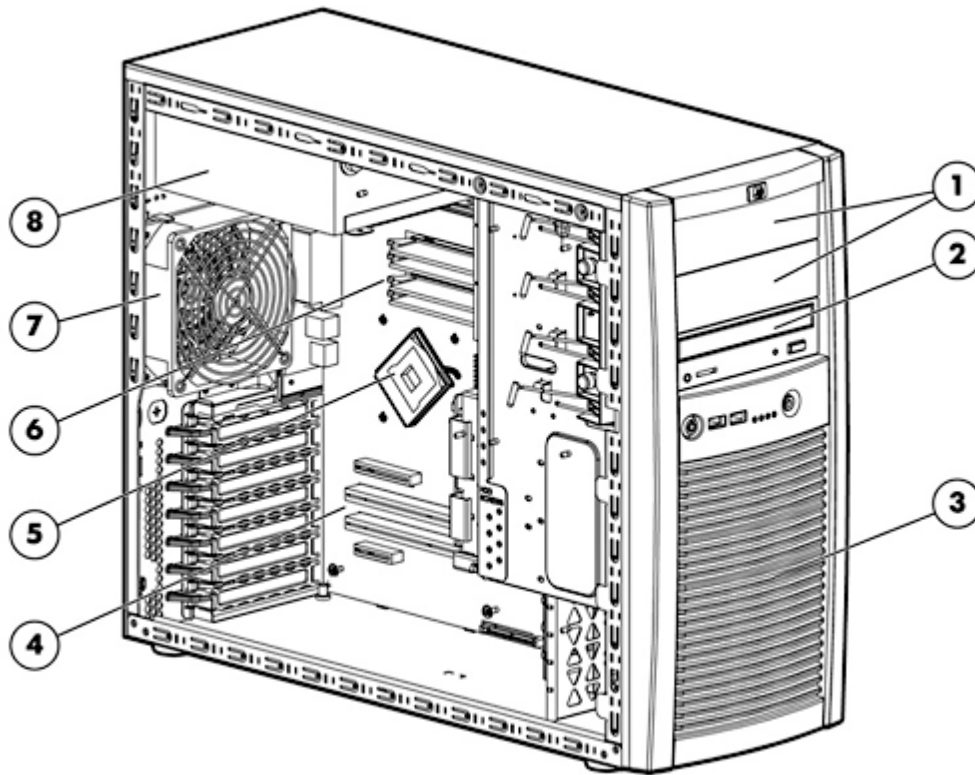


Overview



1. Removable Media Bays
2. 48x IDE (ATAPI) CD-ROM
3. Four Hot-Plug Drive Bays
4. Four Expansion Slots (Two PCI-X, Two PCI Express)

5. Processor Socket (Intel® Pentium® D or Pentium® 4)
6. Four DIMM Sockets for up to 8GB DDR2 memory
7. System Fan
8. 370W Power Supply

What's New

- Support for Dual Core Intel® Pentium® D 900 Series processors with 2 x 2M cache

Overview

At A Glance

- Supports a single Intel® Pentium® D 800 or 900 Series, Pentium® 4 600 Series, or Celeron D® 300 Series processor
- Intel E7230 Chipset - 800MHz front side bus
- PC2-4200 533MHz unbuffered DDR2 SDRAM with advanced ECC capabilities and optional interleaving (expandable to 8 GB)
- Embedded NC320i PCI Express 10/100/1000T Gigabit network adapter
- Four Expansion Slots: Two PCI-X 64-bit/100MHz, Two PCI Express
- Supports four hot plug SCSI, SAS, or SATA hard drives for up to 2TB internal storage. SCSI models support U320 SCSI drives. Serial models support SAS and SATA hard drives
- Single Channel U320 SCSI Adapter in PCI-X slot (SCSI models) or four Channel embedded SATA Controller (SATA models)
- Integrated Lights-Out 2 (iLO 2) management controller
- Four USB 2.0 ports - Two front, two rear
- ROM Based Setup Utility (RBSU) and PXE support
- Protected by HP Services and a worldwide network of resellers and service providers. One year, Next Business Day, on-site limited global warranty.

Standard Features

Processor One of the following	Dual Core Intel® Pentium® D 940 (3.2 GHz/800 - 2 x 2MB L2)
	NOTE: See "Configuration Information - Factory Integrated Models" section
	Dual Core Intel® Pentium® D 930 (3.0 GHz/800 - 2 x 2MB L2)
	Dual Core Intel® Pentium® D 920 (2.8 GHz/800 - 2 x 2MB L2)
	NOTE: See "Configuration Information - Factory Integrated Models" section
	Dual Core Intel® Pentium® D 830 (3.0 GHz/800 - 2 x 1MB L2)
	Intel® Pentium® 4 650 (3.4 GHz/800 - 2M L2)
	Intel® Pentium® 4 640 (3.2 GHz/800 - 2M L2)
	Intel® Pentium® 4 630 (3.0 GHz/800 - 2M L2)
NOTE: See "Configuration Information - Factory Integrated Models" section	
Intel® Celeron D® 331 (2.66 GHz/533 - 256KB L2)	

Cache Memory One of the following depending on Model	Integrated 2 x 2MB level 2 ECC cache (Pentium D 900 Series models)
	Integrated 2 x 1MB level 2 ECC cache (Pentium D 800 Series models)
	Integrated 2MB level 2 ECC cache (Pentium 4 models)
	Integrated 256KB level 2 ECC cache (Celeron D models)

Memory Protection	Advanced ECC
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Memory	Type	PC2-4200 unbuffered DDR2 SDRAM (533MHz)
	Standard	512 MB (1 x 512 MB)
	Maximum	8 GB

Network Controller	Embedded NC320i PCI Express 10/100/1000T Gigabit network adapter
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Expansion Slots	Slot Number	Bus Speed	Maximum Card Length	Hot Plug	Connector Type
	4	PCI Express x4	12.3	No	x8
	3	64-bit/100MHz PCI-X	12.3	No	3.3V
	2	64-bit/100MHz PCI-X	12.3	No	3.3V
	1	PCI Express x1	12.3	No	x1

Standard Features

Storage Controllers

The HP ProLiant ML310 G3 offers both SCSI and Serial models. SCSI models support U320 SCSI hard drives. Serial models support Serial Attached SCSI (SAS) and Serial ATA (SATA) hard drives. Use of SAS hard drives in Serial models requires installation of a SAS controller or HBA.

Single Channel Ultra320 SCSI Adapter (in PCI-X slot) (SCSI Models)

Integrated four port SATA controller with integrated SATA RAID 0, 1 (SATA Models)

NOTE: Use of the embedded SATA RAID feature requires installation of a driver from a floppy drive. The supported floppy drive can be a USB floppy drive, half-height internal floppy drive, or virtual floppy via Integrated Lights-Out 2 (iLO 2).

NOTE: See the "Storage" section of these QuickSpecs for information on controllers and cables required to support SATA and SAS hard drive configurations

Storage	Optical Drive	48x IDE (ATAPI) CD-ROM Drive
	Diskette Drive	Optional 1.44 MB Diskette Drive NOTE: A diskette device is required to configure the embedded SATA RAID feature.

Maximum Internal Storage	Hot Plug SCSI	1.2TB	4 x 300GB U320 SCSI
	Hot Plug SAS (3.5")	587GB	4 x 146GB SAS
	Hot Plug SATA (3.5")	2.0TB	4 x 500GB SATA

NOTE: See the "Storage" section of these QuickSpecs for information on controllers and cables required to support SATA and SAS hard drive configurations

Interfaces	Parallel	1
	Serial	1 (Optional second serial port available)
	Pointing Device (Mouse)	1
	Graphics	1
	Keyboard	1
	USB	5 (2 front; 2 rear; 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 .
	Dedicated USB	1 (available for USB tape connectivity)
	Network RJ-45 (Ethernet)	1
	iLO 2 Remote Management port	1

Graphics	Integrated ATI ES1000 Video Controller with 16-MB SDRAM Video Memory
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Form Factor	5U Tower Optional Tower-to-Rack Enabling Kit available (PN 238547-B22)
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Standard Features

ProLiant Essentials Foundation Pack Software

HP Systems Insight
Manager

HP Systems Insight Manager (HP SIM) helps maximize system uptime and performance and reduce system maintenance costs by providing proactive notification of problems before those problems result in unplanned downtime or reduced productivity. HP SIM is easy to set up and use with Insight Management Agents, integrated Lights-Out 2 (iLO2), and Version Control Agents to deliver robust fault, configuration, and asset management as well as remote administration. For more details on HP SIM visit <http://www.hp.com/go/hpsim>.

Management Agents

The Management Agents form the foundation for HP's Intelligent Manageability strategy. They provide direct, browser-based access to in-depth instrumentation built into HP servers, workstations, desktops, and portables, and send alerts to HP Systems Insight Manager and other enterprise management applications in case of subsystem or environmental failures. For additional information about the Management Agents and other management products from HP, please visit the management Web site at <http://www.hp.com/servers/manage>.

