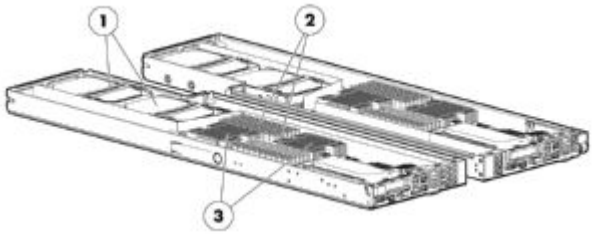
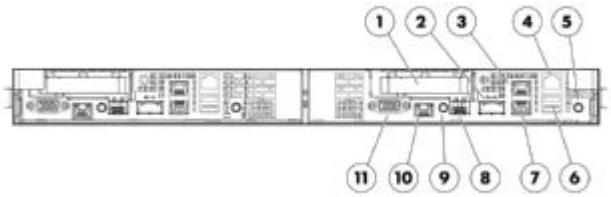
Overview

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

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

The SL390s G7 1U half width server tray support a low profile x16 gen 2 PCI-e slot and two 3.5" or four 2.5" hard drives. The SL390s G7 2U half width server trays support a low profile x8 gen2 PCI-e slot, while also supporting three internal x16 gen2 slots dedicated for three GPU's (up to 225 watts each). The SL390s G7 4 U half width server tray support a low profile x8 gen2 PCI-e slot, while also supporting eight internal x16 gen2 slots dedicated for eight GPU's (up to 225 watts each)



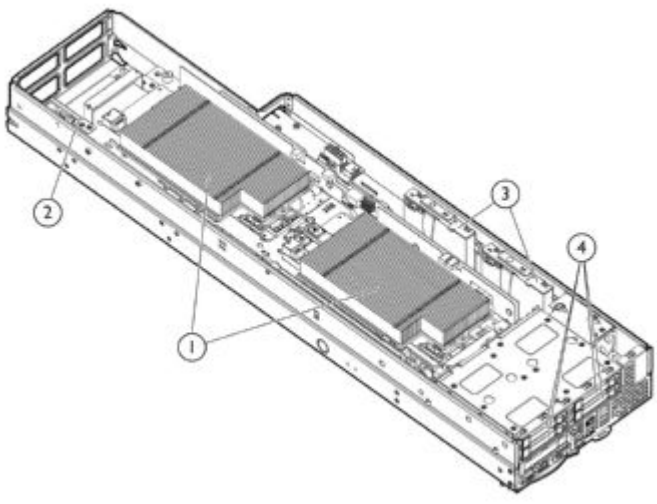


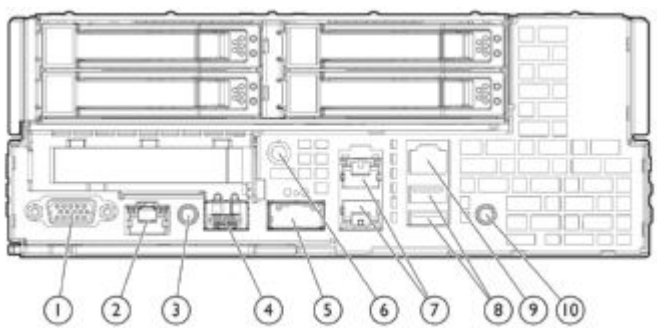
1U Open View:

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

1U Front View:

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





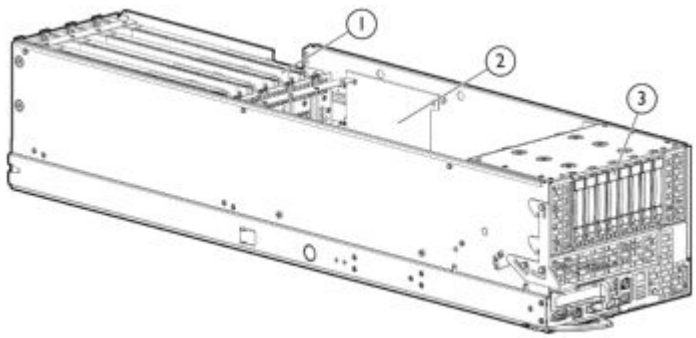
2U Open View:

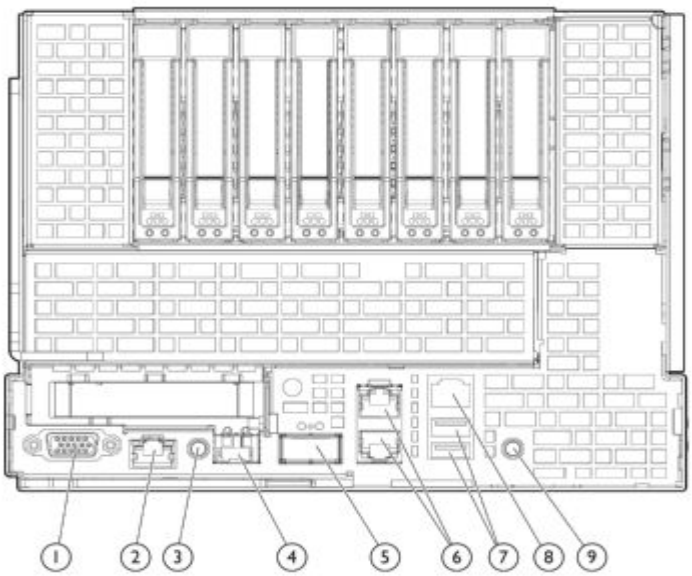
2U Front View:

Overview

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

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





4U Open View:

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

4U Front View:

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

What's New

- New SL390s G7 4U half width server tray that supports up to 8 GPUs
- Support for New Intel Xeon 5600 series processors
- Support for the NVIDIA M2070Q and M2090 GPUs

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 X5690 (3.46 GHz,12MB L3 Cache, 130 Watts, DDR3-1333, HT Turbo 2/2/2/2/3/3)

Intel® Xeon® Processor X5675 (3.06 GHz,12MB L3 Cache, 95 Watts, DDR3-1333, HT Turbo 2/2/2/2/3/3)

Intel® Xeon® Processor X5680 (3.33 GHz,12MB L3 Cache, 130 Watts, DDR3-1333, HT Turbo 2/2/2/2/3/3)

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)

ntel® Xeon® Processor E5649 (2.53 GHz,12MB L3 Cache, 80 Watts, DDR3-1333, HT Turbo 1/1/1/1/2/2)

Intel® Xeon® Processor E5645 (2.40 GHz,12MB L3 Cache, 80 Watts, DDR3-1333, HT Turbo 1/1/1/1/2/2)

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 X5687 (3.60 GHz,12MB L3 Cache, 130 Watts, DDR3-1333, HT Turbo 2/2/3/3)

Intel® Xeon® Processor X5672 (3.20 GHz,12MB L3 Cache, 95 Watts, DDR3-1333, HT Turbo 2/2/3/3)

Intel® Xeon® Processor X5677 (3.46 GHz,12MB L3 Cache, 130 Watts, DDR3-1333, HT Turbo 2/2/3/3)

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 E5606 (2.13 GHz, 8MB L3 Cache, 80 Watts, DDR3-1066)

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

Intel® Xeon® Processor E5603 (1.6 GHz, 4MB L3 Cache, 80 Watts, DDR3-1066)

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: 130 watt processors are available in all 3 form factors, and can utilize the redundant fan kit.
NOTE: HT indicates that the processor model supports Intel® Hyper-Threading Technology
NOTE: Turbo indicates the maximum potential frequency increment when using Intel® Turbo Boost Technology, with 4, 3, 2, and 1 cores active.
NOTE: DDR3 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed.
NOTE: For the Intel 5500 Series, the letter preceding the model number indicates the performance/wattage of the processor. "X" denotes High Performance/Wattage; "E" denotes Enterprise Performance/Wattage (Mainstream), and "L" denotes Lower Wattage.
NOTE: Up to 2 processors supported. Mixing different processor models is not supported.

Standard Features

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

Cache Memory
One of the following depending on Model

12MB (1 x 12MB) Level 3 cache
NOTE: All 5600 sequence processor models.
4MB (1 x 4MB) Level 3 cache
NOTE: For processors E5506/E5606 and E5503/E5603.

Chipset

Intel® 5520 Chipset
NOTE: For more information regarding Intel chipsets, please see the following URL: http://www.intel.com/products/server/chipsets/

Upgradeability

Upgradeable to two processors

Memory Protection

Advanced ECC (multi-bit error protection)
Lock-step mode

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.
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.

Network Controller

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

Expansion Slots

For SL390s 1U half width server:

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

For SL390s 2U half width server:

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

For SL390s 4U half width server:

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

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

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

Standard Features

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

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 External support only.	
Hard Drives	None ship standard	
	SL390s 1U half width server	Support for up to two 3.5" or four 2.5" non-hot plug hard drives using a quick release drive carrier
	SL390s 2U half width server	Support for up to four 2.5" hot plug hard drives Support for up to two internal 2.5" non-hot plug hard drives using a quick release drive carrier
	SL390s 4U half width server	Support for up to eight 2.5" hot plug hard drives

Maximum Internal Storage

1U Half Width tray		
Non-Hot Plug SATA 3.5"	4.0 TB	2 x 2TB
Non-Hot Plug SATA 2.5"	2.0 TB	4 x 500GB
Non-Hot Plug SAS 3.5"	4.0TB	2 x 2TB
Non-Hot Plug SAS 2.5"	1.2TB	4 x 300GB
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"	3.6TB	4 x 900GB
Hot Plug SSD 2.5"	480GB	4 x 120GB
Non-Hot Plug SAS 2.5"	1.2TB	4x300GB
Non-Hot Plug SSD 2.5"	480GB	4x120GB
4U Half width tray		
Hot Plug SATA 2.5"	4.0TB	8 x 500GB
Hot Plug SAS 2.5"	4.0TB	8 x 500GB
Hot Plug SSD 2.5"	960GB	8 x 120GB

Standard Features

Interfaces	Parallel	None
	Network RJ-45	Two 10/100/1000 NIC ports One 10GB SPF+ One optional IB (QSFP)
	Serial (RJ-45)	1
	Graphics	1
	Micro SD	1
	USB	3 (two front, 1 internal) **NOTE:** Please see the following URL for additional information regarding USB support: http://h18004.www1.hp.com/products/servers/platforms/usb-support.html.
	Management	1 Dedicated iLO3 Management Port
	Health LED	1 front
	Power	1 front
	UID	1 front

Industry Standard Compliance

ACPI 2.0b Compliant
PCI 2.2 Compliant
WOL Support
Microsoft® Logo certifications
PXE Support
USB 1.1 and 2.0 Compliant
SMBIOS 2.6.1

Graphics

ATI RN50/ES1000 w/ 64MB memory

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.

