

Overview

Having difficulty scaling your existing SAN and iSCSI storage systems? Do you want a unified storage management system that grows as your requirements increase?

The HP StorageWorks X5000 Network Storage Gateways add scalable file services and a file serving nodes to mid-range and enterprise customer SAN (FC and iSCSI) storage systems. Based on a truly symmetrical cluster file system, the X5000 Storage Gateways add scale-out CIFS/NFS/HTTP file services to any new or existing SAN or iSCSI storage. Now file serving performance or storage capacity can be added independently on-line without service disruption.

The X5000 Storage Gateways provide unified storage management. They can create an integrated block- and file-level storage solution out of any SAN, consolidating individual pools of storage into to a single, shared resource of storage that simplifies storage allocation, yields high utilization and reduces IT costs as compared to traditionally architected storage solutions.

What is an X5000 Storage Gateway?

The HP StorageWorks X5000 Network Storage Gateways are file server nodes for SAN and iSCSI storage. Based on a truly symmetrical cluster file system, X5000 Storage Gateways add scale-out CIFS/NFS/HTTP file services to any new or existing SAN or iSCSI storage. With the X5000 Storage Gateway, file serving performance or storage capacity can be added independently on-line without service disruption. X5000 Network Gateway nodes can be added to linearly scale file serving performance. High availability services and cluster management services are added to create a truly unique and powerful file serving offering.

X5000 Storage Gateways provide unified storage management. They can create an integrated block- and file-level storage solution out of any SAN, consolidating individual silos of storage into to a single, shared pool of storage that simplifies storage allocation, yields high utilization and reduces IT costs as compared to traditionally architected storage solutions.

Product Highlights

Scalability

- Scale from 2 to 16 nodes with a linear increase in file serving performance and throughput.
- Purchase the file serving capacity and throughput requirements that you need today and have the flexibility to add nodes to your existing cluster to meet future business needs.
- Support for 128 TB per file system for Linux and 16 TB per file system for Windows.

High Availability

- Fully symmetrical file system architecture means that all nodes see the same file system and there are no hot spots or bottlenecks.
- Hardware node failures are detected and failed over to all remaining nodes in as little as 5 seconds.

Data Integrity

- The Linux version provides scalable NFS file serving and transparent failover for NFS clients with no need to remount in the event of one or more node failures. This feature is unique in the industry. The Linux version also supports scalable CIFS file serving via Samba.
- The Windows version provides scalable CIFS file serving and transparent failover for CIFS clients with no need to reconnect in the event of one or more node failures. The Windows version also supports NFS file serving in a non-scalable mode via Hummingbird NFS Maestro™.
- Complete session state, data and cache coherency is maintained among all nodes in the cluster.
- Both the Windows and Linux versions support scalable SAN-Direct I/O.

Performance

- Each node provides up to 170 MB/second of sequential write throughput; approximately 190 MB/second sequential read throughput regardless of the base OS selected.
- HP StorageWorks Clustered Volume Manger Software (included with both the Linux and Windows versions of the Gateways) provides additional capabilities with configurable striping to tune performance and optimizing specific workloads. Clustered Volume Manger can also be used to aggregate storage across multiple arrays to provide flexibility for creating very cost effective price/performance solutions.

Industry standard

- Built with the HP ProLiant DL360 G6 server as the hardware platform the X5000 Network Storage Gateway takes advantage of this rock solid platform and all of the ProLiant manageability features such as iLO2, ProLiant Essentials and Insight Manager.
- SUSE Linux v10 Enterprise edition is the OS foundation for the Linux version.
- Windows Storage Server x64 2003 R2 is the OS foundation for the Windows version.
- Windows Server 2003 R2 and Red Hat are also supported by the software only version of the X5000 Storage Gateway - the HP Scalable NAS File Serving Software.

Flexibility

- Fully compatible with the HP StorageWorks portfolio of SAN storage products including MSA, EVA and XP storage arrays.
- Support for 3rd party arrays to leverage existing SAN infrastructures.
- Utilizes existing data center tools and solutions for backup, management and anti-virus protection that support the OS you have selected.
- Leverage training, knowledge, experience and parts that are in place for HP ProLiant hardware.

