143-B21
Intel® Xeon® Processor L5640 (2.26 GHz, 12MB L3 Cache, 60 Watts, DDR3-1333, HT Turbo 2/2/3/3/4/4)	611149-B21
Intel® Xeon® Processor X5670 (2.93 GHz, 12MB L3 Cache, 95 Watts, DDR3-1333, HT Turbo 2/2/2/2/3/3)	611141-B21
Intel® Xeon® Processor X5660 (2.80 GHz, 12MB L3 Cache, 95 Watts, DDR3-1333, HT Turbo 2/2/2/2/3/3)	611142-B21

#### Quad-Core Processors

Intel® Xeon® Processor X5667 (3.0 GHz, 12MB L3 Cache, 80 Watts, DDR3-1066, HT Turbo 2/2/3/3)	618883-B21
Intel® Xeon® Processor E5640 (2.66 GHz, 12MB L3 Cache, 80 Watts, DDR3-1066, HT Turbo 1/1/2/2)	611146-B21
Intel® Xeon® Processor E5630 (2.53 GHz, 12MB L3 Cache, 80 Watts, DDR3-1066, HT Turbo 1/1/2/2)	611144-B21
Intel® Xeon® Processor E5620 (2.40 GHz, 12MB L3 Cache, 80 Watts, DDR3-1066, HT Turbo 1/1/2/2)	611145-B21
Intel® Xeon® Processor E5506 (2.13 GHz, 4MB L3 Cache, 80 Watts, DDR3-800)	611147-B21
Intel® Xeon® Processor L5630 (2.13 GHz, 12MB L3 Cache, 40 Watts, DDR3-1066, HT Turbo 1/1/2/2)	611150-B21

#### Dual-Core Processors



### Core Options

Intel® Xeon® Processor E5503 (2.00GHz, 4MB L3 Cache, 80 Watts, DDR3-800) 611148-B21

**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.

### 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) Quad Rank x8 PC3-8500 (DDR3-1066) Registered CAS-7 Low Power Memory Kit 500660-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 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

**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

#### Unbuffered with ECC DIMMs (UDIMMs)

**NOTE:** Maximum 12 DIMMs supported per node.

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

**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 tray 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

HP 300GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive 507127-B21

HP 146GB 6G SAS 15K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive 512547-B21

### Core Options

HP 146GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive 507125-B21

HP 72GB 6G SAS 15K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive 512545-B21

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

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

**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 500GB 3G SATA 7.2K rpm SFF (2.5-inch) Midline 1yr Warranty Hard Drive 507750-B21

HP 160GB 3G SATA 7.2K rpm SFF (2.5-inch) Midline 1yr Warranty Hard Drive 530888-B21

#### SATA Hot Plug SFF (2.5-inch) Entry (ETY) Drives

HP 250GB 3G SATA 5.4K rpm SFF (2.5-inch) Entry 1yr Warranty Hard Drive 460355-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)

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

HP 60GB 3G SATA SFF (2.5-inch) Midline 1yr Warranty Solid State Drive 572071-B21

HP 120GB 3G SATA SFF (2.5-inch) Midline 1yr Warranty Solid State Drive 572073-B21

**RECOMMENDATION:** 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.

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

[http://h18000.www1.hp.com/products/quickspecs/13415\\_div/13415\\_div.html](http://h18000.www1.hp.com/products/quickspecs/13415_div/13415_div.html)