SmartStart

SmartStart is a tool that simplifies server setup, providing a rapid way to deploy consistent server configurations. For more information, please visit the SmartStart Web site at <http://www.hp.com/servers/manage>.
Latest SmartStart version supported: SmartStart 7.4
Minimum SmartStart version supported (minimum): SmartStart 7.4

Subscriber's Choice

Subscriber's Choice Driver and Support Alerts/Notifications is a web-based email subscription service that provides automatic delivery of software and driver change notifications for ProLiant products. Sign up at <http://www.hp.com/go/subscriberschoice> and customize your profile to receive various new alerts as they become available, on a weekly or monthly basis.

ROMPaq, support
software, and
configuration utilities

The latest software, drivers, and firmware fully optimized and tested for your ProLiant server and options available in SmartStart or downloadable from Software and Drivers download pages, linked from the SmartStart website at <http://www.hp.com/servers/smartstart>.

Integrated Lights-Out 2
Standard (iLO 2)

Standard remote management functionality that enables remote control of system power and access to the system serial console and event logs regardless of server status. Firmware preinstalled on servers. Also, updates downloadable from the Software and Drivers web pages and on the ProLiant Software Maintenance Pack.

Survey Utility and
diagnostics utilities

The most advanced configuration analysis, reporting and troubleshooting utilities used by HP and at your fingertips, available in SmartStart.

Standard Features

Optional ProLiant Essentials Value Packs

Optional software offerings that selectively extend the functionality of an Adaptive Infrastructure to address specific business problems and needs:

- Integrated Lights-Out Advance Pack - licensed option that activates advanced iLO 2 features such as virtual KVM and virtual media to enable full remote control of ProLiant servers.
- Intelligent Networking Pack - detects and analyzes network bottlenecks or broken network linkages and steers traffic to the optimum route based on network conditions, plus it provides an extra layer of protection. The virus throttle feature of the solution slows the propagation of fast spreading virus.
- Vulnerability and Patch Management Pack - identifies and remediates software security vulnerabilities due to missing patches as well operating system configurations that can be exploited by viruses, worms, and other blended threats.
- Virtual Machine Management Pack - provides central management and control of virtual machines from Microsoft and VMware. Integrated approach provides the ability to manage both physical and virtual resources from a single management console.
- Server Migration Pack - The Server Migration Pack automates the manual processes required for migrating servers between physical or virtual platforms (P2V, V2P, and V2V).

NOTE: Flexible and volume quantity license kits are available for ProLiant Essentials Value Packs. Refer to <http://www.hp.com/servers/proliantessentials> or the various ProLiant Essentials Value Pack product QuickSpecs for more information.

NOTE: For more information regarding ProLiant Essentials Software, please see the following URL: <http://www.hp.com/servers/proliantessentials>.

Industry Standard Compliance

ACPI V1.0b Compliant
PCI 3.0 Compliant
PCI-X 1.0 Compliant
PCI-Express 1.0a Compliant
PXE Support
WOL Support
Microsoft Logo certifications
Novell Logo certifications
USB 2.0

Manageability

HP Systems Insight Manager
Online ROM Flash Utility
Automatic Server Recovery-2 (ASR-2)
Drive Parameter Tracking (with Smart Array Controller)
Dynamic Sector Repairing (with Smart Array Controller)
Pre-Failure Warranty (covers processors, memory and SCSI and SAS hard drives)
BIOS Serial Console

Standard Features

Security	Power-on password Setup password Diskette boot control Power switch security
Server Power Cords	All models ship with one 1.8m (6 foot) standard low-line, country specific power cord.
UPS and PDU Power Cord Matrix	Please see the UPS and PDU cable matrix that lists cable descriptions, requirements, and specifications for UPS and PDU units: ftp://ftp.compaq.com/pub/products/servers/ProLiantstorage/power-protection/powercordmatrix.pdf .
Power Specifications	To review typical system power ratings use the Active Answers Power Calculator at: http://h30099.www3.hp.com/configurator/powercalcs.asp
Power Supply	370 Watt PFC (Power Factor Correcting)
System Fans	1 - Non-hot plug, Non-redundant system fan NOTE: Does not include fans in CPU heatsink or power supply.
Required Cabling	For required cabling information, refer to the Cabling Matrix at http://h18000.www1.hp.com/products/servers/ProLiantML310/ .
OS Support	Microsoft Windows Server 2003 (Standard Web Edition) Microsoft Small Business Server 2003 Microsoft Windows 2000 Server Novell NetWare Linux (Red Hat, Novell SuSE) SCO OpenServer NOTE: For a more complete and up-to-date listing of supported OSs and versions, please visit our OS Support Matrix at: http://www.hp.com/go/supportos NOTE: For an up-to-date listing of the latest drivers available for the HP ProLiant ML310, please see: http://h18023.www1.hp.com/support/files/server/us/index.html . NOTE: For a more complete and up-to-date information on Linux support, please visit HP Linux Web site at: http://h18000.www1.hp.com/products/servers/linux/hpLinuxcert.html NOTE: For more complete and up-to-date information on how to buy server operating systems from HP please visit the OS product site at: http://h18004.www1.hp.com/products/servers/software/OEM.html NOTE: For more information on HP's Certified and Supported ProLiant Servers, please visit the VMware Server Support Matrix at: http://h18004.www1.hp.com/products/servers/software/vmware/hpvmwarecert.html

Standard Features

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 MSA1000, 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>.

Custom Builder

Please see the Enterprise Configurator for configuration assistance at: <http://www.hp.com/products/configurator>.

HP ProLiant Smart Buys (NA only)

The HP Smart Buy program offers mainstream business solutions at competitive prices with excellent availability and superior HP quality. It offers a wide range of industry-leading HP products at compelling prices, allowing you to receive richer configurations with additional options.

NOTE: ProLiant Smart Buys are available in NA only. For detailed specification information on ProLiant Smart Buys please click on the following link: <ftp://ftp.compaq.com/pub/products/servers/smartbuys.pdf>

Service and Support

This product is covered by a global limited warranty and supported by HP Services and a worldwide network of resellers and service providers. Hardware diagnostic support and repair is available for three years from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Additional support may be covered under the warranty or available for an additional fee. Enhancements to warranty services are available through HP Care Pack services or customized service agreements.

NOTE: Limited warranty includes 1 year parts, 1 year labor, 1 year on-site support.

Care Pack services provide a range of life cycle support options that let you choose the service levels that meet your business requirements, from basic to mission-critical.

A full range of HP Care Pack hardware and software services are available including:

- Installation and start up
- Education courses
- Extended onsite hardware coverage hours from same business day 13 hours, 5 day to 24 hours, 7 days call window with options including 4-hour response or 6-hour Call To Repair
- Comprehensive range of software technical support for Microsoft, Linux, ProLiant Essentials and VMWare-based IT solutions helping to deliver high level of application availability. Response times range from 30 mins for critical problems to 2 hours.
- System Management, Performance Services and Mission Critical Support Solution

HP Care Pack services include coverage for the HP branded hardware options qualified for the server, purchased at the same time or afterward, internal to the enclosure, as well as 22" and smaller external monitors and tower UPS options up to 3kVA; these items will be covered at the same service level and for the same coverage period as the server. Coverage of UPS Battery is not included, standard warranty terms & conditions apply. For servers or storage systems installed within a rack, service also covers all HP

Standard Features

qualified rack options installed within the same rack.

NOTE: For more information on HP Care Pack services, contact any of our worldwide sales offices or resellers or visit our worldwide Web site on the internet at: <http://www.hp.com/hps/carepack>

NOTE: For more complete information on HP Services offerings, customers and resellers, please visit us at: <http://www.hp.com/hps>

NOTE: Additional information regarding worldwide limited warranty and technical support is available at: <http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html>

Models

NOTE: ProLiant Smart Buys are available in NA only. For detailed specification information on ProLiant Smart Buys please click on the following link: <ftp://ftp.compaq.com/pub/products/servers/smartbuys.pdf>.

Hot Plug SCSI Models

ML310T03 p930 HP-SCSI 410191-xx1	Processor(s)	Dual Core Intel Pentium D 930 (3.0 GHz/800)
	Cache Memory	2 x 2MB L2
	Memory	512 MB (1 x 512 MB)
	Network Controller	Embedded NC320i PCI Express 10/100/1000T Gigabit network adapter
	Storage Controller	Single Channel Ultra320 SCSI Adapter (in PCI-X slot)
	Hard Drives	None ship standard (up to 4 hot plug SCSI drives supported)
	Internal Storage	1.2TB maximum hot plug SCSI
	Optical Drive	48x IDE (ATAPI) CD-ROM Drive
	Diskette Drive	None ship standard (Optional 1.44 MB Diskette Drive)
	Form Factor	Tower (5U) (Tower to Rack Enabling Kit available)

ML310T03 p830 HP-SCSI 390640-xx1	Processor(s)	Dual Core Intel Pentium D 830 (3.0 GHz/800)
	Cache Memory	2 x 1MB L2
	Memory	512 MB (1 x 512 MB)
	Network Controller	Embedded NC320i PCI Express 10/100/1000T Gigabit network adapter
	Storage Controller	Single Channel Ultra320 SCSI Adapter (in PCI-X slot)
	Hard Drives	None ship standard (up to 4 hot plug SCSI drives supported)
	Internal Storage	1.2TB maximum hot plug SCSI
	Optical Drive	48x IDE (ATAPI) CD-ROM Drive
	Diskette Drive	None ship standard (Optional 1.44 MB Diskette Drive)
	Form Factor	Tower (5U) (Tower to Rack Enabling Kit available)