Manageability

- With a fully symmetrical file system you can manage the cluster from any node or remotely from a Windows or Linux workstation.
- Perform rolling upgrades of individual nodes by removing nodes from the cluster, updating the software and then re-inserting them. This can be done without any disruption to clients or concern about data integrity with the failover over capabilities that are part of the architecture.

Lower Cost

- Purchase the file serving needs for today confident that you can add additional file serving throughput and performance as your needs grow. There is no need for a "forklift upgrade" in the future.
- By building the solution with industry standard components flexibility can be maintained in the infrastructure - no need to buy proprietary hardware and software.
- Integration in the data center is straight forward as there no need for specialized training to learn about custom hardware and proprietary software.

Product Highlights

Support

- An Installation and Startup service is included with the Starter Kit configuration. This service is strongly encouraged for the first cluster at a customer site. By using HP professionals who are knowledgeable about this product and general SAN and networking, the cluster will be up and running in the shortest possible time. This service also includes documentation and initial on-site training for IT personnel on typical cluster management tasks.
- Hardware and software are covered 24 x 7 for one year.

Benefits of a Clustered Gateway

- Outstanding scalability** While some NAS appliances have a fixed throughput, the HP StorageWorks X5000 Storage Gateways allow you to grow throughput capacity in a linear fashion by adding additional nodes. Get exactly the amount of throughput capacity and performance that you need when you need it.
- High availability** A fully symmetrical file system means that all nodes have the same view of the file system. If a node is removed from the cluster for maintenance or fails, the file serving services transition to the remaining nodes in as little as 5 seconds - faster than other cluster products.
- Lower initial cost** Building on industry standard components means a lower initial cost and adding additional capacity and performance can be done quickly, simply and cheaply. There is no need to purchase an expensive proprietary appliance in anticipation of future needs.
- Consolidation** Consolidating data into a cluster reduces administration costs - manage a single cluster not individual servers or multiple NAS devices.
- Reduced Backup Costs** With a symmetrical file system architecture all nodes have access to the same file system. By designating one or more nodes as the backup node(s), the entire file system can be backed up from a single system. Backup licenses need only be purchased for those nodes actively being used for backup.
- Flexible configurations** Software only options allow a choice of hardware platforms and operating system allowing re-use of existing hardware and/or operating system licenses.
- Starter Kit configuration** The Starter Kit configuration represents HP's best practices for hardware, software and support. The configuration consists of two X5000 Storage Gateway nodes together with installation and start up service. The recommended rack, SAN switch, Ethernet switch and cables can be ordered at the same time and the system will be fully racked (as appropriate) at the factory for even quicker startup. The installation and startup service includes setup and on-site customer training on typical administrative tasks.

Software Components

Optional Software

HP StorageWorks Data Protector

The HP StorageWorks Data Protector (DP) software is enterprise data protection and disaster recovery, ensuring recovery from any disruption. Data Protector integrates a variety of techniques to eliminate backup and recovery windows. The capabilities to eliminate planned downtime range from online backup and backup of open files to zero-downtime, zero-impact backup. The software provides industry-leading instant recovery as well as several disaster recovery alternatives to eliminate unplanned downtime, allowing recovery of entire data centers in minutes.

Data Protector is enabling organizations to reduce costs by automating routine tasks to maximize the effectiveness of the data protection staff. For the price of an entry-level product, it provides the enterprise functionality customers need. Data Protector scales from single server to distributed enterprise, covering an extensive range of heterogeneous applications, operating environments and storage configurations with a single solution.

The HP X5000 Storage Gateways support using the Data Protector backup software solution for Linux and Windows (**NOTE: Under Windows DP does not support backing up of open files**).

Support for DP 5.5 requires a SSP (Site Specific Patch). This patch is available from the DP support team.

For more information on HP Data Storage Protector:

<http://h18006.www1.hp.com/products/storage/software/dataprotector/index.html>

Also please refer to EBS compatibility matrix for the complete list of interoperability of backup software solutions with HP X5000 Storage Gateways

<http://h18000.www1.hp.com/products/storageworks/ebs/>

Service and Support, HP Care Pack, and Warranty Information

Warranty and Services Included with the Product

The X5000 Storage Gateway includes a 3 year parts, 3 year labor, 3 year on-site warranty. The X5000 Storage Gateway also includes 1 year of 24x7 software support. HP warrants only that the software media will be free of physical defects for a period of ninety (90) days from delivery.