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

HP 600GB 6G SAS 15K 3.5in QR DP ENT HDD 574758-B21

HP 300GB 6G SAS 15K 3.5in QR DP ENT HDD 585980-B21

HP 300GB 6G SAS 10K 2.5in QR DP ENT HDD 574879-B21

#### SATA Non-Hot Plug Entry (ETY) Drives - with quick-release (QR) carrier

HP 160GB 3G SATA 7.2K 3.5in QR ETY HDD 574021-B21

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

HP 2TB 3G SATA 7.2K 3.5in QR MDL HDD 574755-B21

HP 1TB 3G SATA 7.2K 3.5in QR MDL HDD 574025-B21

HP 500GB 3G SATA 7.2K 3.5in QR MDL HDD 574023-B21

HP 500GB 3G SATA 7.2K 2.5in QR MDL HDD 574953-B21

HP 160GB 3G SATA 7.2K 2.5in QR MDL HDD 574893-B21

**NOTE:** HP P212 SAS 4HDD Cable Kit (574001-B21) is needed when adding more than two 2.5" hard drives.

#### SATA Non-Hot Plug Midline (MDL) Solid State Drives - with quick-release (QR) carrier

HP 120GB 3G SATA 2.5in QR MDL SSD 586587-B21

HP 60GB 3G SATA 2.5in QR MDL SSD 586585-B21

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

**NOTE:** One 2 Drive SFF Drive Cage (582657-B21) is required when installing 2 SFFF drives.

**NOTE:** When Adding SAS one of the following cable kits needs to be ordered depending on which SAS controller installing - HP P212 SAS 4HDD Cable Kit 574001-B21 or HP P410 SAS 4HDD Cable Kit 583997-B21.

**NOTE:** Hot plug hard drives are for 2U tray only.

**NOTE:** 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 PCIe Gigabit Server Adapter	503746-B21
HP NC360T PCI Express Dual Port Gigabit Server Adapter	412648-B21
HP NC364T PCI Express Quad Port Gigabit Server Adapter	435508-B21
HP NC365T 4-port Ethernet Server Adapter	593722-B21
HP NC373F PCI Express Multifunction Gigabit Server Adapter	394793-B21
HP NC373T PCI Express 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:** No more than two 10GbE I/O devices are supported in a single ProLiant server.

**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 Server Adapter	468332-B21
HP NC550SFP Dual Port 10GbE Server Adapter	581201-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 NIC	516937-B21
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#### HP InfiniBand

HP IB 4X QDR CX-2 PCI-e G2 Dual Port HCA	592520-B21
HP IB 4X DDR CX-2 PCI-e G2 Dual Port HCA	592521-B21
HP 4X QDR PCI-e G2 QLogic InfiniBand Dual Port HCA	583211-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 Gpu Riser Kit	614839-B21
HP SL390 PCIe Riser x16 FIO Kit	615149-B21
HP SL390 Single Gpu Riser Kit	614840-B21

#### HP Power Supplies

**CAUTION:** In ProLiant Servers that have more than one power slot (bay), only same size power supplies are recommended. If non-matched power supplies are inserted you will get errors and operation will fail.

HP 460W HE 12V Hot Plug AC Power Supply Kit	503296-B21
HP 460W Common Slot Platinum Power Supply Kit	593188-B21
HP 750W Common Slot High Efficiency Power Supply Kit	512327-B21
HP 750W Common Slot Platinum Power Supply Kit	593831-B21
HP 1200W 12V Hot Plug AC Power Supply	500172-B21
HP 1200W Common Slot High Efficiency Power Supply Kit	578322-B21