ML310T03 p650 HP-SCSI 393459-xx1	Processor(s)	Intel Pentium 4 650 (3.4 GHz/800)
	Cache Memory	2MB L2
	Memory	512 MB (1 x 512 MB)
	Network Controller	Embedded NC320i PCI Express 10/100/1000T Gigabit network adapter
	Storage Controller	Single Channel Ultra320 SCSI Adapter (in PCI-X slot)
	Hard Drives	None ship standard (up to 4 hot plug SCSI drives supported)
	Internal Storage	1.2TB maximum hot plug SCSI
	Optical Drive	48x IDE (ATAPI) CD-ROM Drive
	Diskette Drive	None ship standard (Optional 1.44 MB Diskette Drive)
	Form Factor	Tower (5U) (Tower to Rack Enabling Kit available)

Models

ML310T03 p640 HP-SCSI 394320-xx1	Processor(s)	Intel Pentium 4 640 (3.2 GHz/800)
	Cache Memory	2MB L2
	Memory	512 MB (1 x 512 MB)
	Network Controller	Embedded NC320i PCI Express 10/100/1000T Gigabit network adapter
	Storage Controller	Single Channel Ultra320 SCSI Adapter (in PCI-X slot)
	Hard Drives	None ship standard (up to 4 hot plug SCSI drives supported)
	Internal Storage	1.2TB maximum hot plug SCSI
	Optical Drive	48x IDE (ATAPI) CD-ROM Drive
	Diskette Drive	None ship standard (Optional 1.44 MB Diskette Drive)
	Form Factor	Tower (5U) (Tower to Rack Enabling Kit available)

Hot Plug Serial Models (SATA/SAS)

ML310T03 p930 HP-SATA/SAS 410192-xx1	Processor(s)	Dual Core Intel Pentium D 930 (3.0 GHz/800)
	Cache Memory	2 x 2MB L2
	Memory	512 MB (1 x 512 MB)
	Network Controller	Embedded NC320i PCI Express 10/100/1000T Gigabit network adapter
	Storage Controller	Integrated four port SATA controller with integrated SATA RAID 0, 1 NOTE: Use of the embedded SATA RAID feature requires installation of a driver from a floppy drive. The supported floppy drive can be a USB floppy drive, half-height internal floppy drive, or virtual floppy via Integrated Lights-Out 2 (iLO 2).
	Hard Drives	None ship standard (up to 4 hot plug SATA or SAS drives supported) NOTE: See the "Storage" section of these QuickSpecs for information on controllers and cables required to support SATA or SAS drive configurations
	Internal Storage	2TB maximum (hot plug SATA)
	Optical Drive	48x IDE (ATAPI) CD-ROM Drive
	Diskette Drive	None ship standard (Optional 1.44 MB Diskette Drive)
	Form Factor	Tower (5U) (Tower to Rack Enabling Kit available)

Models

ML310T03 p830 HP-SATA/SAS 390644-xx1	Processor(s)	Dual Core Intel Pentium D 830 (3.0 GHz/800)
	Cache Memory	2 x 1MB L2
	Memory	512 MB (1 x 512 MB)
	Network Controller	Embedded NC320i PCI Express 10/100/1000T Gigabit network adapter
	Storage Controller	Integrated four port SATA controller with integrated SATA RAID 0, 1 NOTE: Use of the embedded SATA RAID feature requires installation of a driver from a floppy drive. The supported floppy drive can be a USB floppy drive, half-height internal floppy drive, or virtual floppy via Integrated Lights-Out 2 (iLO 2).
	Hard Drives	None ship standard (up to 4 hot plug SATA or SAS drives supported) NOTE: See the "Storage" section of these QuickSpecs for information on controllers and cables required to support SATA or SAS drive configurations
	Internal Storage	2TB maximum (hot plug SATA)
	Optical Drive	48x IDE (ATAPI) CD-ROM Drive
	Diskette Drive	None ship standard (Optional 1.44 MB Diskette Drive)
	Form Factor	Tower (5U) (Tower to Rack Enabling Kit available)

ML310T03 p650 HP-SATA/SAS 393460-xx1	Processor(s)	Intel Pentium 4 650 (3.4 GHz/800)
	Cache Memory	2MB L2
	Memory	512 MB (1 x 512 MB)
	Network Controller	Embedded NC320i PCI Express 10/100/1000T Gigabit network adapter
	Storage Controller	Integrated four port SATA controller with integrated SATA RAID 0, 1 NOTE: Use of the embedded SATA RAID feature requires installation of a driver from a floppy drive. The supported floppy drive can be a USB floppy drive, half-height internal floppy drive, or virtual floppy via Integrated Lights-Out 2 (iLO 2).
	Hard Drives	None ship standard (up to 4 hot plug SATA or SAS drives supported) NOTE: See the "Storage" section of these QuickSpecs for information on controllers and cables required to support SATA or SAS drive configurations
	Internal Storage	2TB maximum (hot plug SATA)
	Optical Drive	48x IDE (ATAPI) CD-ROM Drive
	Diskette Drive	None ship standard (Optional 1.44 MB Diskette Drive)
	Form Factor	Tower (5U) (Tower to Rack Enabling Kit available)

Models

ML310T03 p640 HP-
SATA/SAS
394321-xx1

Processor(s)	Intel Pentium 4 640 (3.2 GHz/800)
Cache Memory	2MB L2
Memory	512 MB (1 x 512 MB)
Network Controller	Embedded NC320i PCI Express 10/100/1000T Gigabit network adapter
Storage Controller	Integrated four port SATA controller with integrated SATA RAID 0, 1 NOTE: Use of the embedded SATA RAID feature requires installation of a driver from a floppy drive. The supported floppy drive can be a USB floppy drive, half-height internal floppy drive, or virtual floppy via Integrated Lights-Out 2 (iLO 2).
Hard Drives	None ship standard (up to 4 hot plug SATA or SAS drives supported) NOTE: See the "Storage" section of these QuickSpecs for information on controllers and cables required to support SATA or SAS drive configurations
Internal Storage	2TB maximum (hot plug SATA)
Optical Drive	48x IDE (ATAPI) CD-ROM Drive
Diskette Drive	None ship standard (Optional 1.44 MB Diskette Drive)
Form Factor	Tower (5U) (Tower to Rack Enabling Kit available)

Country Code Key	XX=00	NA
	XX=01	Australia
	XX=03	UK
	XX=04	Germany
	XX=05	France
	XX=29	Japan
	XX=37	AP
	XX=42	EURO
	XX=AA	PRC
	XX=AB	Taiwan

Configuration Information - Factory Integrated Models (North America only)

NOTE: For Configure to Order requirements within EMEA region, please consult local Sales Contact.

NOTE: All configure-to-order servers must start with a CTO Chassis. Use the following section to order a server customized to your requirements with options integrated at the factory. The options you select in steps 2 and 3 will be integrated with the base configuration you select in step 1. Additional options selected in Step 4 will also be integrated when applicable.

NOTE: Standard models of this product offering (see previous section of this document) do not support HP Factory Express Server Configuration Level 1.

Step 1: Base Configuration

Models	HP ProLiant ML310 G3 CTO Chassis HP-SCSI	393494-B21
	HP ProLiant ML310 G3 CTO Chassis HP-SATA/SAS	393495-B21
	Factory Integrated Models ship with:	
	Embedded NC320i PCI Express 10/100/1000T Gigabit network adapter	
	Integrated Four Channel SATA Controller (HP-SATA/SAS chassis only)	
	370 Watts, PFC (Power Factor Correcting)	
	Keyboard and Mouse	

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

Processors	Intel Celeron D 331 (2.66 GHz/533 - 256K cache), FIO	406032-L21
	Intel Pentium D 920 (2.8 GHz/800 - 2 x 2MB L2) DC, FIO	410115-L21
	Intel Pentium D 930 (3.0 GHz/800 - 2 x 2MB L2) DC, FIO	410116-L21
	Intel Pentium D 940 (3.2 GHz/800 - 2 x 2MB L2) DC, FIO	410117-L21
	Intel Pentium 4 630 (3.0 GHz/800 - 2M L2), FIO	402051-L21
	Intel Pentium 4 640 (3.2 GHz/800 - 2M L2), FIO	402052-L21
	Intel Pentium 4 650 (3.4 GHz/800 - 2M L2), FIO	402053-L21
Base Memory	2048 MB Unbuffered Advanced ECC PC2-4200 DDR2 (1 x 2048 MB)	393354-B21
	1024 MB Unbuffered Advanced ECC PC2-4200 DDR2 (1 x 1024 MB)	390824-B21
	512 MB Unbuffered Advanced ECC PC2-4200 DDR2 (1 x 512 MB)	390825-B21
Optical Drive	CD-RW/DVD-ROM Combo Drive Option Kit	331346-B21
	16X DVD-ROM Drive Option Kit (Carbon)	217053-B21
	HP DVD+R/RW 16X Half Height	383974-B21

Configuration Information - Factory Integrated Models (North America only)