HP Common Slot Power Supplies

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

Standard Features

System Fans	Non redundant model - 8 fans required Redundant model - redundant fan kit required **NOTE:** all 8 fan bays must be populated with either redundant or non-redundant fans **NOTE:** mixing and matching of fans is not allowed
Operating Systems and Virtualization Software Support for ProLiant Servers	Microsoft Windows Server Red Hat Enterprise Linux (RHEL) SUSE Linux Enterprise Server (SLES) VMware ESX **NOTE:** For more information on HP's Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server including how to purchase from HP, please visit our OS Support Site at: http://www.hp.com/go/ossupport and our driver download page www.hp.com/support/sl390g7.
Form Factor	HP ProLiant s6500 Chassis - 4U HP ProLiant SL390s G7 1U half width server tray HP ProLiant SL390s G7 2U half width server tray HP ProLiant SL390s G7 4U half width server tray

HP Insight management software	HP Insight Foundation	Managing the growing number of servers can be complex and expensive for your organization. IT managers need to address changing business needs with tools that meet the challenges of managing today's complex Datacenters. HP provides management solutions that are designed to simplify a server's installation, configuration and maintenance throughout the entire server lifecycle. This provides the customer with higher levels of operational efficiency and highly reliable systems: www.hp.com/go/foundation. The foundation pack includes: • HP SmartStart • HP Management DVD • HP ProLiant Smart Update Firmware DVD SmartStart version supported (minimum): SmartStart 8.40. http://www.hp.com/servers/smartstart **NOTE:** In an effort to support reducing our environmental impact, the HP Insight Foundation Suite for ProLiant media will be available as a selectable option for this server at time of order of a CTO SKU. This will allow customers to order the number of media kits that best meet their needs and eliminate receiving unnecessary duplicate media.
	HP Integrated Lights-Out 3 (iLO 3)	HP Integrated Lights-Out 3 (iLO) simplifies server setup, health monitoring, power and thermal control, and lights-out remote administration of ProLiant ML, DL, and BL servers. HP iLO functions without additional software and can be accessed from any location via a web browser. HP iLO works hand-in-hand with HP Systems Insight Manager, Insight Control suites, and Insight Dynamics for ProLiant, helping customers unleash the value of the ProLiant platform and deliver the highest possible quality of IT service. For more information, visit: www.hp.com/go/iLO

Standard Features

Security	Power-on password Keyboard password QuickLock, Network Server Mode Serial interface control Administrator's password iLO 3 (Integrated Lights-Out 3) has 12 customizable user accounts and SSL encryption iLO 3 can be disabled via a Global Setting iLO Advanced supports directory services integration
Warranty	This product is covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners. Hardware diagnostic support and repair is available for one year from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Enhancements to warranty services are available through HP Care Pack services or customized service agreements. Hard drives have either a one year or three year warranty. **NOTE:** Server Warranty includes 1 year Parts, 1 year Labor, 1-year on-site support with next business day response. Warranty repairs may be accomplished through the use of Customer Self Repair (CSR) parts. These parts fall into two categories: 1) Mandatory CSR parts are designed for easy replacement. A travel and labor charge will result when customers decline to replace a Mandatory CSR part; 2) Optional CSR parts are also designed for easy replacement but may involve added complexity. Customers may choose to have HP replace Optional CSR parts at no charge. Additional information regarding worldwide limited warranty and technical support is available at: http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html.

Optional Features

HP Insight management software	HP Insight Control	HP Insight Control, a product option, delivers essential infrastructure management that can help save time and money by making it easy to deploy, migrate, monitor, remote control, and optimize your IT infrastructure through a single, simple management console. 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 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 Continuous Access software for both the Enterprise Virtual Array and the XP storage array allowing application environments to be reactivated in minutes with the touch of a button to a remote location. **NOTE:** For more information, visit: http://www.hp.com/go/insightdynamics
High Performance Clusters	HP Cluster Platforms	HP Cluster Platforms are specifically engineered, factory-integrated large-scale ProLiant clusters optimized for High Performance Computing, with a choice of servers, networks and software. Operating system options include specially priced offerings for Red Hat Enterprise Linux and Novell SLES, as well as Microsoft Windows HPC Server. A Cluster Platform Configurator simplifies ordering. http://www.hp.com/go/clusters.
	HP HPC Interconnects	High Performance Computing (HPC) interconnect technologies are available for this server as part of the HP Cluster Platform portfolio. These high-speed InfiniBand and Gigabit interconnects are fully supported by HP when integrated within an HP cluster. Flexible, validated solutions can be defined with the help of configuration tools. http://www.hp.com/techservers/clusters/ucp/index.html
	HP Cluster Management Utility	HP Cluster Management Utility (CMU) is an HP-licensed and HP-supported suite of tools that are used to manage large-scale Linux ProLiant systems. CMU includes software for the centralized provisioning, management and monitoring of nodes. CMU makes the administration of clusters user friendly, efficient, and effective. http://www.hp.com/go/cmu
	HP HPC Linux Value Pack	HP HPC Linux Value Pack (Value Pack) is an HP-licensed and HP-supported specially priced software bundle for the development and deployment of applications on HPC Cluster Platforms. Value Pack

includes the Platform HPC Enterprise Edition suite of tools including the LSF workload scheduler, the HP-MPI parallelization library. Also included are the HP Unified Parallel C compiler and the HP Shmem library, as well as the execution environments for the libraries and compiler. HP HPC Linux Value Pack

Factory Express Portfolio for Servers and Storage

HP Factory Express offers configuration, customization, integration and deployment services for HP servers and storage products. Customers can choose how their factory solutions are built, tested, integrated, shipped and deployed.

Factory Express offers service packages for simple configuration, racking, installation, complex configuration and design services as well as individual factory services, such as image loading, asset tagging, and custom packaging. HP products supported through Factory Express include a wide array of servers and storage: HP Integrity, HP ProLiant, HP ProLiant Server Blades, HP BladeSystem, HP 9000 servers as well as the MSAxxxx, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches.

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

HP 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

GPU Computing Modules

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

NOTE: The ambient temperature for SL390s 2U systems with between one and three NVIDIA M2090 GPUs, must be 30 degrees Celsius or less. The ambient temperature for SL390s 4U systems with between five and eight NVIDIA M2090 GPUs, must be 30 degrees Celsius or less. All other SL390s systems may be operated with ambient temperatures up to 35 degrees Celsius.
NOTE: When adding GPU solutions to the SL390 2U & 4U servers one must utilize the HP 1200W CS Platinum Power Supply Kit, 578322-B21, for all four power supply slots.

Service and Support

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

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

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

Optimized Care

Optimized Care Package: Supports maintaining servers at optimum performance availabili

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

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

3-Year HP Critical Advantage
Provides end-to-end infrastructure support solution for business critical applications running on virtualized/x86 infrastructures, enabling the customers to cost effectively build, operate, and continuously improve their IT environment
http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=4AA3-1772ENW

Additional Services: Data Center Transformation Service

Service and Support

Standard Care

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

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

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

3-Year HP 6 hour Hardware Support Onsite Call-to-Repair Service
Provides an IT manager with a team of support specialists who will quickly begin troubleshooting the system to help return the hardware to operating condition within 6 hours of the initial service request to the HP Global Solution Center
http://h20195.www2.hp.com/V2/GetPDF.aspx/5982-6547EN.pdf

3-Year , HP 24x7 Software Support for Insight Control
Provides for the deployment and basic configuration of HP Insight Control on HP ProLiant ML and DL series servers or HP BladeSystem servers
http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-6645EEE.pdf

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

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Basic Care

Basic Care Package: delivers minimum recommended support service level

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

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

3-Year HP 24x7 4 hour Response, Hardware Support Onsite Service
Provides for the deployment and basic configuration of HP Insight Control on HP ProLiant ML and DL series servers or HP BladeSystem servers http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA0-9972ENW.pdf

3-Year , HP 24x7 Software Support for Insight Control
Provides for the deployment and basic configuration of HP Insight Control on HP ProLiant ML and DL series servers or HP BladeSystem servers
http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-6645EEE.pdf

Additional Services: Software OS (Microsoft, Linux (SUSE/Red Hat) & VMware Installation & Star Up and Software Support); +30 Proactive Select Credits, Factory Express

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Service and Support

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

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

Pre-configured Models

NOTE: For the Standard Features shipped in the "Factory Integrated Models", please see the "Configuration Information - Factory Integrated Models" section.
NOTE: Pre-configured models ship with the configurations below. Options can be selected from the Core or Additional options section of this QuickSpecs.
NOTE: HP does not allow factory integration of options into pre-configured models. Any additional options purchased will be shipped separately.
NOTE: If you desire a custom configuration please see "Configuration Information - Factory Integrated Models" section of this QuickSpecs.
NOTE: Not all models are available in all regions. Check with your local country HP offices for availability.
NOTE: Server SKUs below are the server tray only, a chassis is needed to run servers.
NOTE: Mixing and matching of half width trays is supported - See s6500 Tray mixing support plan.
NOTE: 130 watt processors are available in all 3 form factors, and can utilize the redundant fan kit.
NOTE: The ambient temperature for SL390s 2U systems with between one and three NVIDIA M2090 GPUs, must be 30 degrees Celsius or less. The ambient temperature for SL390s 4U systems with between five and eight NVIDIA M2090 GPUs, must be 30 degrees Celsius or less. All other SL390s systems may be operated with ambient temperatures up to 35 degrees Celsius.
NOTE: When adding GPU solutions to the SL390 2U & 4U servers one must utilize the HP 1200W CS Platinum Power Supply Kit, 578322-B21, for all four power supply slots.