**NOTE:** Option Kits contain optional power supply, an IEC power cable and PDU IEC cables.

### Additional Options

<b>HP Insight Software</b>	<b>HP Integrated Lights-Out (iLO) Advanced</b>	512486-B21
	HP Integrated Lights-Out (iLO) Advanced for ProLiant Flexible-Quantity License, No Media, including (1) year of 24x7 Technical Support and Updates	
	<b>NOTE:</b> Electronic software is available in all countries except China and Japan. Customers in China and Japan should order the physical equivalent.	
	<b>NOTE:</b> For additional license kits, including electronic delivery options, please see the QuickSpecs at:	
	<a href="http://h18000.www1.hp.com/products/quickspecs/12362_div/12362_div.html">http://h18000.www1.hp.com/products/quickspecs/12362_div/12362_div.html</a>	
<b>High Performance Clusters</b>	<b>HP Cluster Management Utility</b>	436284-B21
	HP Cluster Management Utility Compute Node Flexible License	
	<b>NOTE:</b> 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.	
	<b>NOTE:</b> For additional license kits please see the QuickSpecs at:	
	<a href="http://h18004.www1.hp.com/products/quickspecs/12612_div/12612_div.html">http://h18004.www1.hp.com/products/quickspecs/12612_div/12612_div.html</a>	
	<b>HP HPC Linux Value Pack</b>	
	HP High Performance Computing Linux Value Pack 1 Processor Flexible License	TC293A
	<b>NOTE:</b> 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	TC294A
	<b>NOTE:</b> This part number can be used to purchase media including software and documentation, which will be delivered to the customer.	
	<b>NOTE:</b> For additional license kits please see the QuickSpecs at:	
	<a href="http://h18004.www1.hp.com/products/quickspecs/13485_div/13485_div.html">http://h18004.www1.hp.com/products/quickspecs/13485_div/13485_div.html</a>	
<b>GPU Computing Modules</b>	<p><b>NOTE:</b> The Tesla modules can only be accommodated in SL390s 2U trays.</p> <p><b>NOTE:</b> 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.</p> <p><b>NOTE:</b> 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.</p> <p><b>NOTE:</b> 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.</p> <p><b>NOTE:</b> Power supplies must be configured to accommodate the power requirements of the Tesla modules. For example, the M2050 modules each have a peak power requirement of 225 watts.</p>	
	HP Tesla M1060 2-Slot Passive Module	SH409A
	HP Tesla M2050 3GB Module	SH885A
<b>HP Rail Options</b>	HP s6500 4U 3rd Party Rail KIT	601946-B21
	HP s6500 4U Rail KIT	599109-B21
	HP s6500 POD Rail KIT	599108-B21

### Additional Options

#### HP Storage Controllers SAS Controllers

##### Smart Array P212 Controller

HP Smart Array P212/Zero Memory Controller	462828-B21
HP Smart Array P212/256 MB Controller	462834-B21

##### Smart Array P410 Controller

HP Smart Array P410/256 MB Controller	462862-B21
HP Smart Array P410/512 MB with BBWC Controller	462864-B21
HP Smart Array P410/512MB with FBWC	578230-B21
HP Smart Array P410/1G with FBWC	572532-B21

##### Smart Array P411 Controller

HP Smart Array P411/256 MB Controller	462830-B21
HP Smart Array P411/512 MB with BBWC Controller	462832-B21
HP Smart Array P411/512MB Flash Backed Write Cache	578229-B21
HP Smart Array P411/1G Flash Backed Write Cache	572531-B21

##### Optional Upgrades

256 MB Cache Module	462968-B21
512MB BBWC	462967-B21
1G Flash Backed Write Cache	534562-B21
512MB Flash Backed Write Cache	534916-B21
Battery Kit upgrade	462969-B21

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

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

##### SCSI HBA

HP SC11Xe Host Bus Adapter	412911-B21
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**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 Power Cords

**NOTE:** HP ProLiant servers ships with an IEC-IEC power cord used for rack mounting with Power Distribution Units (PDUs).

HP 1.83m 10A C13 CZ Power Cord	AF565A
HP 1.83m 10A C13 DK Power Cord	AF566A
HP 1.83m 10A C13 EU Power Cord	AF568A
HP 1.83m 10A C13 Power Cord	AF564A
HP 1.83m 10A C13 NBR14136 Brazil Power Cord	AF591A
HP 1.83m 10A C13 UK Power Cord	AF570A
HP 1.83m 10A C13 IT/CL Power Cord	AF571A
HP 2.5m 16A C13 IS1293 India Power Cord	SG579A
HP 1.83m 10A C13 Power Cord	AF569A
HP 2.5m 10A C13 ZA Power Cord	AF567A
HP 2m C13 Japan Power Cord	AF572A
HP 1.83m 10A C13 Power Cord	AF557A
HP 1.83m 10A C13 Power Cord	AF560A
HP 1.83m 10A C13 Power Cord	AF561A
HP 1.83m 10A C13 Power Cord	AF559A
HP 1.83m 10A C13 Power Cord	AF556A
HP 2.0m 10A C13 Power Cord	AF562A
HP 2.5m 10A C13 Power Cord	AF558A
HP 2m 10A C13-C14 Redundant Jumper Cord	AF573A