Base Hard Drives	Hot Plug U320 SCSI Drives	
	NOTE: For use in Hot Plug SCSI base configurations P/N 393494-B21.	
	HP 72GB U320 10K Universal HDD	286714-B22
	HP 146GB U320 10K Universal HDD	286716-B22
	HP 36GB U320 15K Universal HDD	286776-B22
	HP 72GB U320 15K Universal HDD	286778-B22
	Hot Plug SATA Drives	
	NOTE: For use in Hot Plug SATA/SAS base configurations P/N 393495-B21.	
	HP 80GB 1.5G SATA 7.2K 3.5" HDD	349237-B21
	HP 160GB 1.5G SATA 7.2K 3.5" HDD	349238-B21
	HP 250GB 1.5G SATA 7.2K 3.5" HDD	349239-B21
	HP 500GB 1.5G SATA 7.2K 3.5" HDD	395473-B21
	Hot Plug SAS 3.5" Drives	
	NOTE: For use in Hot Plug SATA/SAS base configurations P/N 393495-B21.	
	HP 36GB 3G SAS 15K 3.5" HDD	375868-B21
HP 72GB 3G SAS 15K 3.5" HDD	375870-B21	
HP 146GB 3G SAS 15K 3.5" HDD	375872-B21	

Step 3: Choose Additional Factory Integratable Options

Controllers	Ultra320 SCSI HBAs and Controllers	
	NOTE: A U320 SCSI HBA or Controller is required if SCSI hard drives are selected.	
	HP U320 SCSI FIO HBA ALL	358700-B21
	Smart Array 641 Controller	291966-B21
	Smart Array 642 Controller	291967-B21
	SAS HBAs and Controllers	
	NOTE: A SAS HBA or Controller is required if SAS hard drives are selected. SAS HBAs and Controllers support both SAS and SATA hard drives.	
	HP 8 Internal Port SAS HBA with RAID	347786-B21
	HP Smart Array P600 Controller	337972-B21
	SATA Controller	
HP 6-port SATA RAID Controller	372953-B21	
Hard Drive Cables	HP 4-port SATA/SAS cable (target fan cable)	389653-B21
	NOTE: This cable is required when the HP 6-port SATA RAID controller is installed on hot plug SATA/SAS models of the ML310 G3. See the "Storage" section of these QuickSpecs for information on controllers and cables required to support SATA drive configurations.	

Step 4: Choose Additional Options for Factory Integration

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

Options

ProLiant Essentials Value Pack Software

NOTE: Single Server Licenses are designed for use with a single server. Single Server Licenses contain one license with a unique license activation key and documentation. Flexible and volume quantity license kits are available for ProLiant Essentials Value Packs. Refer to <http://www.hp.com/servers/proliantessentials> or the various ProLiant Essentials Value Pack product QuickSpecs for more information.

ProLiant Essentials Integrated Lights-Out Advanced Pack

ProLiant Essentials Integrated Lights-Out Advanced Pack, 1 server 263825-B21
Featuring: sophisticated virtual administration features for ultimate control of servers in the data centers and remote sites.

NOTE: For additional ProLiant Integrated Light-Out Advanced Pack License Kits please see the QuickSpecs at:

http://h18000.www1.hp.com/products/quickspecs/11052_div/11052_div.HTML

ProLiant Essentials Intelligent Networking Pack

ProLiant Essentials Intelligent Networking Pack, Single Server License 372906-B21

NOTE: For additional ProLiant Intelligent Networking Pack License Kits please see the QuickSpecs at:

http://h18000.www1.hp.com/products/quickspecs/12062_div/12062_div.HTML

ProLiant Essentials Intelligent Networking Pack - Linux Edition, Single Server License 397004-B21

NOTE: For additional ProLiant Intelligent Networking Pack License Kits please see the QuickSpecs at:

http://h18000.www1.hp.com/products/quickspecs/12327_div/12327_div.HTML

ProLiant Essentials Virtualization Management Software

ProLiant Essentials Virtual Machine Management Pack, Single-Server License 372214-B21

ProLiant Essentials Server Migration Pack, Single-Migration License 375345-B21

NOTE: Contains one license, enabling 1 server migration, with a unique license activation key and documentation.

NOTE: This license allows 1 server to be migrated from a physical server to a virtual machine. Or this license can be used to migrate a virtual machine from one virtualization layer i.e. VMware GSX to a different virtualization layer such as VMware ESX or Microsoft Virtual Server 2005.

NOTE: For additional ProLiant Essentials Virtualization Management Software License Kits please see the QuickSpecs at:

http://h18000.www1.hp.com/products/quickspecs/12328_div/12328_div.HTML

ProLiant Essentials Vulnerability and Patch Management Pack

ProLiant Essentials Vulnerability and Patch Management Pack, Single-Server License 371645-B21

NOTE: For additional ProLiant Vulnerability and Patch Management Pack License Kits, please see the QuickSpecs at:

http://h18000.www1.hp.com/products/quickspecs/12111_div/12111_div.HTML

NOTE: For more information regarding ProLiant Essentials Software, please see the following URL: <http://www.hp.com/servers/proliantessentials>.

Memory (SDRAM DIMMs)

2048 MB Unbuffered Advanced ECC PC2-4200 DDR2 (1 x 2048 MB) 393354-B21

1024 MB Unbuffered Advanced ECC PC2-4200 DDR2 (1 x 1024 MB) 390824-B21

512 MB Unbuffered Advanced ECC PC2-4200 DDR2 (1 x 512 MB) 390825-B21

Options

Optical Drives	16X DVD-ROM Drive Option Kit (Carbon)	217053-B21
	CD-RW/DVD-ROM Combo Drive Option Kit	331346-B21
	HP DVD+R/RW 16X Half Height	383974-B21

Diskette Drives	1.44MB Floppy Drive Option Kit	379257-B21
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Serial Port Kit	HP ProLiant 2nd Serial port option kit	390390-B21
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Hard Drives	Ultra320 - Universal Hot Plug (SCSI Hot Plug Models Only)	
	HP 36GB U320 15K Universal HDD	286776-B22
	HP 72GB U320 15K Universal HDD	286778-B22
	HP 146GB U320 15K Universal HDD	347708-B22
	HP 72GB U320 10K Universal HDD	286714-B22
	HP 146GB U320 10K Universal HDD	286716-B22
	HP 300GB U320 10K Universal HDD	350964-B22

NOTE: Please see the [Wide Ultra320 Universal Hot Plug QuickSpecs](#) for additional technical information on the hard drives. Support details, please see the following:

http://h18000.www1.hp.com/products/quickspecs/11531_div/11531_div.HTML
(Worldwide)

http://h18000.www1.hp.com/products/quickspecs/11531_na/11531_na.HTML
(North America)

Serial-Attached SCSI (SAS) Hot Plug Hard Drive (SATA/SAS Hot Plug Models Only)

HP 36GB 3G SAS 15K 3.5" HDD	375868-B21
HP 72GB 3G SAS 15K 3.5" HDD	375870-B21
HP 146GB 3G SAS 15K 3.5" HDD	375872-B21

Serial-ATA (SATA) Hot Plug Hard Drive (SATA/SAS Hot Plug Models Only)

HP 80GB 1.5G SATA 7.2K 3.5" HDD	349237-B21
HP 160GB 1.5G SATA 7.2K 3.5" HDD	349238-B21
HP 250GB 1.5G SATA 7.2K 3.5" HDD	349239-B21
HP 500GB 1.5G SATA 7.2K 3.5" HDD	395473-B21

NOTE: Please see the [Hard Drive QuickSpecs](#) for Technical Specifications such as capacity, height, width, interface, transfer rate, seek time, physical configuration, and operating temperature:

http://h18000.www1.hp.com/products/quickspecs/11940_div/11940_div.HTML
(Worldwide)

http://h18000.www1.hp.com/products/quickspecs/11940_na/11940_na.HTML
(North America)

Hard Drive Cables	HP 4-port SATA/SAS cable (target fan cable)	389653-B21
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NOTE: This cable is required when the HP 6-port SATA RAID controller is installed on hot plug SATA/SAS models of the ML310 G2. See the "Storage" section of these QuickSpecs for information on controllers and cables required to support SATA drive configurations.

Options

Storage Controllers

SCSI Controllers

NOTE: The following Storage Controllers are qualified for SCSI drives only. They do not support SATA or SAS Drives.

Smart Array 6402/128 Controller 273915-B21

Smart Array 6404/256 Controller 273914-B21

Smart Array 641 Controller 291966-B21

Smart Array 642 Controller 291967-B21

128MB Battery-Backed Cache Enabler 351580-B21

NOTE: This 128MB BBWC supports the Smart Array 641 Controller and Smart Array 642 Controller.