HP ProLiant SL390s G7 1U Server

Performance Models

HP ProLiant SL390s G7 1U Left Half Width Tray X5677 2P 24GB-R B110i Perf Server 625540-B21	**Processor(s)**	(2) Intel® Xeon® Processor X5677 (3.46 GHz,12MB L3 Cache, 130 Watts, DDR3-1333, HT Turbo 2/2/3/3)
	Cache Memory	12MB (1 x 12MB) Level 3 cache
	Memory	24 GB (6 x 4 GB) PC3-10600R (DDR3-1333) Registered DIMM **NOTE:** Total of 12 DIMM slots.
HP ProLiant SL390s G7 1U Right Half Width Tray X5677 2P 24GB-R B110i Perf Server 625541-B21	**Network Controller**	HP NC362i Integrated Dual Port Gigabit Server Adapter HP NC543i 2-port 4xQDR IB/10Gb Adapter
	Storage Controller	HP Embedded Smart Array B110i SATA RAID Controller (RAID 0, 1, 10)
	Hard Drive	None ship standard
	Internal Storage	2 LFF or 4 SFF Hard drives
	Optical Drive	None ship standard
	Power Supply	Chassis sold separately
	Fans	Chassis sold separately
	Form Factor	1U Half Width server tray
	Warranty	Server Warranty includes 1-Year Parts, 1-Year Labor, 1-Year onsite service

Base Models

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

Pre-configured Models

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

Entry Models

HP ProLiant SL390s G7 1U Left Half Width Tray E5620 1P 6GB-R B110i Entry Server 625536-B21	**Processor(s)**	(1) Intel® Xeon® Processor E5620 (2.40 GHz, 12MB L3 Cache, 80 Watts, DDR3-1066, HT Turbo 1/1/2/2)
	Cache Memory	12MB (1 x 12MB) Level 3 cache
	Memory	6 GB (3 x 2 GB) PC3-10600R (DDR3-1333) Registered DIMM **NOTE:** Total of 12 DIMM slots.
HP ProLiant SL390s G7 1U Right Half Width Tray E5620 1P 6GB-R B110i Entry Server 625537-B21	**Network Controller**	HP NC362i Integrated Dual Port Gigabit Server Adapter HP NC543i 2-port 4xQDR IB/10Gb Adapter
	Storage Controller	HP Embedded Smart Array B110i SATA RAID Controller (RAID 0, 1, 10)
	Hard Drive	None ship standard
	Internal Storage	2 LFF or 4 SFF Hard drives
	Optical Drive	None ship standard
	Power Supply	Chassis sold separately
	Fans	Chassis sold separately
	Form Factor	1U Half Width server tray
	Warranty	Server Warranty includes 1-Year Parts, 1-Year Labor, 1-Year onsite service

HP ProLiant SL390s G7 2U Server

Performance Models

HP ProLiant SL390s G7 2U Left Half Width Tray X5667 2P 24GB-R B110i Perf Server 625549-B21	**Processor(s)**	(2) Intel® Xeon® Processor X5667 (3.0 GHz, 12MB L3 Cache, 95 Watts, DDR3-1066, HT Turbo 2/2/3/3)
	Cache Memory	12MB (1 x 12MB) Level 3 cache
	Memory	24 GB (6 x 4 GB) PC3-10600R (DDR3-1333) Registered DIMM **NOTE:** Total of 12 DIMM slots.
HP ProLiant SL390s G7 2U Right Half Width Tray X5667 2P 24GB-R B110i Perf Server 625550-B21	**Network Controller**	HP NC362i Integrated Dual Port Gigabit Server Adapter HP NC543i 2-port 4xQDR IB/10Gb Adapter
	Storage Controller	HP Embedded Smart Array B110i SATA RAID Controller (RAID 0, 1, 10)
	Hard Drive	None ship standard
	Internal Storage	4 SFF Hard drives
	Optical Drive	None ship standard
	Power Supply	Chassis sold separately
	Fans	Chassis sold separately
	Form Factor	1U Half Width server tray
	Warranty	Server Warranty includes 1-Year Parts, 1-Year Labor, 1-Year onsite service

Base Models

HP ProLiant SL390s G7 2U Left Half Width Tray X5650 1P 12GB-R B110i Base Server 625544-B21	**Processor(s)**	(1) Intel® Xeon® Processor X5650 (2.66 GHz, 12MB L3 Cache, 95 Watts, DDR3-1333, HT Turbo 2/2/2/2/3/3)
	Cache Memory	12MB (1 x 12MB) Level 3 cache
	Memory	12 GB (3 x 4 GB) PC3-10600R (DDR3-1333) Registered DIMM **NOTE:** Total of 12 DIMM slots.

Pre-configured Models

HP ProLiant SL390s G7 2U Right Half Width Tray X5650 1P 12GB-R B110i Base Server 625545-B21	**Network Controller**	HP NC362i Integrated Dual Port Gigabit Server Adapter HP NC543i 2-port 4xQDR IB/10Gb Adapter
	Storage Controller	HP Embedded Smart Array B110i SATA RAID Controller (RAID 0, 1, 10)
	Hard Drive	None ship standard
	Internal Storage	4 SFF Hard drives
	Optical Drive	None ship standard
	Power Supply	Chassis sold separately
	Fans	Chassis sold separately
	Form Factor	1U Half Width server tray
	Warranty	Server Warranty includes 1-Year Parts, 1-Year Labor, 1-Year onsite service

Entry Models

HP ProLiant SL390s G7 2U Left Half Width Tray E5620 1P 6GB-R B110i Entry Server 625542-B21	**Processor(s)**	(1) Intel® Xeon® Processor E5620 (2.40 GHz, 12MB L3 Cache, 80 Watts, DDR3-1066, HT Turbo 1/1/2/2)
	Cache Memory	12MB (1 x 12MB) Level 3 cache
	Memory	6 GB (3 x 2 GB) PC3-10600R (DDR3-1333) Registered DIMM **NOTE:** Total of 12 DIMM slots.
HP ProLiant SL390s G7 2U Right Half Width Tray E5620 1P 6GB-R B110i Entry Server 625543-B21	**Network Controller**	HP NC362i Integrated Dual Port Gigabit Server Adapter HP NC543i 2-port 4xQDR IB/10Gb Adapter
	Storage Controller	HP Embedded Smart Array B110i SATA RAID Controller (RAID 0, 1, 10)
	Hard Drive	None ship standard
	Internal Storage	4 SFF Hard drives
	Optical Drive	None ship standard
	Power Supply	Chassis sold separately
	Fans	Chassis sold separately
	Form Factor	1U Half Width server tray
	Warranty	Server Warranty includes 1-Year Parts, 1-Year Labor, 1-Year onsite service

HP ProLiant SL390s G7 4U Server

Performance Models

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

Pre-configured Models

Base Models

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

HP ProLiant s6500 chassis

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

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

Pre-configured Models

S6500 tray mixing support plan

NOTE: s6500 is a 4U chassis and has a left and a right side.
NOTE: The picture below show how each half of the chassis can be configured.
NOTE: This shows mixing and matching of half width trays.
NOTE: 2U half width tray is NOT supported in middle 2 bays.

1U ½ Width
1U ½ Width
1U ½ W
1U ½ W

2U ½ W
2U ½ W

1U ½ W
1U ½ W
2U ½ W

2U ½ W
1U ½ W
1U ½ W

4U ½ W

NOTE: This section lists some of the steps required to configure a Factory Integrated Model. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for information on configurable product offerings and requirements.
NOTE: Configure-to-order (CTO) servers must start with a CTO Chassis.
NOTE: FIO indicates that this option is only available as a factory installable option.
NOTE: If you already have an s6500 chassis skip to Step 1A.