### Additional Options

#### HP StorageWorks Options

##### StorageWorks 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>

##### Emulex Fibre Channel HBAs

HP StorageWorks 81E PCI-e FC HBA Single Port	AJ762A
HP StorageWorks 82E PCI-e FC HBA Dual Port	AJ763A
HP StorageWorks FC2142 4Gb PCI-e HBA	A8002A
HP StorageWorks FC2242 Dual Channel 4Gb PCI-e HBA	A8003A

##### QLogic Fibre Channel HBAs

HP StorageWorks 81Q PCI-e FC HBA Single Port	AK344A
HP StorageWorks 82Q PCI-e FC HBA Dual Port	AJ764A
HP StorageWorks FC1142 4Gb PCI-e HBA	AE311A
HP StorageWorks FC1242 Dual Channel 4Gb PCI-e HBA	AE312A

##### StorageWorks SCSI HBA

HP U320e SCSI Host Bus Adapter	AH627A
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**NOTE:** Recommended HBA for MSL SCSI Tape Library connect.

#### HP USB and SD Options

HP USB 2-Button Optical Scroll Mouse	DC172B
HP USB 04 Standard Keyboard	DT528A#ABA

#### HP Care Pack Services

HP 3y Nbd s6500 HW Support	UR398E
HP 3y Nbd w/DMR s6500 HW Supp	UR399E
HP 3y 4h 13x5 s6500 HW Support	UR400E
HP 3y 4h13x5 w/DMR s6500 HWSupp	UR401E
HP 3y 4h 24x7 s6500 HW Support	UR402E
HP 3y 4h24x7 w/DMR s6500 HWSupp	UR403E
HP 3y 6h 24x7 CTR s6500 HW Supp	UR404E
HP3y 6h24x7 CTRw/DMR s6500 HWSup	UR405E
HP 4y Nbd s6500 HW Support	UR406E
HP 4y Nbd w/DMR s6500 HW Supp	UR407E
HP 4y 4h 13x5 s6500 HW Support	UR408E
HP 4y 4h13x5 w/DMR s6500 HWSupp	UR409E
HP 4y 4h 24x7 s6500 HW Support	UR410E
HP 4y 4h24x7 w/DMR s6500 HWSupp	UR411E
HP 4y 6h 24x7 CTR s6500 HW Supp	UR412E
HP4y 6h24x7 CTRw/DMR s6500 HW Supp	UR413E
HP 5y Nbd s6500 HW Support	UR414E
HP 5y Nbd w/DMR s6500 HW Supp	UR415E
HP 5y 4h 13x5 s6500 HW Support	UR416E
HP 5y 4h13x5 w/DMR s6500 HWSupp	UR417E
HP 5y 4h 24x7 s6500 HW Support	UR418E
HP 5y 4h24x7 w/DMR s6500 HWSupp	UR419E
HP 5y 6h 24x7 CTR s6500 HW Supp	UR420E
HP5y 6h24x7 CTRw/DMR s6500 HW Supp	UR421E
HP 3y 24x7 24h CTR s6500 HW Sup	UR425E
HP 3y24x7 24hCTRwDMR s6500 HW Supp	UR426E
HP 4y 24x7 24h CTR s6500 HW Sup	UR427E
HP 4y24x7 24hCTRwDMR s6500 HW Supp	UR428E
HP 5y 24x7 24h CTR s6500 HW Sup	UR429E
HP 5y24x7 24hCTRwDMR s6500 HW Supp	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	4GB	16GB	1GB	2GB	4GB
DIMM Native Speed (MHz)	1333	1333	1333	1066	1333	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
<b>MAXIMUM CAPACITY (GB)</b>										
	48	24	48	96	96	48	192	12	24	48
<b>POPULATED DIMM SPEED (MHz)</b>										
1 DIMM Per Channel	1333	1333	1333	1066	1333	1066	1066	1333	1333	1333
2 DIMM Per Channel	1333*	1333*	1333*	1066	1333*	800	800	1333	1333	1333*