Ultra320 Expansion Module for SA-6402 273911-B21

64-Bit/133MHz Dual Channel Ultra320 SCSI Adapter 268351-B21

64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2 374654-B21

NOTE: Please see the following Controller or SCSI Adapter QuickSpecs for Technical Specifications such as PCI Bus, PCI Peak Data Transfer Rate, SCSI Protocols supported, SCSI Peak Data Transfer Rate, Channels, SCSI Ports, Drives supported, Cache, RAID support, and additional information:

http://h18000.www1.hp.com/products/quickspecs/12067_div/12067_div.HTML
(Smart Array 641)

http://h18000.www1.hp.com/products/quickspecs/12069_div/12069_div.HTML
(Smart Array 642)

http://h18000.www1.hp.com/products/quickspecs/10429_div/10429_div.HTML
(Dual Channel SCSI Adapter)

http://h18000.www1.hp.com/products/quickspecs/11943_div/11943_div.HTML
(Single Channel SCSI HBA)

SAS Controllers

Smart Array P600 Controller 337972-B21

512MB DDR BBWC Upgrade 372538-B21

NOTE: Please see the following Controller QuickSpecs for Technical Specifications such as PCI Bus, PCI Peak Data Transfer Rate, SCSI Protocols supported, SCSI Peak Data Transfer Rate, Channels, SCSI Ports, Drives supported, Cache, RAID support, and additional information:

http://h18000.www1.hp.com/products/quickspecs/12247_div/12247_div.HTML
(Smart Array P600 Controller)

SAS HBA

HP 8 Internal Port SAS HBA with RAID 347786-B21

SATA Controller

HP 6-port SATA RAID Controller 372953-B21

NOTE: See the "Storage" section of these QuickSpecs for information on controllers and cables required to support SATA drive configurations

Options

Communications	HP NC150T PCI 4-port Gigabit 1000T Combo Switch Adapter	367132-B21
	HP NC310F PCI-X 1000SX Gigabit Server Adapter	368169-B21
	HP NC320T PCI Express 1000T Gigabit Server Adapter	367047-B21
	HP NC370F PCI-X Multifunction 1000SX Gigabit Server Adapter	374193-B22
	HP NC370T PCI-X Multifunction 1000T Gigabit Server Adapter	374191-B22
	HP NC1020 PCI 1000T Gigabit Server Adapter	353377-B21
	HP NC7170 PCI-X Dual Port 1000T Gigabit Server Adapter	313881-B21
	HP NC7771 PCI-X 1000T Gigabit Server Adapter	290563-B21

NOTE: NC61XX, NC71XX, NC77XX, or NC1020 network adapter (NIC) can be used for redundancy with the embedded NC7761 NIC. When either the embedded NC7761 or the NC1020 is teamed with other HP NICs, Jumbo Frames and LSO features are automatically disabled.

NOTE: A minimum of 1 GB of memory is required for NC370x adapters, with a maximum of two NC370x adapters permitted in a server.

Management Options	ProLiant Essentials Integrated Lights-Out Advanced Pack, 1 server Featuring: sophisticated virtual administration features for ultimate control of servers in the data centers and remote sites.	263825-B21
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Tape Drives

NOTE: For the complete listing of Tape Drive offerings for this server, please visit: <http://www.hp.com/products1/storage/compatibility/tapebackup/ISS/index.html>

For recommended tape drive offerings for this ProLiant server see the following:

USB Tape Drives

HP StorageWorks DAT 40 USB Internal Tape Drive (Carbonite)	DW022A
HP StorageWorks DAT 40 USB External Tape Drive (Carbonite)	DW023A
HP StorageWorks DAT 72 USB Internal Tape Drive (Carbonite)	DW026A
HP StorageWorks DAT 72 USB External Tape Drive (Carbonite)	DW027A

Internal, External, and Rack-Mount Ultrium Tape Drives

HP StorageWorks Ultrium 232 Internal Tape Drive (Carbonite)	DW064A
HP StorageWorks Ultrium 232 External Tape Drive (Carbonite)	DW065B
HP StorageWorks Ultrium 448 Internal Tape Drive (Carbonite)	DW016A
HP StorageWorks 1U Rack-mount kit with one Ultrium 448 (Carbonite)	DW028B

NOTE: Please see the HP StorageWorks Ultrium Tape Drive QuickSpecs for additional options such as controllers, media, and other related items:

http://h18006.www1.hp.com/products/quickspecs/11739_div/11739_div.html
(Worldwide)

http://h18006.www1.hp.com/products/quickspecs/11739_na/11739_na.html
(North America)

For an up-to-date listing of the latest O/S and software support details for HP Ultrium tape drives, please visit: <http://www.hp.com/go/connect>.

Internal, External, and Rack-Mount DAT Drives

HP StorageWorks DAT 72 SCSI Internal Tape Drive (Carbon)	Q1522B
HP StorageWorks DAT 72 SCSI External Tape Drive (Carbon)	Q1523B
HP StorageWorks 1U Rack-mount kit with one DAT 72 (Carbon)	A7443A

Options

NOTE: Please see the DAT Tape Drive QuickSpecs for controllers, media, and other options:

http://h18000.www1.hp.com/products/quickspecs/11883_div/11883_div.HTML
(Worldwide)

http://h18000.www1.hp.com/products/quickspecs/11883_na/11883_na.HTML
(North America)

http://h18006.www1.hp.com/products/quickspecs/12128_div/12128_div.html
(Worldwide)

http://h18006.www1.hp.com/products/quickspecs/12128_na/12128_na.html
(North America)

For an up-to-date listing of the latest O/S and software support details for HP DAT drives, please visit: <http://www.hp.com/go/connect>.

Rack-Mount Tape Drive Enclosures

HP StorageWorks 1U Rack-Mount Kit A7445B

NOTE: The 1U Rack-mount Kit can support up to two half-height tape drives and compatible with multiple Single-Ended and LVD SCSI tape drives including the DAT 24, DAT 40, DAT 72, DLT VS80, DLT VS160, Ultrium 215, Ultrium 232 and Ultrium 448 tape drives.

HP StorageWorks 1U USB Rack-Mount Kit A8007A

1U USB Cable Option Kit 396114-B21

NOTE: Converts a 1U SCSI rack-mount kit to a USB interface to support the USB tape drives.

NOTE: Please see the Rack-Mount Tape Drive Kits QuickSpecs for additional information regarding these kits:

http://h18000.www1.hp.com/products/quickspecs/10854_div/10854_div.HTML
(Worldwide)

http://h18000.www1.hp.com/products/quickspecs/10854_na/10854_na.HTML
(North America)

Tape Autoloaders

DAT Autoloader

HP StorageWorks DAT 72x6 Autoloader (Internal) Q1566A

HP StorageWorks DAT 72x6 Autoloader (External) Q1567A

NOTE: Please see the DAT 72x6 Tape Autoloader QuickSpecs for additional options such as host bus adapters, controllers and media:

http://h18006.www1.hp.com/products/quickspecs/11905_div/11905_div.html
(Worldwide)

http://h18006.www1.hp.com/products/quickspecs/11905_na/11905_na.html
(North America)

HP StorageWorks 1/8 Tape Autoloader

HP StorageWorks 1/8 Ultrium 960 Tape Autoloader AF204A

HP StorageWorks 1/8 Ultrium 448 Tape Autoloader AF203A

HP StorageWorks 1/8 Ultrium 232 Tape Autoloader AF202A

1/8 Tape Autoloader Rackmount Kit C9268R

NOTE: Required to install the unit in a standard 19-inch rack; includes rails and rackmount instructions

NOTE: Please reference the 1/8 Tape Autoloader QuickSpecs at

<http://www.hp.com/go/automation> for additional information needed to create a complete solution; reference current compatibility information at

<http://www.hp.com/go/ebs>

Options

Tape Libraries

HP StorageWorks MSL2024 Tape Library

HP StorageWorks MSL2024 1 Ultrium 960 Drive Library AG115A

HP StorageWorks MSL2024 1 Ultrium 448 Drive Library AG116A

HP StorageWorks MSL2024 2 Ultrium 448 Drive Library AG117A

HP StorageWorks MSL6000 Tape Library

Ultrium 960 technology

HP StorageWorks MSL6030 1 Ultrium 960 Dr LVDS Library AD606A

HP StorageWorks MSL6030 1 Ultrium 960 Dr FC Library AD608A

HP StorageWorks MSL6030 2 Ultrium 960 Dr LVDS Library AD607A

HP StorageWorks MSL6030 2 Ultrium 960 Dr FC Library AD609A

Ultrium 460 technology

HP StorageWorks MSL6030 1 Ultrium 460 Dr LVDS Library AD598A

HP StorageWorks MSL6030 1 Ultrium 460 Dr FC Library AD600A

HP StorageWorks MSL6030 2 Ultrium 460 Dr LVDS Library AD599A

HP StorageWorks MSL6030 2 Ultrium 460 Dr FC Library AD601A

NOTE: Please reference the [MSL6000 Tape Library QuickSpecs at http://www.hp.com/go/automation](http://www.hp.com/go/automation) for additional information needed to create a complete solution; reference current compatibility information at <http://www.hp.com/go/ebs>.

Magneto-Optical Jukeboxes

HP StorageWorks 9.1 GB Optical Jukeboxes

600mx, 4 drive, 64 slot jukebox C1160M

1200mx, 4 drive, up to 128 slots C1104M

2200mx, 6 drive, up to 238 slots C1107M

NOTE: Please see the [HP StorageWorks Magneto-Optical Products data sheet for a complete listing of available jukeboxes at:](http://www.hp.com/products1/storage/products/archivalprod/brochures/MO_family_pb.pdf)

http://www.hp.com/products1/storage/products/archivalprod/brochures/MO_family_pb.pdf

NOTE: Please reference the [Magneto-Optical Jukebox data sheets at](http://www.hp.com/go/optical)

<http://www.hp.com/go/optical> for additional information needed to create a complete solution.