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

HP Chassis	HP ProLiant s6500 w/o Fans 4U Configure-to-order Chassis **NOTE:** You must choose Power Supplies and fans as the chassis does not include them. **NOTE:** If you already have a s6500 chassis you can buy server trays below. **NOTE:** The Chassis dimensions are 6.96 x 17.638 x 35.236in (17.68 x 44.8 x 89.55cm) (HxWxD) and requires a 1200mm deep server rack.	615167-B21
HP Chassis Fans	HP s6500 Redundant Fan Kit **NOTE:** This kit includes only 1 fan **NOTE:** This selection must be ordered in quantities of 8. **NOTE:** The Redundant Fan Kit also extends the depth of the SL Chassis to 38.15 in or 96.90 cm	617856-B21
	HP s6500 Non-Redundant Fan Kit **NOTE:** This kit includes only 1 fan **NOTE:** This selection must be ordered in quantities of 8.	617858-B21
HP Rail Kits	HP s6500 4U 3rd Party Rail Kit	601946-B21
	HP s6500 4U Rail Kit	599109-B21
	HP Performance Optimized Datacenter (POD) S6500 Rail Kit	599108-B21
HP Power Supplies	**NOTE:** 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: www.hp.com/go/hppoweradvisor.	
	HP 460W Common Slot Gold Hot Plug Power Supply Kit	503296-B21
	HP 460W Common Slot Platinum Hot Plug Power Supply Kit	593188-B21
	HP 750W Common Slot Gold Hot Plug Power Supply Kit	512327-B21
	HP 750W Common Slot Platinum Hot Plug Power Supply Kit	593831-B21
	HP 1200W Common Slot Silver Hot Plug Power Supply Kit	500172-B21
	HP 1200W Common Slot Platinum Hot Plug Power Supply Kit **NOTE:** When adding GPU solutions to the SL390 2U & 4U servers one must utilize the HP 1200W CS Platinum Power Supply Kit, 578322-B21, for all four power supply slots. **NOTE:** When adding GPU solutions to the SL390 2U & 4U servers one must utilize the HP 1200W CS Platinum Power Supply Kit, 578322-B21, for all four power supply slots. **NOTE:** Option Kits contain optional power supply, an IEC power cable and PDU IEC cables.	578322-B21

Step 1A: Select Nodes

NOTE: Mixing and matching of half width trays is supported in the s6500 chassis.
NOTE: If you do not fill up chassis with servers, the HP node blank Kit 622372-B21 needs to be ordered for each half width 1U space unpopulated.

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

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

HP Processors

NOTE: If 2 processors are desired, select one xxxxx-L21 and one xxxxxx-B21.
NOTE: 130 watt processors are available in all 3 form factors, and can utilize the redundant fan kit.

Six-Core Processors	
HP SL390s G7 Intel® Xeon® X5690 (3.46GHz/6-core/12MB/130W) FIO Processor Kit	638867-L21
HP SL390s G7 Intel® Xeon® X5675 (3.06GHz/6-core/12MB/95W) FIO Processor Kit	638871-L21
HP SL390s G7 Intel® Xeon® X5680 (3.33GHz/6-core/12MB/130W) FIO Processor Kit	611140-L21
HP SL390s G7 Intel® Xeon® X5670 (2.93GHz/6-core/12MB/95W) FIO Processor Kit	611141-L21
HP SL390s G7 Intel® Xeon® X5660 (2.80GHz/6-core/12MB/95W) FIO Processor Kit	611142-L21
HP SL390s G7 Intel® Xeon® X5650 (2.66GHz/6-core/12MB/95W) FIO Processor Kit	611143-L21
HP SL390s G7 Intel® Xeon® E5645 (2.53GHz/6-core/12MB/80W) FIO Processor Kit	638894-L21
HP SL390s G7 Intel® Xeon® E5649 (2.53GHz/6-core/12MB/80W) FIO Processor Kit	638892-L21
HP SL390s G7 Intel® Xeon® L5640 (2.26GHz/6-core/12MB/60W) FIO Processor Kit	611149-L21
Quad-Core Processors	
HP SL390s G7 Intel® Xeon® X5687 (3.60GHz/4-core/12MB/130W) FIO Processor Kit	638869-L21
HP SL390s G7 Intel® Xeon® X5672 (3.20GHz/4-core/12MB/95W) FIO Processor Kit	638890-L21
HP SL390s G7 Intel® Xeon® X5677 (3.46GHz/4-core/12MB/130W) FIO Processor Kit	617854-L21
HP SL390s G7 Intel® Xeon® X5667 (3.06GHz/4-core/12MB/95W) FIO Processor Kit	618883-L21
HP SL390s G7 Intel® Xeon® E5640 (2.66GHz/4-core/12MB/80W) FIO Processor Kit	611146-L21
HP SL390s G7 Intel® Xeon® E5630 (2.53GHz/4-core/12MB/80W) FIO Processor Kit	611144-L21
HP SL390s G7 Intel® Xeon® E5620 (2.40GHz/4-core/12MB/80W) FIO Processor Kit	611145-L21
HP SL390s G7 Intel® Xeon® E5606 (2.13GHz/4-core/8MB/80W) FIO Processor Kit	638898-L21
HP SL390s G7 Intel® Xeon® E5506 (2.13GHz/4-core/4MB/80W) FIO Processor Kit	611147-L21
HP SL390s G7 Intel® Xeon® E5603 (1.60GHz/4-core/4MB/80W) FIO Processor Kit	638900-L21
HP SL390s G7 Intel® Xeon® L5630 (2.13GHz/4-core/12MB/40W) FIO Processor Kit	611150-L21
Dual-Core Processors	
HP SL390s G7 Intel® Xeon® E5503 (2.0GHz/2-core/4MB/80W) FIO Processor Kit	611148-L21

Configuration Information - Factory Integrated Models

HP Memory	**Registered DIMMs (RDIMMs)**	
	HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500656-B21
	HP 4GB (1x4GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500658-B21
	HP 4GB (1x4GB) Single Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	593339-B21
	HP 4GB (1x4GB) Single Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit **NOTE:** Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.	604504-B21
	HP 16GB (1x16GB) Quad Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit	500666-B21
	HP 8GB (1x8GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500662-B21
	HP 8GB (1x8GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit	604506-B21
	HP 16GB (1x16GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 LP Memory Kit	627812-B21
	HP 32GB (1x32GB) Quad Rank x4 PC3L-8500 (DDR3-1066) Registered CAS-7 LP Memory Kit	627814-B21
	NOTE: Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.	
	Unbuffered with ECC DIMMs (UDIMMs)	
	HP 1GB (1x1GB) Single Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500668-B21
	HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500670-B21
	HP 4GB (1x4GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500672-B21
	HP 4GB (1x4GB) Dual Rank x8 PC3L-10600 (DDR3-1333) Unbuffered CAS-9 Low Power Memory Kit	619488-B21
	NOTE: For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator. **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	

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

Riser Cards	HP SL390 PCIe Riser x16 FIO Card Kit **NOTE:** For additional Riser card options refer to the Unique Options section of this QuickSpecs. Only FIO options are displayed here.	615149-B21
Cable Kits	HP SL390 I/O Hub Loopback FIO Tray Option Kit **NOTE:** Only needed with 2U when configured with no GPUs or 1 GPU **NOTE:** For additional Cable Kit options refer to the Unique Options section of this QuickSpecs. Only FIO options are displayed here.	614838-B21
HP Storage Controllers	HP Smart Array P212/256 BBWC 1-ports Int/1-ports Ext PCIe x8 FIO SAS Controller **NOTE:** HP P212 SAS 4HDD Cable Kit is required when adding SAS hard drives using the P212 controller (574001-B21)	491191-B21
	HP Smart Array P410/ZM 2-ports Int PCIe x8 FIO SAS Controller **NOTE:** HP P410 SAS 4HDD Cable Kit is required when adding SAS hard drives using the P410 controller (583997-B21)	462860-B21
	HP Smart Array P410/256 BBWC 2-ports Int PCIe x8 FIO SAS Controller **NOTE:** HP P410 SAS 4HDD Cable Kit is required when adding SAS hard drives using the P410 controller (583997-B21)	491195-B21
	HP Smart Array P411/256 BBWC 2-ports Ext PCIe x8 FIO SAS Controller **NOTE:** For additional Storage Controller options refer to the Additional Options section of this QuickSpecs. Only FIO options are displayed here.	491193-B21

Step 4: Choose Additional Options for Factory Integration

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

Core Options

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

HP Unique Options	HP InfiniBand Enablement Kit **NOTE:** Needed to enable InfiniBand using QSFP port on system board.	614841-B21
	HP SL390s SAS Enablement Kit **NOTE:** needed if use SAS drives instead of SATA drives.	620000-B21
	HP SL390s 4U SAS Enablement Kit **NOTE:** needed if use SAS drives instead of SATA drives.	641764-B21
	HP SL390s Non-hot Plug SATA Cable Kit **NOTE:** This is needed when using internal non hot plug drive in 2U tray.	621024-B21
	HP SL390s Small Form Factor (SFF) Enablement Kit **NOTE:** required for every 2 SFF drives being added to the 1U tray.	625034-B21
	HP 2x170 P212 SAS 2 Hard Drive Power Cable Kit **NOTE:** this is required when add two 3.5" SAS drive to the 1U tray.	589234-B21
	HP z6000 P212 SAS 4 Hard Drive Power Cable Kit **NOTE:** this is required when add four 3.5" SAS drive to the 1U tray.	574001-B21
	HP SL390 2 Graphics Processing Unit Riser Kit **NOTE:** riser need when adding 2 GPUs to 2U tray.	614839-B21
	HP SL390 Single Graphics Processing Unit Riser Kit **NOTE:** needed when adding 1 GPU to 2U tray. **NOTE:** also needed if adding 3rdd GPU to 2U tray.	614840-B21
	HP s6500 Redundant Fan Kit **NOTE:** 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 **NOTE:** It is required that the entire chassis be filled with fans - Part number only contains 1 fan, 8 must be purchased.	617858-B21
	HP s6500 Chassis Handles Kit	608477-B21
	HP s6500 Node Blank Kit **NOTE:** Node blank is needed when removing ½ width tray for service. **NOTE:** Node blank is needed when not completely filling s6500 chassis. **NOTE:** 1 node blank is needed for every 1U half width space left in chassis.	622372-B21
	HP s6500 4U 3rd Party Rail Kit	601946-B21
	HP s6500 4U Rail Kit	599109-B21