\*Supported at 1333 via setting in ROM based setup utility (RBSU)

#### 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.

## Memory

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	

### 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 (6) 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

- 192GB, consisting of twelve (12) 16GB PC3-8500 RDIMMs

Memory

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

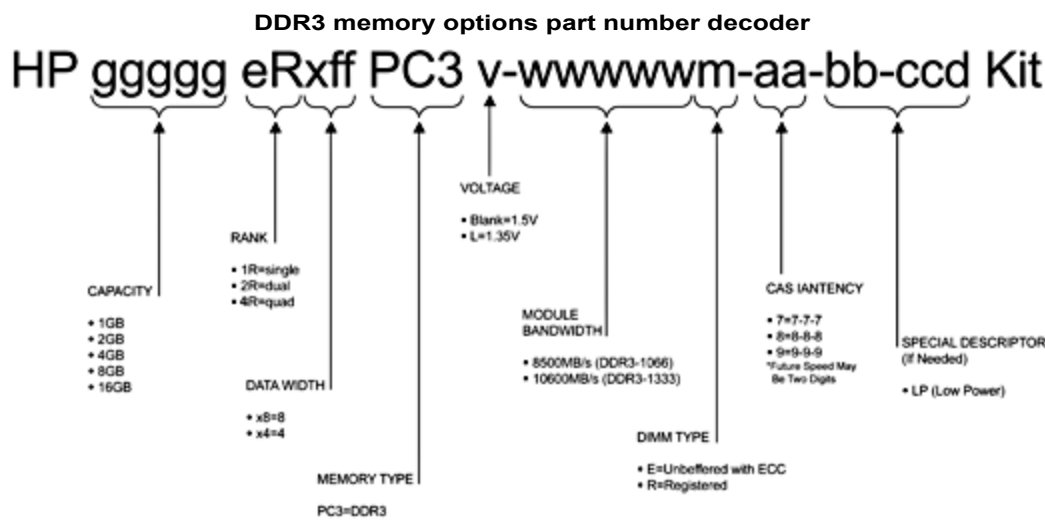
UDIMM maximum configuration

- 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



### Memory

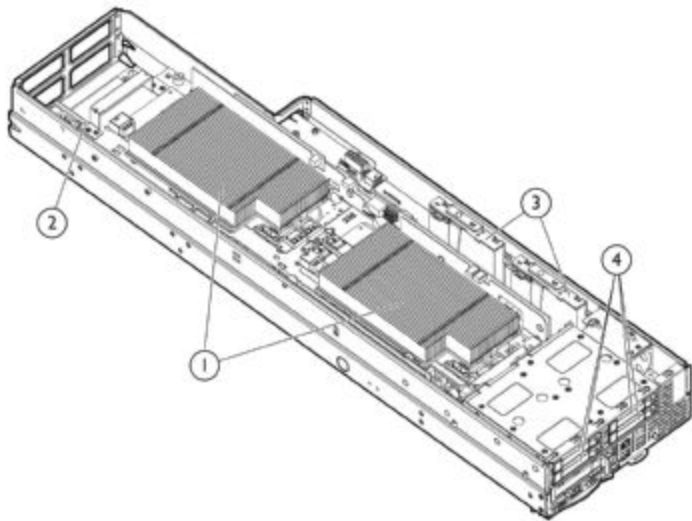
Following are memory options available from HP:

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) Quad Rank x8 PC3-8500 (DDR3-1067) Registered CAS-7 Low Power Memory Kit	500660-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
	<b>NOTE:</b> Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.	
	HP 16GB (1x16GB) Quad Rank x4 PC3-8500 (DDR3-1067) 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
	<b>NOTE:</b> Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.	
	<b>Unbuffered with ECC DIMMs (UDIMMs)</b>	
	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
	<b>NOTE:</b> For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: <a href="http://www.hp.com/go/ddr3memory-configurator">www.hp.com/go/ddr3memory-configurator</a> .	
	<b>NOTE:</b> There is a maximum support limitation of 8 ranks per memory channel (maximum of 2 quad rank DIMMs per channel)	
	<b>NOTE:</b> PC3L is a low voltage memory.	
	<b>NOTE:</b> 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

#### 2U Tray

1-4 Up to four Hot plug 2.5" hard drives

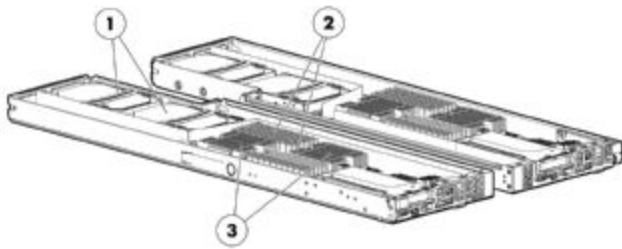


1-4 Four 2.5" hot plug hard drive bays

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

#### 1U Tray

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



## Drive Support

### 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.

#### 2U Tray

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

	Quantity Supported	Position Supported	Controller
300GB 6G SAS 10K DP	Up to 4	1-4	HP Smart Array P212/Zero Memory Controller
300GB 3G SAS 10K DP			HP Smart Array P212/256 MB Controller
146GB 6G SAS 15K DP			HP Smart Array P410/256 MB Controller
146GB 3G SAS 15K DP			HP Smart Array P410/512 MB BBWC Controller
146GB 6G SAS 10K DP			
146GB 3G SAS 10K DP			
72GB 6G SAS 15K DP			
72GB 3G SAS 15K DP			

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

	Quantity Supported	Position Supported	Controller
500GB 6G SAS 7.2K DP	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

##### 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)
160GB 3G SATA 7.2K			

### Storage

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

	Quantity Supported	Position Supported	Controller
60GB 3.0G SATA SSD	Up to 4	1-4	HP Embedded Smart Array B110i SATA RAID Controller (RAID 0, 1, 10)
120GB 3.0G SATA SSD			

#### 1U Tray

##### SATA LFF (3.5-inch) Entry (ETY) Drives - with quick-release (QR) carrier

	Quantity Supported	Position Supported	Controller
160GB 3G SATA 7.2K	Up to 2	1-2	HP Embedded Smart Array B110i SATA RAID Controller (RAID 0, 1, 10)

##### SATA 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)
2TB 3G SATA 7.2K			
1TB 3G SATA 7.2K			
500GB 3G SATA 7.2K			

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

	Quantity Supported	Position Supported	Controller
500GB 3G SATA 7.2K	Up to 2	1-4	HP Embedded Smart Array B110i SATA RAID Controller (RAID 0, 1, 10)
160GB 3G SATA 7.2K			

##### SATA Midline (MDL) Solid State Drives - with quick-release (QR) carrier

	Quantity Supported	Position Supported	Controller
60GB 3.0G SATA SSD	Up to 2	1-4	HP Embedded Smart Array B110i SATA RAID Controller (RAID 0, 1, 10)
120GB 3.0G SATA SSD			

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

	Quantity Supported	Position Supported	Controller
60GB 3.0G SATA SSD	Up to 4	1-4	HP Embedded Smart Array B110i SATA RAID Controller (RAID 0, 1, 10)
120GB 3.0G SATA SSD			