Ultra Density Optical Jukeboxes

1900ux, 4 drive, 64 slot jukebox AA966A

3800ux, 4 drive, 128 slot jukebox AA969A

7100ux, 6 drive, 238 slot jukebox AA971A

NOTE: Please see the [HP StorageWorks Ultra Density Optical Jukeboxes QuickSpecs for a complete listing of available jukeboxes at:](http://h18006.www1.hp.com/products/quickspecs/11944_div/11944_div.html)

http://h18006.www1.hp.com/products/quickspecs/11944_div/11944_div.html

NOTE: Please reference the [Ultra Density Optical Jukebox QuickSpecs at](http://www.hp.com/go/optical)

<http://www.hp.com/go/optical> for additional information needed to create a complete solution

Options

HP StorageWorks Modular Smart Array 30	HP StorageWorks Modular Smart Array 30 SB	302969-B21
	NOTE: Rack-mountable 14 drive enclosure with single bus, redundant power supplies	
	HP StorageWorks Modular Smart Array 30 DB	302970-B21
	NOTE: Rack-mountable 14 drive enclosure with dual bus, redundant power supplies	
	NOTE: The Modular Smart Array Enclosure 30 Family supports the Wide Ultra3, Ultra320 Hot Plug Hard Drives.	
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Uninterruptible Power Systems – Tower Supply	HP T500 UPS 120 V (US)	361475-001
	HP UPS Model T700 (700VA, 500 Watt), Low Voltage (NA)	204015-001
	HP UPS Model T700 (700VA, 500 Watt), High Voltage (INTL)	204015-B31
	HP T750 UPS, Low Voltage (NA/JPN)	378439-D71
	HP T750 UPS, High Voltage (INTL)	378439-B31
	HP UPS Model T1000 XR (1000VA, 700 Watt), Low Voltage (NA)	204155-001
	HP UPS Model T1000 XR (1000VA, 700 Watt), High Voltage (INTL)	204155-B31
	HP UPS T1000 XR (1000VA, 700Watts) 100 VAC (JPN)	312803-291
	HP UPS Model T1500 XR (1440VA, 1050 Watt), Low Voltage (NA)	204155-002
	HP UPS Model T1500 XR (1440VA, 1050 Watt), Low Voltage (INTL)	204155-B32
HP UPS Model T1500 XR (1500VA, 1050 Watt), Low Voltage (JPN)	204155-291	
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Uninterruptible Power Systems – Rack	HP UPS R5500 XR, (5000VA, 4500 Watt), High Voltage (NA/Jpn)	326529-D71
	HP UPS R5500 XR, (6000VA, 5400 Watt), High Voltage (Int'l)	326529-B31
	HP UPS R1500 XR (100 to 127) (NA)	204404-001
	HP UPS R1500 XR (208 to 480) (Int'l)	204404-B31
	HP UPS R1500 XR (100 to 127) (Japan)	204404-291
	HP UPS R3000 XR (120V) (NA)	192186-001
	HP UPS R3000 XR (208V) (NA)	192186-002
	HP UPS R3000 XR (100V) (Japan)	192186-291
	HP UPS R3000 XR (208V) (Japan) Compaq UPS R3000 XR (200V) (Japan)	192186-292
	HP UPS R3000 XR (230V) (Int'l - detachable cord)	192186-B31
	HP UPS R3000 XR (230V) (16A IEC309 Plug)	192186-B32
	HP UPS R3000 XR (230V) (16A CEE 7/7 SCHUKO Plug)	192186-B33
	HP UPS R3000 XR (230V) (16A BS-546 Plug)	192186-AR1
	HP UPS R5500 XR, (5000VA, 4500 Watt), High Voltage (NA/Jpn)	326529-D71
	HP UPS R5500 XR, (6000VA, 5400 Watt), High Voltage (Int'l)	326529-B31
	UPS R12000 XR N+ x (200-240V) (WW-hardwired)	207552-B22
	NOTE: The UPS R12000 XR has a hardwired input and output connection.	

Options

Modular PDUs 1U/0U (Up to 32 outlets) NOTE: 1U/0U mounting brackets shipped with the unit (optimized for 10000 and 9000 series racks).	HP Modular Power Distribution Units (mPDU), Low Volt Model, 24A (100-127 VAC) (NA, Japan) NOTE: This mPDU (252663-D71) may also be used to connect the low volt model of the UPS R3000 XR.	252663-D71
	HP Modular Power Distribution Units (mPDU), High Volt Model, 24A (200-240 VAC) (NA, Japan)	252663-D72
	HP Modular Power Distribution Units (mPDU), High Volt Model, 32A (200-240 VAC) (Int'l)	252663-B31
	HP Modular Power Distribution Units (mPDU), High Volt Model, 40A (200-240 VAC) (WW) NOTE: This mPDU (252663-B21), 40A model has a hardwired input.	252663-B21
	HP Modular Power Distribution Units (mPDU), High Volt Model, 16A (200-240 VAC) (WW) NOTE: This PDU has a detachable input power cord and allows for adaptability to country specific power requirements. This model may also be used with the high volt UPSs R3000 XR and R6000 For North America, need to order cable PN 340653-001. NOTE: Please see the following Modular Power Distribution Unit (Zero-U/1U Modular PDUs) QuickSpecs for additional options including shorter jumper cables and country specific power cords: http://h18000.www1.hp.com/products/quickspecs/11041_na/11041_na.HTML (North America) http://h18000.www1.hp.com/products/quickspecs/11041_div/11041_div.HTML (Worldwide)	252663-B24
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Rack Enabling Kit	ProLiant Rack Enabling Kit NOTE: This is a 5U Rack Enabling Kit that supports the HP ProLiant ML110 and HP ProLiant ML310 servers. NOTE: Support for racks with round or square mounting holes (including all Compaq and HP Rack System /E and HP Systems), with an adjustment range of 24" - 36".	238547-B22
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Other	Internal to External SCSI Cable Option Kit (HD68)	159547-B22
	Internal to External SCSI Cable Option Kit (VHDCI)	333370-B21
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USB Options	USB Optical Scroll Mouse (Carbonite)	DD441B
	USB 1.44-MB External Diskette Drive (Carbonite)	DC141B

Options

HP Rack 10000 G2 Series (Carbon/Graphite Metallic)	10642 G2 (42U) Rack Cabinet - Pallet	AF001A
	10642 G2 (42U) Rack Cabinet - Shock Pallet	AF002A
	10642 G2 (42U) Rack Cabinet - Crated	AF003A
	10642 G2 (42U) Rack Cabinet, with Extension - Shock Pallet	AF004A
	10642 G2 (42U) Rack Cabinet, without door - Shock Pallet	AF005A
	10642 G2 (42U) Rack Cabinet - with Extension, without door - Shock Pallet	AF006A
	10636 G2 (36U) Rack Cabinet - Pallet	AF011A
	10636 G2 (36U) Rack Cabinet - Shock Pallet	AF012A
	10636 G2 (36U) Rack Cabinet - Crated	AF013A
	10636 G2 (36U) Rack Cabinet , with Extension - Shock Pallet	AF014A
	10636 G2 (36U) Rack Cabinet, without door - Shock Pallet	AF015A
	10636 G2 (36U) Rack Cabinet, with Extension, without door - Shock Pallet	AF016A

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

NOTE: Please see the Rack 10000 G2 QuickSpecs for Technical Specifications such as height, width, depth, weight, and color:

http://h18000.www1.hp.com/products/quickspecs/12402_div/12402_div.HTML
(Worldwide)

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

Rack Options for Rack 10000 G2 Series	HP 10642 G2 Front Door ALL	AF009A
	HP 10636 G2 Front Door ALL	AF019A
	10642 G2 (42U) Side Panels (set of two) (Graphite Metallic)	AF054A
	10636 G2 (36U) Side Panels (set of two) (Graphite Metallic)	AF056A
	10636 G2 Rear Extension Kit	AF060A
	600mm G2 Stabilizer Option Kit (Graphite)	AF062A
	600mm G2, Heavy Duty Stabilizer Option Kit (Graphite)	AF064A
	HP 10000 G2 Rack Grounding Kit	AF074A
	600W 10K G2 Rack Tie Down	AF076A

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

Options

HP Rack 10000 Series (Graphite Metallic)	HP Rack S10614 (14U) Rack Cabinet - Shock Pallet	292302-B22
	HP Rack 10842 (42U) Rack Cabinet - Pallet	257415-B21
	HP Rack 10842 (42U) Rack Cabinet - Shock Pallet	257415-B22
	HP Rack 10647 (47U) – Pallet	245160-B21
	HP Rack 10647 (47U) – Crated	245160-B23
	HP Rack 10642 (42U) – Pallet	245161-B21
	HP Rack 10642 (42U) – Shock Pallet	245161-B22
	HP Rack 10642 (42U) – Crated	245161-B23
	HP Rack 10636 (36U) – Pallet	245162-B21
	HP Rack 10636 (36U) – Shock Pallet	245162-B22
	HP Rack 10636 (36U) – Crated	245162-B23
	HP Rack 10622 (22U) – Pallet	245163-B21
	HP Rack 10622 (22U) – Shock Pallet	245163-B22
	HP Rack 10622 (22U) – Crated	245163-B23