Core Options

HP Processors	**Six-Core Processors**	
	HP SL390s G7 Intel® Xeon® X5690 (3.46GHz/6-core/12MB/130W) Processor Kit	638867-B21
	HP SL390s G7 Intel® Xeon® X5675 (3.06GHz/6-core/12MB/95W) Processor Kit	638871-B21
	HP SL390s G7 Intel® Xeon® X5680 (3.33GHz/6-core/12MB/130W) Processor Kit	611140-B21
	HP SL390s G7 Intel® Xeon® X5670 (2.93GHz/6-core/12MB/95W) Processor Kit	611141-B21
	HP SL390s G7 Intel® Xeon® X5660 (2.80GHz/6-core/12MB/95W) Processor Kit	611142-B21
	HP SL390s G7 Intel® Xeon® X5650 (2.66GHz/6-core/12MB/95W) Processor Kit	611143-B21
	HP SL390s G7 Intel® Xeon® E5645 (2.40GHz/6-core/12MB/80W) Processor Kit	638894-B21
	HP SL390s G7 Intel® Xeon® E5649 (2.53GHz/6-core/12MB/80W) Processor Kit	638892-B21
	HP SL390s G7 Intel® Xeon® L5640 (2.26GHz/6-core/12MB/60W) Processor Kit	611149-B21
	HP SL390s G7 Intel® Xeon® X5670 (2.93GHz/6-core/12MB/95W) Processor Kit	611141-B21
	HP SL390s G7 Intel® Xeon® X5660 (2.80GHz/6-core/12MB/95W) Processor Kit	611142-B21
	Quad-Core Processors	
	HP SL390s G7 Intel® Xeon® X5687 (3.60GHz/4-core/12MB/130W) Processor Kit	638869-B21
	HP SL390s G7 Intel® Xeon® X5672 (3.20GHz/4-core/12MB/95W) Processor Kit	638890-B21
	HP SL390s G7 Intel® Xeon® X5677 (3.46GHz/4-core/12MB/130W) Processor Kit	617854-B21
	HP SL390s G7 Intel® Xeon® X5667 (3.06GHz/4-core/12MB/95W) Processor Kit	618883-B21
	HP SL390s G7 Intel® Xeon® E5640 (2.66GHz/4-core/12MB/80W) Processor Kit	611146-B21
	HP SL390s G7 Intel® Xeon® E5630 (2.53GHz/4-core/12MB/80W) Processor Kit	611144-B21
	HP SL390s G7 Intel® Xeon® E5620 (2.40GHz/4-core/12MB/80W) Processor Kit	611145-B21
	HP SL390s G7 Intel® Xeon® E5606 (2.13GHz/4-core/8MB/80W) Processor Kit	638898-B21
	HP SL390s G7 Intel® Xeon® E5506 (2.13GHz/4-core/4MB/80W) Processor Kit	611147-B21
	HP SL390s G7 Intel® Xeon® E5603 (1.60GHz/4-core/4MB/80W) Processor Kit	638900-B21
	HP SL390s G7 Intel® Xeon® L5630 (2.13GHz/4-core/12MB/40W) Processor Kit	611150-B21
	Dual-Core Processors	
	HP SL390s G7 Intel® Xeon® E5503 (2.0GHz/2-core/4MB/80W) Processor Kit	611148-B21

NOTE: 130 watt processors are available in all 3 form factors, and can utilize the redundant fan kit.
NOTE: HT indicates that the processor model supports Intel® Hyper-Threading Technology.
NOTE: Turbo indicates the maximum potential frequency increment when using Intel® Turbo Boost Technology, with 4, 3, 2, and 1 cores active.
NOTE: DDR3 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed.
NOTE: For the Intel 5500 Series, the letter preceding the model number indicates the performance/wattage of the processor. "X" denotes High Performance/Wattage; "E" denotes Enterprise Performance/Wattage (Mainstream); and "L" denotes Lower Wattage.

Core Options

HP Memory

Registered DIMMs (RDIMMs)

HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500656-B21
HP 4GB (1x4GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500658-B21
HP 4GB (1x4GB) Single Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	593339-B21
HP 4GB (1x4GB) Single Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit	604504-B21
HP 16GB (1x16GB) Quad Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit	500666-B21
HP 8GB (1x8GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500662-B21
HP 8GB (1x8GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit	604506-B21
HP 16GB (1x16GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 LP Memory Kit	627812-B21
HP 32GB (1x32GB) Quad Rank x4 PC3L-8500 (DDR3-1066) Registered CAS-7 LP Memory Kit	627814-B21

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

Unbuffered with ECC DIMMs (UDIMMs)

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

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

NOTE: There is a maximum support limitation of 8 ranks per memory channel (maximum of 2 quad rank DIMMs per channel)
NOTE: PC3L is a low voltage memory.

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

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

HP Hard Drives

NOTE: The components of a storage subsystem (e.g. the drive, the HBA/controller, firmware, and the server backplane) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components.
NOTE: Hard drives have either a one year or three year warranty.
NOTE: The non-hot plug hard drives use a quick release carrier.
NOTE: Hot plug hard drives are for 2U and 4U trays only.
NOTE: non hot plug with quick release carrier are used in 1U tray and internal to the 2U tray.

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

HP 900GB 6G SAS 10K rpm SFF (2.5-inch) Enterprise 3yr Warranty Hard Drive	619291-B21
HP 600GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	581286-B21
HP 300GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	507127-B21
HP 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 1TB 6G SAS 7.2K rpm SFF (2.5-inch) Hot Plug Midline 1yr Warranty Hard Drive	605835-B21
HP 500GB 6G SAS 7.2K rpm SFF (2.5-inch) Dual Port Midline 1yr Warranty Hard Drive	507610-B21
NOTE: Please see the QuickSpecs for Technical Specifications and additional information: 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
SATA Hot Plug SFF (2.5-inch) Entry (ETY) Drives	
HP 120GB 1.5G SATA 5.4K rpm SFF (2.5-inch) Entry 1yr Warranty Hard Drive	458924-B21
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 (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	
SAS Non-Hot Plug LFF (3.5-inch) Enterprise (ENT) Drives - with quick-release (QR) carrier	
HP 600GB 6G SAS 15K rpm LFF (3.5-inch) Quick-release Dual Port Enterprise 3yr Warranty Hard Drive	574758-B21
HP 300GB 6G SAS 15K rpm LFF (3.5-inch) Quick-release Dual Port Enterprise 3yr Warranty Hard Drive	585980-B21
SAS Non-Hot Plug SFF (2.5-inch) Enterprise (ENT) Drives - with quick-release (QR) carrier	
HP 300GB 6G SAS 10K rpm SFF (2.5-inch) Quick-release Dual Port Enterprise 3yr Warranty Hard Drive	574879-B21
SAS Non-Hot Plug LFF (3.5-inch) Midline (MDL) Drives - with quick-release (QR) carrier	
HP 2TB 6G SAS 7.2K rpm LFF (3.5-inch) Quick-release Dual Port Midline 1yr Warranty Hard Drive	574761-B21

SATA Non-Hot Plug LFF (3.5-inch) Entry (ETY) Drives - with quick-release (QR) carrier	
HP 160GB 3G SATA 7.2K rpm LFF (3.5-inch) Quick-release Entry 1yr Warranty Hard Drive	574021-B21
SATA Non-Hot Plug LFF (3.5-inch) Midline (MDL) Drives - with quick-release (QR) carrier	
HP 3TB 3G SATA 7.2K rpm LFF (3.5-inch) Quick Release Midline 1yr Warranty Hard Drive	642098-B21
HP 2TB 3G SATA 7.2K rpm LFF (3.5-inch) Quick-release Midline 1yr Warranty Hard Drive	574755-B21
HP 1TB 3G SATA 7.2K rpm LFF (3.5-inch) Quick-release Midline 1yr Warranty Hard Drive	574025-B21
HP 500GB 3G SATA 7.2K rpm LFF (3.5-inch) Quick-release Midline 1yr Warranty Hard Drive	574023-B21
SATA Non-Hot Plug SFF (2.5-inch) Midline (MDL) Drives - with quick-release (QR) carrier	
HP 500GB 3G SATA 7.2K rpm SFF (2.5-inch) Quick-release Midline 1yr Warranty Hard Drive	574953-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 SFF (2.5-inch) Quick-release Midline 1yr Warranty Solid State Drive	586587-B21
HP 60GB 3G SATA SFF (2.5-inch) Quick-release Midline 1yr Warranty Solid State Drive	586585-B21
6G SAS Hot Plug Enterprise Performance Solid State Drives	
HP 400GB 6G SAS SLC SFF (2.5-inch) Enterprise Performance 3yr Warranty Solid State Drive	632494-B21
HP 200GB 6G SAS SLC SFF (2.5-inch) Enterprise Performance 3yr Warranty Solid State Drive	632492-B21
6G SAS Hot Plug Enterprise Mainstream Solid State Drives	
HP 800GB 6G SAS MLC SFF (2.5-inch) Enterprise Mainstream 3yr Warranty Solid State Drive	632506-B21
HP 400GB 6G SAS MLC SFF (2.5-inch) Enterprise Mainstream 3yr Warranty Solid State Drive	632504-B21
HP 200GB 6G SAS MLC SFF (2.5-inch) Enterprise Mainstream 3yr Warranty Solid State Drive	632502-B21
NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/14038_div/14038_div.html (Worldwide)	
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 in the 1U tray.	
NOTE: When Adding SAS to the 4U, the SL390s 4U SAS enablement kit (641764-B21) plus an HP Smart Array controller must be ordered	
NOTE: When Adding SAS to the 2U, the SL390s 2U SAS enablement kit (620000-B21) plus an HP Smart Array controller must be ordered	
NOTE: When Adding SAS to the 1U one of 4 options needs to be added HP 2x170 P212 SAS 2 Hard Drive Power Cable Kit	
NOTE: this is required when add two 3.5" SAS drive to the 1U tray. 589234-B21 HP z6000 P212 SAS 4 Hard Drive Power Cable Kit	
NOTE: this is required when add four 3.5" SAS drive to the 1U tray. 574001-B21	
NOTE: Hot plug hard drives are for 2U and 4U tray only.	