The X5000 Storage Gateway Starter kit includes Installation and Startup (I&S).

For more information about HP's Global Limited Warranty and Technical Support, visit:

ftp://ftp.compaq.com/pub/products/storageworks/warranty/EN_321708-008.pdf

For increased uptime, productivity and ROI -HP Care Pack packaged services for Storage

These days, you need to get the most out of your storage investment. When you buy HP storage products and solutions, it's also a good time to think about what levels of service and support you may need. To help take the worry out of deploying, designing, maintaining, and managing your environment, we've designed a portfolio of service options that are as: flexible, reliable and scalable as your storage. Unlike storage-only vendors, we take a holistic approach to your entire environment, bridging storage, servers, blades, software and network infrastructures with our HP Care Pack packaged services for Storage.

Protect your business beyond the warranty

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

Extending warranties with HP Care Pack Services

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

HP Storage Services: Offering reliability, flexibility and value-just like your storage

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

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

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

Service and Support, HP Care Pack, and Warranty Information

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

- Services for customers purchasing from HP or an enterprise reseller are quoted using HP order configuration tools.
- Customers purchasing from a commercial reseller can find HP Care Pack Services at http://h30125.www3.hp.com/csn/salesmktg/elfpack/elf_nonlkup_ctrylang.asp?code=ELNL

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

Recommended Support **3-Year HP Support Plus 24**

For a higher return on your storage investment, HP Support Plus 24 provides integrated hardware and software support services designed specifically for your technology. Available 24x7, this 3-year combined reactive support option delivers onsite hardware support and over-the-phone software support around-the-clock. Leverage the full strength of HP Technology Services - customers can trust the services professionals at HP to work collaboratively with them, putting our strategic and technical know-how to work across their entire infrastructure.

- Improve uptime with responsive hardware and software services
- Cost-effectively obtain expert multivendor support
- Enjoy consistent service coverage across geographically dispersed sites
- Update HP and selected third-party software at a predictable cost
- Take advantage of subscription savings on software updates
- Increase revenue-with access to world-class expertise without headcount implications
- Increase customer satisfaction-with no interoperability gaps

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-6638EN.pdf>

Recommended Deployment

Deployment is included with selected HP Storage products

HP deployment is included with selected products and helps ensure a smooth installation with minimal disruption to your IT and business operations. The included deployment will help you improve the productivity of your technical staff and allow your IT resources to stay focused on their core tasks and business priorities. See warranty section for details.

Related HP Care Pack Services that will enhance your HP product experience.

Related Services

HP Data Migration Service

For customers who need to safely transport mission critical data with minimal impact to their operations: You need to move your critical enterprise data to your new HP StorageWorks SAN platform. And you need to accomplish that without losing data. And without interrupting your ongoing business operations.

HP Data Migration Service helps you lessen the risk of data loss, minimize threats to data integrity, and avoid productivity-sapping performance slowdowns during data transport. A highly experienced HP Services storage specialist works with you to rapidly and securely migrate mission-critical business information across your data center or around the globe - regardless of the complexity of your environment.

<http://h20195.www2.hp.com/v2/GetPDF.aspx/5982-4107EN.pdf>

HP Proactive Select Service

Service and Support, HP Care Pack, and Warranty Information

For customers who need to improve IT performance and manageability through the use of cost effective flexible proactive services:

Proactive Select - increased flexibility, minimal complexity -- Select what works for you - your package

Delivery planning + Proactive Service Credits

- Credits are used to redeem proactive services
- Three 'predefined' service credit levels - 30, 60, 180 credits
- Additional credits available
- Available in 1, 3, 4 & 5 year packages
- Reactive
- Utilize existing reactive services products - ranging from Next Day, through 24x7, to 6 Hour Call to Repair

<http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA2-3842ENN.pdf>

eSupport

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

Support Portal

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

Features include:

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

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

Customer Technical Training

Consider education as an integral part of your strategy to get the best return on investment for your HP storage solution. HP offers a variety of training courses on storage software, networking, archiving and disk storage systems. Our classes are available in many delivery modalities from traditional instructor-led courses at one of our 80 training centers worldwide to on-site training customized to your needs or online. www.hp.com/learn/storage