NOTE: -B21 (pallet) used to ship empty racks shipped on a truck
 -B22 (shock pallet) used to ship racks with equipment installed (by custom systems, VARs and Channels)
 -B23 (crated) used for air shipments of empty racks

NOTE: Please see the Rack 10000 QuickSpecs for Technical Specifications such as height, width, depth, weight, and color:

http://h18000.www1.hp.com/products/quickspecs/10995_div/10995_div.HTML
 (Worldwide)

http://h18000.www1.hp.com/products/quickspecs/10995_na/10995_na.HTML
 (North America)

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

Rack Options for Rack 10000 Series	HP Rack Light Kit (Neon)	361589-B21
	HP Rack Plinth Kit (Carbon)	251960-B21
	42U Side Panel - Graphite Metallic	246099-B21
	36U Side Panel - Graphite Metallic	246102-B21
	47U Side Panel - Graphite Metallic	255486-B21
	TFT7210R Rack Mounted 17" Monitor	348373-B21
	NOTE: For a complete list of Monitors please view the following URL: http://www.hp.com/go/kvm	
	TFT5600 Rack Keyboard Monitor	221546-xx1
	NOTE: For a complete list of Monitors please view the following URL: http://www.hp.com/go/kvm	
	1U Rack Keyboard & Drawer (Carbon)	257054-xx1
	Country Code Key (for TFT5600 Rack Keyboard Monitor (PN 221546-xx1 and for 1U Rack Keyboard & Drawer (PN 257054-xx1)	

Options

XX = 00	US	XX = 09	Norway
XX = 03	UK	XX = 10	Sweden/Finland
XX = 04	Germany	XX = 11	Switzerland
XX = 05	France	XX = 13	Portugal
XX = 06	Italy	XX = 18	Belgium
XX = 07	Spain	XX = 29	Japan
XX = 08	Denmark	XX = B3	International

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

HP KVM Switch Options	IP Console Switch Box (KVM/IP), 3 x 1 x 16	262586-B21
	IP Console Switch Box (KVM/IP), 1 x 1 x 16	262585-B21
	Server Console Switch (KVM), 0 x 1 x 8 port	336044-B21
	Server Console Switch (KVM), 0 x 2 x 16 port	336045-B21
	PS/2 Interface Adapter, 1 pack	262588-B21
	PS/2 Interface Adapter, 8 pack	262587-B21
	USB Interface Adapter, 1 pack	336047-B21
	Serial Interface adapter - 1 Pack with power supply	373035-B21
	NOTE: Cat5e cables are required to connect Interface Adapters to Console Switches. Cat5e cables can be found at the following URL: http://www.hp.com/go/kvm .	
	HP 1x 4 USB/PS2 KVM Switch, TT (NA/JPN)	371301-D71
	HP 1x 4 USB/PS2 KVM Switch, TT (AU/NZ)	371301-011
	HP 1x 4 USB/PS2 KVM Switch, TT (UK)	371301-031
	HP 1x 4 USB/PS2 KVM Switch, TT (EU)	371301-A21
	HP 1x 4 USB/PS2 KVM Switch, RM (ALL)	371302-B21
HP PS2 KVM Cable with audio, 6', 2-pack	371730-B21	
HP USB KVM Cable with audio, 6', 2-pack	371729-B21	

HP Serial Console Server Options	HP 16 Port Serial Console Server (worldwide)	262586-B21
	HP 48 Port Serial Console Server (worldwide)	262585-B21
	Serial Adapter, RJ45-DB9 DCE Female, 1 Pack	336044-B21
	Serial Adapter, RJ45-DB9 DCE Female, 8 Pack	336045-B21
	NOTE: Cat5e cables are required to connect Serial Adapters to Serial Console Servers. Additional Serial Adapters and Cat5e cables can be found at the following URL: http://www.hp.com/go/kvm .	
	NOTE: For additional information regarding KVM switches, Serial Console servers, rack mount monitors, keyboards and all related options please see the following URL: http://www.hp.com/go/kvm .	

Options

Service and Support

Offerings (HP Care Pack Services)

Hardware Services On-site Service

Next Business Day On-site Service, 5-Day x 9-Hour Coverage, 3 Years, Electronic	U4445E
4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years, Electronic	U4446E
4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	U4447E
6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	U4448E

Installation & Start-up Services

Hardware Installation, Electronic	U4456E
Installation & Start-Up of a ProLiant server and Microsoft or Linux O/S per the Customer Description and/or Data Sheet. To be delivered on a scheduled basis 8am-5pm, M-F, excl. HP holidays, Electronic	U4457E

Support Plus

Onsite HW support, 8am-9pm, M-F, 4hr response and Microsoft O/S SW Tech support offsite, onsite at HP's discretion, 8am-9pm, M-F 2hr response time excl. HP holidays, Electronic	U4458E
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Support Plus 24

Onsite HW support 24x7, 4hr response and Microsoft O/S SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic	U4459E
Onsite HW support 24x7, 4hr response and SuSE Linux SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic	U6306E
Onsite HW support 24x7, 4hr response and Red Hat ES Linux SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic	U8328E

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

Memory

HP ProLiant ML310 G3 Memory Configuration

Standard Memory

All HP ProLiant ML310 G3 models ship with unbuffered, Advanced ECC PC2-4200 DDR2 SDRAM running at 533MHz.

Standard models include a single 512 MB DIMM.

Factory Integrated Models include the memory capacity of your choice.

Standard Memory Replaced with Optional Memory

Up to 8192 MB memory is available with the optional installation of four 2GB PC2-4200 Unbuffered Advanced ECC DDR2 SDRAM DIMM kits.

DIMM upgrades do not need to be installed in pairs although installation of pairs (an equal size DIMM for each channel) provides the best performance. The BIOS will detect the DIMM population and initialize the system accordingly as follows:

- Single-channel mode - DIMMs installed for one channel only
- Dual-channel asymmetric mode - DIMMs installed for both channels but of unequal channel capacities.
- Dual-channel interleaved mode (recommended) - DIMMs installed for both channels and offering equal channel capacities, providing the highest performance.

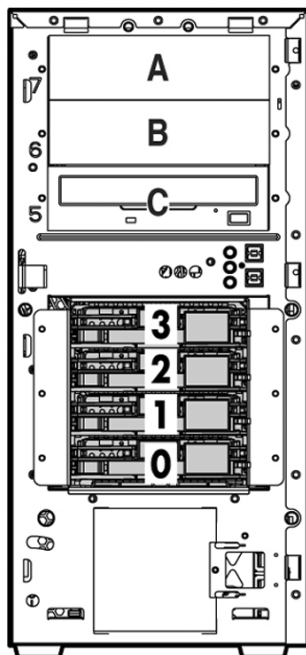
The first DIMM should be installed in Socket 1. A DIMM should not be installed in Socket 2 without a DIMM in Socket 1. Likewise a DIMM should not be installed in Socket 4 without a DIMM in Socket 3. A DIMM need not be installed in Socket 2 in order to install a DIMM in Socket 3.

Table 3-1 shows some of the suggested memory configurations for these systems.

NOTE: Table 3-1 does not list all possible configurations. Balanced-capacity, dual-channel loading yields best performance.

Channel A		Channel B		Total	Mode
Socket 1	Socket 2	Socket 3	Socket 4		
512 MB	none	none	none	512 MB	Single-channel
512 MB	none	512 MB	none	1 GB	Dual-channel interleaved
1 GB	none	none	none	1 GB	Single-channel
1 GB	none	1 GB	none	2 GB	Dual-channel interleaved
1 GB	1-GB	1 GB	none	3 GB	Dual-channel asymmetric
1 GB	1-GB	1 GB	1 GB	4 GB	Dual-channel interleaved
1 GB	1-GB	2 GB	2 GB	6 GB	Dual-channel interleaved
2 GB	2 GB	2 GB	2 GB	8 GB	Dual-channel interleaved

Storage



A, B Removable Media Bays (1.6" each)

C 48x IDE (ATAPI) CD-ROM

0, 1, 2, 3 Four Hot Plug Hard Drive Bays

Drive Support

	Quantity Supported	Position Supported	Controller
Removable Media			
1.44-MB Diskette Drive	Up to 1	A, B, or C	Integrated
IDE (ATAPI) CD-ROM Drive	Up to 2	A, B, or C	Integrated IDE (ATAPI)
DVD-ROM Drive Option Kit	Up to 2	A, B, or C	Integrated IDE (ATAPI)

Storage

Hard Drives

Hot Plug Ultra320 SCSI - (Hot Plug SCSI models only)

	Quantity Supported	Position Supported	Controller
300GB U320 10K	Up to 4	0-3	Single Channel Ultra320 SCSI Adapter (SCSI Models)
146.8GB U320 10K			Smart Array 6404/256 Controller
72.8GB U320 10K			Smart Array 6402/256 Controller
146.8GB U320 15K			Smart Array 641 Controller
72.8GB U320 15K			Smart Array 642 Controller
36.4GB U320 15K			64-Bit/133MHz Dual Channel Ultra320 SCSI Adapter

Hot Plug SAS - (Hot Plug SATA/SAS Models Only)

	Quantity Supported	Position Supported	Controller
36GB 3G SAS 15K	Up to 4	0-3	Smart Array P600 Controller
72GB 3G SAS 15K			Smart Array P400 Controller
146GB 3G SAS 15K			HP 8 Internal Port SAS HBA with RAID

NOTE: Use of SAS hard drives in SATA/SAS models requires installation of the controllers listed above.