Core Options

	NOTE: non hot plug with quick release carrier are used in 1U tray and internal to the 2U tray.	
HP Networking	**Gigabit Ethernet Adapters**	
	HP NC112T PCI Express Gigabit Server Adapter	503746-B21
	HP NC360T PCI-E Dual Port Gigabit Server Adapter	412648-B21
	HP NC365T 4-port Ethernet Server Adapter	593722-B21
	HP NC373F PCI-E Multifunction 1000SX Gigabit Svr Adapter	394793-B21
	HP NC373T PCI-E Multifunction Gigabit Server Adapter	394791-B21
	HP NC375T PCI Express Quad Port Gigabit Server Adapter	538696-B21
	HP NC382T PCI Express Dual Port Multifunction Gigabit Server Adapter	458492-B21
	10 Gigabit Ethernet adapters **NOTE:** The SL390s G7 supports only the low-profile version of the 10GbE Ethernet Adapters. **NOTE:** 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 Gigabit Server Adapter	468332-B21
	HP NC550SFP Dual Port 10GbE Server Adapter	581201-B21
	HP NC552SFP 10Gb 2-port Ethernet Server Adapter	614203-B21
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: www.hp.com/go/ProLiantNICs	
	HP 10 GbE PCI-e G2 Dual Port Network Interface Card	516937-B21
HP InfiniBand	HP InfiniBand 4X QDR ConnectX-2 PCIe G2 Dual Port HCA	592520-B21
	HP InfiniBand 4X DDR ConnectX-2 PCIe G2 Dual Port HCA	592521-B21
	QLogic InfiniBand 4X QDR PCI-E G2 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	
HP I/O Expansion Options	HP SL390 2 Graphics Processing Unit Riser Kit	614839-B21
	HP SL390 Single Graphics Processing Unit Riser Kit	614840-B21

Core Options

HP Power Supplies

NOTE: 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: www.hp.com/go/hppoweradvisor.

HP 750W Common Slot Gold Hot Plug Power Supply Kit	512327-B21
HP 750W Common Slot Platinum Hot Plug Power Supply Kit	593831-B21
HP 1200W Common Slot Silver Hot Plug Power Supply Kit	500172-B21
HP 1200W Common Slot Platinum Hot Plug Power Supply Kit	578322-B21

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

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

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

Additional Options

HP SL Advanced Power Manager

The SL Advanced Power Manager is an optional rack level solution for the HP ProLiant SL6500 which enables server-level DC (or hardware) power on and off and server-level monitoring. In addition, the SL APM will automatically discover SL hardware components which are connected into the SL APM solution.

The SL APM does not replace rack PDUs, but is designed to enable the utilization of basic, low cost, rack PDUs while providing the functionality of 'switched' PDUs which provide hardware power on/off of individual servers by turning off the AC power to the power supplies of a given server. Because the SL servers share power supplies to optimize power efficiency, using 'switched' PDUs to turn off the power supplies in the chassis will result in the loss of all servers in that chassis. The SL APM solves this by allowing server-level hardware power on/off of the DC power to the individual server motherboards.

HP SL Advanced Power Manager Kit	538084-B21
HP SL Advanced Power Manager Distribution Module Kit	539264-B21
HP SL Advanced Power Manager Distribution Module Kit	620002-B21

HP Insight Software

HP Integrated Lights-Out (iLO) Advanced

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

NOTE: Electronic software is available in all countries except China and Japan. Customers in China and Japan should order the physical equivalent.
NOTE: For additional license kits, including electronic delivery options, please see the QuickSpecs at:
http://h18000.www1.hp.com/products/quickspecs/12362_div/12362_div.html

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High Performance Clusters

HP Cluster Management Utility

HP Cluster Management Utility Compute Node Flexible License	QL803A

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

HP Cluster Management Utility License and Media	433257-B21

NOTE: Order a minimum of one license per cluster to purchase media including software and documentation, which will be delivered to the customer, and also licenses CMU management. No license key is delivered or required.

NOTE: For additional license kits please see the QuickSpecs at:
http://h18004.www1.hp.com/products/quickspecs/12612_div/12612_div.html

HP HPC Linux Value Pack

HP High Performance Computing Linux Value Pack 1 Processor Flexible License	TC293B

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

HP High Performance Computing Linux Value Pack Media Kit	TC294A

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

NOTE: For additional license kits please see the QuickSpecs at:
http://h18004.www1.hp.com/products/quickspecs/13485_div/13485_div.html

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Additional Options

GPU Computing Modules

NOTE: The Tesla modules can only be accommodated in SL390s 2U or 4U trays.
NOTE: When only one Tesla module is to be configured in a 2U tray, a GPU Riser Kit (single GPU or 2 GPU) must be ordered.
NOTE: When two Tesla modules are to be configured in a 2U tray, either order one 2 GPU Riser kit, or order one single GPU Riser Kit plus a 2 GPU Riser Kit. In the second case, one Tesla module would be placed in each of the two Riser Kits, resulting in increased total GPU bandwidth.
NOTE: When three Tesla modules (the maximum allowed) are to be configured in a 2U tray, order one single GPU Riser Kit plus a 2 GPU Riser Kit.
NOTE: Power supplies must be configured to accommodate the power requirements of the Tesla modules. For example, the M2050 modules each have a peak power requirement of 225 watts.
NOTE: The ambient temperature for SL390s 2U systems with between one and three NVIDIA M2090 GPUs, must be 30 degrees Celsius or less. The ambient temperature for SL390s 4U systems with between five and eight NVIDIA M2090 GPUs, must be 30 degrees Celsius or less. All other SL390s systems may be operated with ambient temperatures up to 35 degrees Celsius.
NOTE: When adding GPU solutions to the SL390 2U & 4U servers one must utilize the HP 1200W CS Platinum Power Supply Kit, 578322-B21, for all four power supply slots.

NVIDIA Tesla M2070Q 6GB GPU Graphics Module	A0C39A
HP Tesla M1060 2-Slot Passive Module	SH409A
NVIDIA Tesla M2050 3GB Module	SH885B
NVIDIA Tesla M2070 6GB Module	SH886A
NVIDIA Tesla M2090 6GB Module	A0J99A

NOTE: For additional license kits please see the QuickSpecs at: http://h18004.www1.hp.com/products/quickspecs/13743_div/13743_div.html

HP Rail Options

HP s6500 4U 3rd Party Rail Kit	601946-B21
HP s6500 4U Rail Kit	599109-B21

HP Storage Controllers

SAS Controllers

Smart Array P212 Controller

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

Smart Array P410 Controller

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

Smart Array P411 Controller

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

Optional Upgrades

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

Additional Options

	HP 650 mAh P-Series Battery **NOTE:** HP z6000 BBWC HDWR KIT (582653-B21) is required when adding BBWC **NOTE:** To enable BBWC on the 256MB cache.	462969-B21
	HP Smart Array Advanced Pack including 1yr 24x7 Technical Support and Updates Single Server License **NOTE:** This part number can be used to purchase a single license or to order multiple licenses with a single activation key. Customers will receive a license entitlement certificate via e-mail. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Include one year of 24x7 HP Software Technical Support Services. **NOTE:** Please see the QuickSpecs for Technical Specifications and additional information: 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 (Smart Array P410 Controller) http://h18000.www1.hp.com/products/quickspecs/13202_div/13202_div.html (Smart Array P411 Controller) http://h18000.www1.hp.com/products/quickspecs/13200_div/13200_div.html (Smart Array Advanced Pack)	516471-B21
	SCSI HBA	
	HP SC11Xe Ultra320 Single Channel/ PCIe x4 SCSI Host Bus Adapter **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 (SC11Xe HBA)	412911-B21

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 CN Power Cord	AF557A
HP 1.83m 10A C13 KR Power Cord	AF560A
HP 1.83m 10A C13 TW Power Cord	AF561A
HP 1.83m 10A C13 Power Cord	AF559A
HP 1.83m 10A C13 Power Cord	AF556A
HP 2.0m 10A C13 IN Power Cord	AF562A
HP 2.5m 10A C13 Power Cord	AF558A
HP 2m 10A C13-C14 Redundant Jumper Cord	AF573A