### Power Specifications

HP 460W CS HE Power Supply Kit							
Part Number	503296-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	460	460	460	460	460	460	460
Nominal Input Current ( A rms )	5.5	4.5	2.6	2.5	2.4	2.3	2.2
Maximum Rated Input Wattage Rating ( Watts )	526	520	505	505	503	503	503
Maximum Rated VA ( Volt-Amp )	548	542	527	527	524	524	524
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 )	1794	1773	1725	1725	1715	1715	1715

HP 460W CS Platinum Power Supply Kit							
Part Number	593188-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	460	460	460	460	460	460	460
Nominal Input Current ( A rms )	5.3	4.3	2.5	2.4	2.3	2.2	2.1
Maximum Rated Input Wattage Rating ( Watts )	512	505	493	493	492	492	491
Maximum Rated VA ( Volt-Amp )	526	518	506	506	505	505	504
Efficiency ( % )	89.8	91.2	93.2	93.3	93.5	93.6	93.6
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 )	1747	1722	1683	1682	1679	1678	1677

HP 750W CS HE 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

### Power Specifications

HP 750W CS Platinum 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

HP 1200W CS HE 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 CS Platinum 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>Dimensions</b> (H x W x D)	6.96 x 17.638 x 35.236in (17.68 x 44.8 x 89.55cm) (with bezel)
	<b>Weight</b> (approximate)	Maximum 220lb (99.8kg) (all hard drives, power supplies, and processors installed)
	<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 with ISO 9296 (ECMA 109).
	<b>Idle</b>	LWAd 6.4 LpAm 45dBA
	<b>Operating</b>	LWAd 6.7 LpAm 51dBA
	<b>Emissions Classification</b> (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.

### Technical Specifications

<b>Embedded NC362i PCIe Gigabit Server Adapter</b>	<b>Network Interface</b>	Integrated 10/100/1000BASE-T Transceiver	
		Combines a triple-speed IEEE 802.3TM - Compliant Media Access Controller (MAC) with a triple-speed Ethernet transceiver.	
	<b>Data Transfer Method</b>	Compliant to x4 PCIe Specification	
	<b>Controller</b>	Intel® 82576	
	<b>Network Transfer Rate</b>	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	
<b>Connector</b>	RJ-45 connector		
<b>Cable Support</b>	Performs all the physical layer functions for 10BASE-T, 100BASE-T, and 1000BASE-T Ethernet on standard Category 5 UTP		

<b>GPU Computing Modules</b>	<b>HP M1060 Module</b>	<ul style="list-style-type: none"> <li>● PCIe Card</li> <li>● 240 processor cores delivering up to 78 GFlops double precision and 933 GFlops single precision peak per GPU</li> <li>● 4 GB DDR3 memory</li> <li>● Asynchronous Data Transfer</li> <li>● CUDA programming environment with broad support of programming languages and APIs</li> </ul>
	<b>HP M2050 3 GB Module</b>	<ul style="list-style-type: none"> <li>● PCIe x16 Gen2 Card</li> <li>● 448 CUDA™ cores delivering up to 515 GFlops double precision and 1.03 TFlops single precision peak per GPU</li> <li>● 3 GB DDR5 memory (if ECC is enabled, the user-available memory is 2.625 GB)</li> <li>● NVIDIA Parallel DataCache™</li> <li>● NVIDIA GigaThread™ Engine</li> <li>● Asynchronous Data Transfer</li> <li>● CUDA programming environment with broad support of programming languages and APIs</li> </ul>

<b>Environment-friendly Products and Approach</b>	<b>End-of-life Management and Recycling</b>	<p>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: <a href="http://www.hp.com/go/green">http://www.hp.com/go/green</a>. To recycle your product, please go to: <a href="http://www.hp.com/go/green">http://www.hp.com/go/green</a> or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.</p> <p>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: <a href="http://www.hp.com/go/green">http://www.hp.com/go/green</a>. 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.</p>
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For hard drives, 1GB = 1 billion bytes. Actual formatted capacity is less.