Hot Plug SATA - (Hot Plug SATA/SAS Models Only)

	Quantity Supported	Position Supported	Controller
80GB 1.5G SATA 7.2K	Up to 4	0-3	Integrated four port SATA Controller
160GB 1.5G SATA 7.2K			HP 6-port SATA RAID controller
250GB 1.5G SATA 7.2K			Smart Array P600 Controller
500GB 1.5G SATA 7.2K			Smart Array P400 Controller
			HP 8 Internal Port SAS HBA with RAID

NOTE: Hot plug capability and drive LED status support requires installation of the HP 6-port SATA RAID controller, the Smart Array P600, or a SAS HBA.

NOTE: The HP 4-port SATA/SAS target fan cable (P/N 389653-B21) is required when the HP 6-port SATA RAID controller (P/N 372953-B21) is installed.

External Storage

	Quantity Supported	Position Supported	Host Controller or Adapter
Modular Smart Array 30 Family		External	Smart Array 642 Controller

Tape Drives, Tape Autoloaders & Tape Libraries

Storage

NOTE: For an up-to-date listing of the latest O/S Support details for each of the Tape Drives listed below, please see the following:
http://h18000.www1.hp.com/products/quickspecs/North_America/10233.html (North America)
<http://h18000.www1.hp.com/products/quickspecs/Division/10233.html> (Worldwide)

NOTE: For an up-to-date listing of the latest O/S Support details for each of the Tape Autoloaders and Tape Libraries listed below, please see the following:
http://h18000.www1.hp.com/products/quickspecs/North_America/10809.html (North America)
<http://h18000.www1.hp.com/products/quickspecs/Division/10809.html> (Worldwide)

NOTE: For complete listing of tape drive offerings see
<http://www.hp.com/products1/storage/compatibility/tapebackup/ISS/index.html>

	Quantity Supported	Position Supported	Controller
HP StorageWorks Tape Drives, USB Internal DAT 24 USB DAT 40 USB DAT 72 USB	1	A, B	Embedded USB port
HP StorageWorks Tape Drives, USB External DAT 24 USB DAT 40 USB DAT 72 USB	1 per USB port	External	USB port
HP StorageWorks Tape Drives, Internal Ultrium 232 Ultrium 448 DAT 24 DAT 40 DAT 72 DLT VS80 DLT VS160	1	A, B	64-Bit/133MHz Dual Channel Ultra320 SCSI Adapter 64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2
HP StorageWorks Tape Drives, Internal Ultrium 460 Ultrium 960 SDLT 320 SDLT 600	1	A + B	64-Bit/133MHz Dual Channel Ultra320 SCSI Adapter 64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2

Storage

HP StorageWorks Tape Drives, External Ultrium 232 Ultrium 448 Ultrium 460 Ultrium 960 DAT 24 DAT 40 DAT 72 DLT VS80 DLT VS160 SDLT 320 SDLT 600	1 per SCSI channel	External	64-Bit/133MHz Dual Channel Ultra320 SCSI Adapter 64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2
HP StorageWorks Autoloaders, Internal DAT 72x6 Tape Autoloader	1	B, C	64-Bit/133MHz Dual Channel Ultra320 SCSI Adapter 64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2
HP StorageWorks Autoloaders, External DAT 72x6 Tape Autoloader 1/8 Tape Autoloader	1 per SCSI channel	External	64-Bit/133MHz Dual Channel Ultra320 SCSI Adapter 64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2
HP StorageWorks Tape Libraries, External MSL2024 (Ultrium 960-based) MSL2024 (Ultrium 448-based) MSL6000 (Ultrium 960-based) MSL6000 (SDLT 600-based) MSL6000 (Ultrium 460-based) MSL5026S2 (SDLT 320-based) MSL5052S2 (SDLT 320-based)	Please reference the MSL Tape Library QuickSpecs to determine configuration requirements	External	Please consult the EBS connectivity matrix at http://www.hp.com/go/ebs for detailed connectivity information.

Technical Specifications

System Unit	Dimensions (HxWxD)	17.0 x 7-7/8 x 22 in (43.0 x 20.0 x 55.0 cm)		
	Weight (approximate)	37 lb (16.8 kg)		
	Input Requirements (per power supply)	Range Line Voltage	100-127V and 200-240V	
		Normal Line Voltage	115 to 230 VAC	
	Line Frequency	50 to 60 Hz		
	Rated Input Current	< 6A RMS at 90VAC with maximum load		
	BTU Rating	1,560 BTU		
	SCSI Connectors (SCSI Models only)	One internal HD68 connectors		
		NOTE: Support for either one internal or one external SCSI channel is available. To use the channel for external connection, order an internal-to-external SCSI cable option kit (PN 159547-B22 or 333370-B21).		
	Power Supply Output Power	Rated Steady-State Power	350W	
		Maximum Peak Power	370W	
	Temperature Range	Operating	50° to 93° F (10° to 35° C)	
		Shipping	-40° to 150° F (-40° to 66° C)	
	Relative Humidity (non-condensing)	Operating	20% to 80%	
Non-operating		5% to 90%		
Acoustic Noise	Idle (Fixed Disk Drives Spinning)	L WAd (BELS)	5.7	
		L pAm (dBA)	40	
	Operating (Random Seeks to Fixed Disks)	L WAd (BELS)	5.7	
		L pAm (dBA)	40	

48X Max IDE (ATAPI) CD-ROM Drive	Disk	Applicable Disk	CD-ROM, CD-XA, CD-DA (Mode 1, Mode 2, Form 1 and 2) Photo CD (Single and Multi-session) Mixed Mode (Audio and Data combined) CD-R
		Capacity	540 MB (Mode 1, 12 cm) 650 MB (Mode 2, 12 cm)
	Block Size	Mode 1	2,048 bytes
		Mode 2	2,340 bytes, 2,336 bytes
		CD-DA	2,352 bytes
		CD-XA	2,328 bytes
	Interface	IDE (ATAPI)	
	Access Times (typical)	Random	< 100 ms
		Full-Stroke	< 150 ms

Technical Specifications

Data Transfer Rate	Sustained	3000 to 7200 KB/s (20X to 48X)
	Burst	150 KBps to 7,200 KBps
	Bus Rate	16.7 MBps
Cache Buffer	128 KB	
Start-up Time (typical)	< 7seconds	
Stop Time	< 4seconds	
Laser Parameters	Type	Semiconductor Laser GaAlAs
	Wave Length	780 ± 25 nm
Operating Conditions	Temperature	41° to 113° F (5° to 45° C)
	Humidity	10% to 80%
Dimensions	(HxWxD, maximum)	1.7 x 5.85 x 8.11 in (4.29 x 14.86 x 20.60 cm)
	Weight	2.09 lb (0.95 kg)

Embedded NC320i PCI Express 10/100/1000T Gigabit network adapter

Network Interface Compatibility	10Base-T/100Base-TX/1000Base-TX	
	IEEE 802.3 10Base-T	
	IEEE 802.3ab 1000Base-T	
	IEEE 802.3u 100Base-TX	
Data Transfer Method	Single lane (x1), 100MHz PCI Express Reference Clock	
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	
Cable Support	10Base-T	Categories 3, 4 or 5 UTP; up to 328 ft (100 m)
	10/100/1000Base-TX	Category 5 UTP; up to 328 ft (100 m)

Integrated 4 Channel SATA Controller (SATA Models only)

Drives Supported	Up to 4 SATA hard drives (1 drive/channel)
Channels	4
Storage Capacity	1 TB
Maximum SATA Channel Transfer Rate	150 MB/s per channel
SATA Protocols	SATA-1a
Internal SATA Connectors	One 4-lane connector (all four channels)
RAID levels supported	RAID 0, RAID 1

Technical Specifications

Single Channel Ultra320 SCSI Adapter (SCSI Models only)	Drives Supported	Up to 15 SCSI devices Wide
	Data Transfer Method	64-bit/100-MHz PCI bus-master
	SCSI Channel Transfer Rate	320 MB/s per channel
	Maximum Transfer Rate per PCI Bus (peak)	1033 MB/s per channel
	SCSI Protocols	Ultra320, Wide Ultra3, Wide Ultra2, Wide Ultra SCSI-3, Fast-Wide SCSI-2, and Fast SCSI-2
	Electrical Protocol	Low Voltage Differential (LVD)
	SCSI Termination	Active Termination
	External SCSI Connectors	None
	Internal SCSI Connectors	One 68-Pin Wide Ultra SCSI-3 connectors
		NOTE: To implement an external SCSI connection, install an optional controller or internal-to-external SCSI option kit (part number 159547-B22 for HD68 or 333370-B21 for VHDCI).

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