Additional Options

HP Storage Options	**Storage Fibre Channel HBA** **NOTE:** The following is a list of all Fibre Channel Host Bus Adapters for Windows and Linux. For detailed compatibility information please see: http://h18006.www1.hp.com/storage/saninfrastructure/hba.html	
	Emulex Fibre Channel HBAs	
	HP StorageWorks 81E 8Gb Single Port PCI-e Fibre Channel Host Bus Adapter	AJ762A
	HP StorageWorks 82E 8Gb Dual Port PCI-e Fibre Channel Host Bus Adapter	AJ763A
	HP StorageWorks FC2142SR 4Gb PCIe Host Bus Adapter	A8002A
	HP StorageWorks FC2242SR 4Gb PCIe DC Host Bus Adapter	A8003A
	QLogic Fibre Channel HBAs	
	HP StorageWorks 81Q PCI-e Fibre Channel Host Bus Adapter	AK344A
	HP StorageWorks 82Q 8Gb Dual Port PCI-e Fibre Channel Host Bus Adapter	AJ764A
	HP StorageWorks FC1142SR 4Gb PCIe Host Bus Adapter	AE311A
	HP StorageWorks FC1242SR 4Gb PCIe DC Host Bus Adapter	AE312A
	Storage SCSI HBA	
	HP StorageWorks U320e SCSI Dual Channel Host Bus Adapter **NOTE:** Recommended HBA for MSL SCSI Tape Library connect.	AH627A
HP USB and SD Options	HP USB 2-Button Optical Scroll Mouse	DC172B
	HP USB 04 Standard Keyboard	DT528A#ABA
	HP 4GB Micro SDHC Flash Media Kit	647444-B21
HP Care Pack Services	HP 3 year Next business day ProLiant s6500 Hardware Support	UR398E
	HP 3 year Next business day with Defective Media Retention ProLiant s6500 Hardware Support	UR399E
	HP 3 year 4 hour 13x5 ProLiant s6500 Hardware Support	UR400E
	HP 3 year 4 hour 13x5 with Defective Media Retention ProLiant s6500 Hardware Support	UR401E
	HP 3 year 4 hour 24x7 ProLiant s6500 Hardware Support	UR402E
	HP 3 year 4 hour 24x7 with Defective Media Retention ProLiant s6500 Hardware Support	UR403E
	HP 3 year 6 hour 24x7 Call to Repair ProLiant s6500 Hardware Support	UR404E
	HP 3 year 6 hour 24x7 Call to Repair with Defective Media Retention s6500 Hardware Support	UR405E
	HP 4 year Next business day ProLiant s6500 Hardware Support	UR406E
	HP 4 year Next business day with Defective Media Retention ProLiant s6500 Hardware Support	UR407E
	HP 4 year 4 hour 13x5 ProLiant s6500 Hardware Support	UR408E
	HP 4 year 4 hour 13x5 with Defective Media Retention ProLiant s6500 Hardware Support	UR409E
	HP 4 year 4hour 24x7 ProLiant s6500 Hardware Support	UR410E
	HP 4 year 4 hour 24x7 with Defective Media Retention ProLiant s6500 Hardware Support	UR411E
	HP 4 year 6 hour 24x7 Call to Repair ProLiant s6500 Hardware Support	UR412E
	HP 4 year 6 hour Call to Repair 24x7 with Defective Media Retention ProLiant s6500 Hardware Support	UR413E
	HP 5 year Next business day ProLiant s6500 Hardware Support	UR414E
	HP 5 year Next business day with Defective Media Retention ProLiant s6500 Hardware Support	UR415E
	HP 5 year 4 hour 13x5 ProLiant s6500 Hardware Support	UR416E

Additional Options

HP 5 year 4 hour 13x5 with Defective Media Retention ProLiant s6500 Hardware Support	UR417E
HP 5 year 4 hour 24x7 ProLiant s6500 Hardware Support	UR418E
HP 5 year 4 hour 24x7 with Defective Media Retention ProLiant s6500 Hardware Support	UR419E
HP 5 year 6 hour 24x7 Call to Repair ProLiant s6500 Hardware Support	UR420E
HP 5 year 6 hour 24x7 Call to Repair with Defective Media Retention s6500 Hardware Support	UR421E
HP 3 year 24x7 24 hour Call to Repair ProLiant s6500 Hardware Support	UR425E
HP 3 year 24x7 24 hour Call to Repair with Defective Media Retention ProLiant s6500 Hardware Support	UR426E
HP 4 year 24x7 24 hour Call to Repair ProLiant s6500 Hardware Support	UR427E
HP 4 year 24x7 24 hour Call to Repair with Defective Media Retention ProLiant s6500 Hardware Support	UR428E
HP 5 year 24x7 24 hour Call to Repair ProLiant s6500 Hardware Support	UR429E
HP 5 year 24x7 24 hour Call to Repair with Defective Media Retention ProLiant s6500 Hardware Support	UR430E

NOTE: For more information, customer/resellers can contact: http://www.hp.com/services/carepack.

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

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)**		
DIMM Rank	**Single Rank (1R)**	**Dual Rank (2R)**					**Quad Rank (4R)**			**Single Rank (1R)**	**Dual Rank (2R)**	
DIMM Capacity	4GB	2GB	4GB	8GB	8GB	16GB	4GB	16GB	32GB	1GB	2GB	4GB
DIMM Native Speed (MHz)	1333	1333	1333	1066	1333	1333	1066	1066	1066	1333	1333	1333
	SLOTS THAT CAN BE POPULATED											
12 slot servers	12	12	12	12	12	12	12	12	12	12	12	12
	MAXIMUM CAPACITY (GB)											
	48	24	48	96	96	192	48	192	384	12	24	48
	POPULATED DIMM SPEED (MHz)											
1 DIMM Per Channel	1333	1333	1333	1066	1333	1333	1066	1066	1066	1333	1333	1333
2 DIMM Per Channel	1333*	1333*	1333*	1066	1333*	1066/ 1333**	800	800	800	1333	1333	1333*
*Supported at 1333 via setting in ROM based setup utility (RBSU) **2DPC: LV runs at 1066, Std voltage runs at 1333												

NOTES:

- PC3-10600 DIMMs have a maximum speed of 1333MHz. PC3-8500 DIMMs have a maximum speed of 1066MHz
- Mixing DIMM speeds is allowed, but the system processor speed rules always override the DIMM capabilities
- If you do mix DIMM speeds, the memory bus will default to the minimum clock rate of all DIMMs in the system - even if

the slower DIMM is on the other processor

- If you install 1x 1066MHz DIMM in channel 1 and 1x 1333MHz DIMM in channel 2, the maximum speed will be 1066MHz If you install 1x 1066MHz DIMM in channel 1 and 5x 1333MHz DIMMs with 1 DIMM Per Channel (DPC) in each of the other channels, the maximum speed will be 1066MHz
- Maximum memory speed will also depend on the processor installed
- References to the above MHz speeds are for the various speeds of DDR3 DIMMs; 1333 refers to DDR3-1333, etc.

DIMM slot and configuration diagrams
Basic memory slot & population diagram

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

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

Standard memory configuration (1 CPU model)

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

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

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	

Memory

Standard memory replaced with optional memory (1 CPU model)
RDIMM maximum configuration

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

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

Standard memory replaced with optional memory (2 CPU model)
RDIMM maximum configuration

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

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

UDIMM maximum configuration

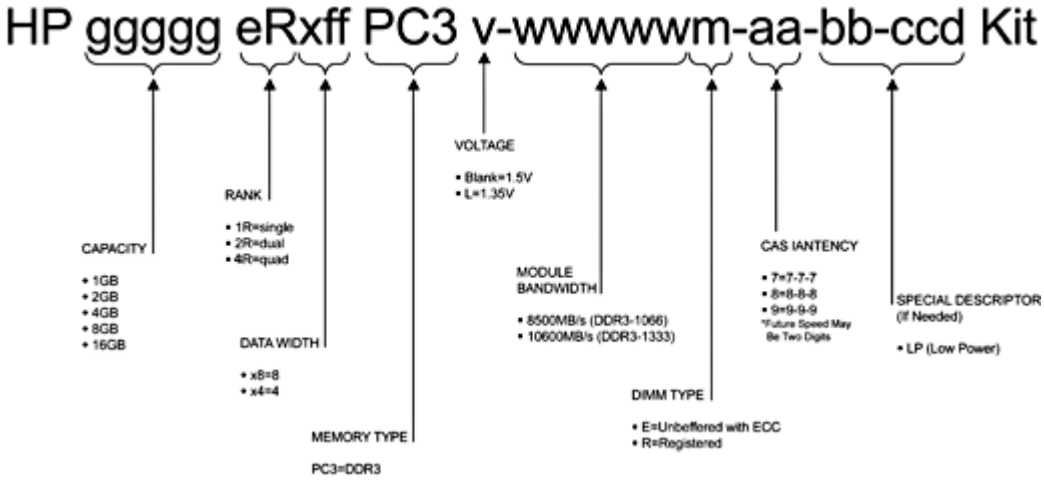
- 48GB, consisting of twelve (12) 4GB dual-rank PC3-10600 UDIMMs

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

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

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

DDR3 memory options part number decoder

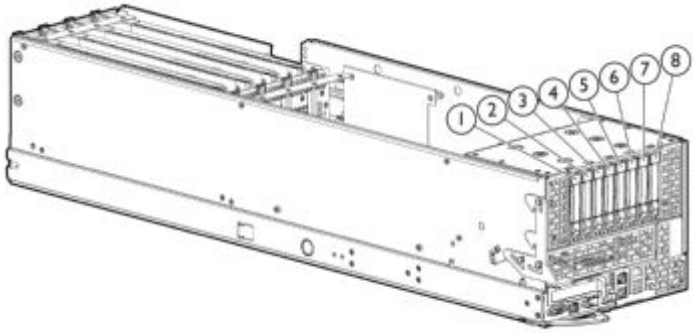


Following are memory options available from HP:

HP Memory	**Registered DIMMs (RDIMMs)**	
	HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500656-B21
	HP 4GB (1x4GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500658-B21
	HP 4GB (1x4GB) Single Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	593339-B21
	HP 4GB (1x4GB) Single Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit	604504-B21
	NOTE: Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.	
	HP 16GB (1x16GB) Quad Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit	500666-B21
	HP 8GB (1x8GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500662-B21
	HP 8GB (1x8GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit	604506-B21
	HP 16GB (1x16GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 LP Memory Kit	627812-B21
	HP 32GB (1x32GB) Quad Rank x4 PC3L-8500 (DDR3-1066) Registered CAS-7 LP Memory Kit	627814-B21
	NOTE: Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.	
	Unbuffered with ECC DIMMs (UDIMMs)	
	HP 1GB (1x1GB) Single Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500668-B21
	HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500670-B21
	HP 4GB (1x4GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500672-B21
	HP 4GB (1x4GB) Dual Rank x8 PC3L-10600 (DDR3-1333) Unbuffered CAS-9 Low Power Memory Kit	619488-B21
	NOTE: For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator.	
	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.	

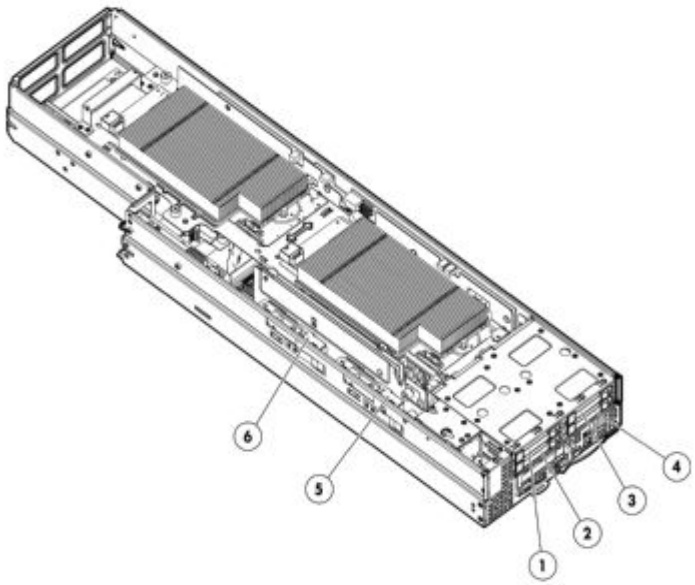
NOTE: Memory Min and Max depends on number of processors and type of memory:

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



4U Tray

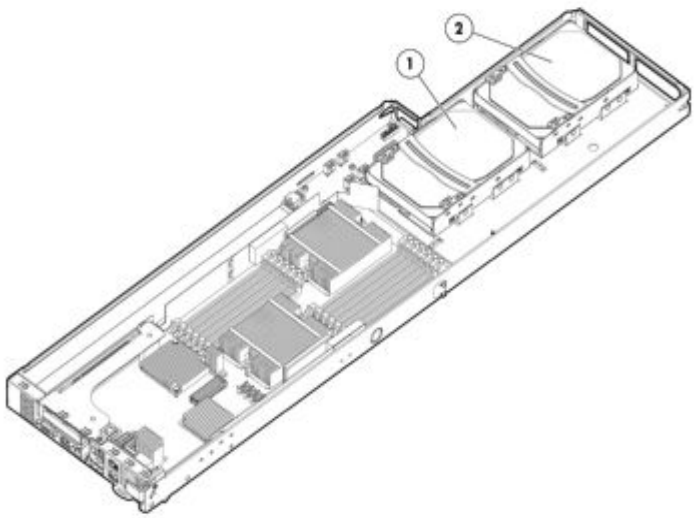
1-8 Up to eight 2.5" hot plug hard drive bays



2U Tray

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

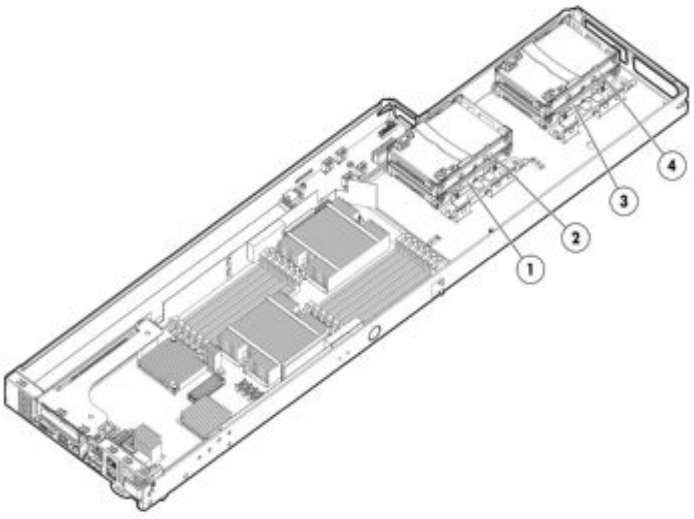
5-6 Up to two 2.5" hard drives use quick release carrier



1U Tray

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

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



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.

4U Tray

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

	Quantity Supported	Position Supported	Controller
900GB 6G SAS 10K 600GB 6G SAS 10K 300GB 6G SAS 10K 146GB 6G SAS 15K 146GB 6G SAS 10K 72GB 6G SAS 15K	Up to 8	1-8	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

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

	Quantity Supported	Position Supported	Controller
1TB 6G SAS 7.2K 500GB 6G SAS 7.2K	Up to 8	1-8	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)

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

Storage

	Quantity Supported	Position Supported	Controller
120GB 1.5G SATA 5.4K 250GB 3G SATA 5.4K	Up to 4	1-4	HP Embedded Smart Array B110i SATA RAID Controller (RAID 0, 1, 10)

SATA Hot Plug Midline (MDL) Solid State Drives

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

2U Tray

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

	Quantity Supported	Position Supported	Controller
300GB 6G SAS 10K 146GB 6G SAS 15K 146GB 6G SAS 10K 72GB 6G SAS 15K	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

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

	Quantity Supported	Position Supported	Controller
500GB 6G SAS 7.2K	Up to 4	1-4	HP Smart Array P212/Zero Memory Controller HP Smart Array P212/256 MB Controller HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB BBWC Controller

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

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

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

	Quantity Supported	Position Supported	Controller
120GB 1.5G SATA 5.4K 250GB 3G SATA 5.4K	Up to 4	1-4	HP Embedded Smart Array B110i SATA RAID Controller (RAID 0, 1, 10)

SATA Hot Plug Midline (MDL) Solid State Drives

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

1U Tray

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

	Quantity Supported	Position Supported	Controller

Storage

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

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

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

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

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

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

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

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

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

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

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

6G SAS Hot Plug Enterprise Performance Solid State Drives

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

6G SAS Hot Plug Enterprise Mainstream Solid State Drives

Storage

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

Power Specifications

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

HP 750W Common Slot Platinum Hot Plug Power Supply Kit							
Part Number	593831-B21						
Input Voltage Range (V rms)	100 to 240						
Frequency Range (Nominal) (Hz)	50/60						
Nominal Input Voltage (Vrms)	**100**	**120**	**200**	**208**	**220**	**230**	**240**
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 Common Slot Silver Hot Plug Power Supply Kit							
Part Number	500172-B21						
Input Voltage Range (V rms)	100 to 240						
Frequency Range (Nominal) (Hz)	50/60						
Nominal Input Voltage (Vrms)	**100**	**120**	**200**	**208**	**220**	**230**	**240**
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

Power Specifications

HP 1200W Common Slot Platinum Hot Plug Power Supply Kit							
Part Number	578322-B21						
Input Voltage Range (V rms)	100 to 240						
Frequency Range (Nominal) (Hz)	50/60						
Nominal Input Voltage (Vrms)	**100**	**120**	**200**	**208**	**220**	**230**	**240**
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 or www.hp.com/go/hppoweradvisor

System Unit	**Chassis Dimensions** (H x W x D) Add fan extension kit (with bezel)	6.96 x 17.638 x 35.236in (17.68 x 44.8 x 89.55cm)	
	Weight (approximate)	Maximum (all hard drives, power supplies, and processors installed)	220lb (99.8kg)
	Input Requirements (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)
	Power Specifications	To review typical system power ratings use the HP Power Advisor which is available via the online tool located at URL: www.hp.com/go/proliant-energy-efficient	
	Power Supply Output (per power supply)	Rated Steady-State Power	653.10W (at 100 VAC), 653.08W (at 200 VAC)
	System Inlet Temperature	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).
	Relative Humidity (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.
	Altitude	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).
	Acoustic Noise	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).	
		Idle	
		LWAd	6.4
		LpAm	45dBA
		Operating	

		LWAd	6.7
		LpAm	51dBA
	Emissions Classification (EMC)	FCC Rating	Class A
		Normative Standards	CISPR 22; EN55022; EN55024; FCC CFR 47, Pt 15; ICES-003; CNS13438; GB9254; K22;K24; EN 61000-3-2; EN 61000-3-3; EN 60950-1; IEC 60950-1

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

Embedded NC362i PCIe Gigabit Server Adapter	**Network Interface**	Integrated 10/100/1000BASE-T Transceiver Combines a triple-speed IEEE 802.3TM - Compliant Media Access Controller (MAC) with a triple-speed Ethernet transceiver.	
	Data Transfer Method	Compliant to x4 PCIe Specification	
	Controller	Intel® 82576	
	Network Transfer Rate	10Base-T (Half-Duplex)	10 Mb/s
		10Base-T (Full-Duplex)	20 Mb/s
		100Base-TX (Half-Duplex)	100 Mb/s
		100Base-TX (Full-Duplex)	200 Mb/s
		1000Base-TX (Half and Full-Duplex)	2000Mb/s
	Connector	RJ-45 connector	
	Cable Support	Performs all the physical layer functions for 10BASE-T, 100BASE-T, and 1000BASE-T Ethemet on standard Category 5 UTP	

HP NC543i 2-port 4x QDR InfiniBand /10 GB Adapter	**Data Transfer Method**	Compliant to x8 PCIe Gen2 Specification.
	Network Transfer Rate	X4 IB: 10 Gb/s (SDR), 20 Gb/s (DDR), 40Gb/s (QDR) 10Gb/s Ethernet: Full-duplex single lane XFI
	Connector	QSFP - IB SFP+ - 10Gb/s Ethernet.
	Cable Support	IB: HP copper and optical IB cables. 10Gb/s: HP copper and optical SFP+ cables.

Environment-friendly Products and Approach	**End-of-life Management and Recycling**	Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: http://www.hp.com/go/green. To recycle your product, please go to: http://www.hp.com/go/green or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner. The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/green. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

Technical Specifications

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