HP Services Awards

HP Services continues to be recognized for service and support excellence by customers, partners, industry organizations and publications around the world. Recent honors and award reflect our services team's dedications, technical expertise, professionalism and uncompromising commitment to customer satisfaction. For a list of all our awards, please visit

<http://h20219.www2.hp.com/services/cache/433028-0-0-225-121.html>

Service and Support, HP Care Pack, and Warranty Information

Additional Services Information

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

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

Models

Model Number	Model Description
HP X5500 Storage Gateway for Linux, AP811A	Single Gateway node that includes an HP DL360G6 ProLiant server, SUSE 10 Linux OS, HP Scalable NAS File Serving software and supporting documents.
HP X5500 Storage Gateway Starter Kit for Linux, AP812A	Includes Installation and Startup Service and two X5500 Storage Gateways for Linux (AP811A) In addition to basic setup and configuration, customer training is provided on basic operations. This SKU can be configured to include optional rack, FC switches, network switch, and all necessary cables.
HP X5500 Storage Gateway for Windows, AP809A	Single Gateway node that includes an HP DL360G6 ProLiant server, Windows Storage Server x64 2003 R3 OS, HP Scalable NAS File Serving software and supporting documents.
HP X5500 Storage Gateway Starter Kit for Windows, AP810A	Includes Installation and Startup Service and two HP X5500 Storage Gateway for Windows nodes (AP809A). In addition to basic setup and configuration, customer training is provided on basic operations. This SKU can be configured to include optional rack, FC switches, network switch, and all necessary cables.

Below are the technical specifications of the X5500 Storage Gateway.

Version	Windows	Linux
Maximum number of node supported	16	16
Maximum File System Size supported	Up to 32 TB	Up to 128 TB
Maximum number File System supported	Up to 128	Up to 512
Maximum LUNs per cluster	Up to 256	Up to 512
File Serving Protocols	NFS, CIFS, FTP, HTTP, HTTPS, DNS, IMAP4, POP3, NNTP, SMTP	NFS, CIFS, FTP, HTTP, HTTPS, DNS, IMAP4, POP3, NNTP, SMTP
Storage Arrays supported	HP StorageWorks Modular Smart Arrays, HP StorageWorks Enterprise Virtual Arrays, HP StorageWorks XP Disk Arrays, 3rd-Party Disk Arrays from EMC, IBM, Sun, DDN, NetApp.	HP StorageWorks Modular Smart Arrays, HP StorageWorks Enterprise Virtual Arrays, HP StorageWorks XP Disk Arrays, 3rd-Party Disk Arrays from EMC, IBM, Sun, DDN, NetApp.

Below are the technical specifications of the DL360 G6 ProLiant Server used by the X5500 Storage Gateway. Unless otherwise noted technical specifications are the same for the Linux and Windows version of the X5500 Storage Gateway.

HP X5500 Storage Gateway	Operating System	SUSE Linux v10 SP2 Enterprise Edition or Windows Storage Server 2003 x64 Release 2, Standard Edition
	Processor	(2) Intel® Xeon® Processor E5530 (2.40 GHz, 8MB L3 Cache, 80 Watts, DDR3-1066, HT Turbo 1/1/2/2)
	Cache Memory	8MB (1 x 8MB) Level 3 cache
	Memory	24 GB (6x 4 GB) PC3-10600R (DDR3-1333) Registered DIMMs
	HBA	HP 82Q 8Gb Dual Channel PCI-E FC HBA
	Expansion Slots	PCI-e Gen2 (1 FH/FL, 1 HH/HL) PCI-X support optional in the FH/FL slot (PCI-Express)

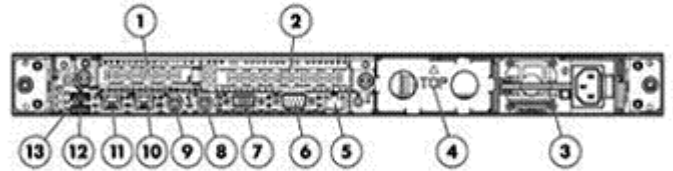
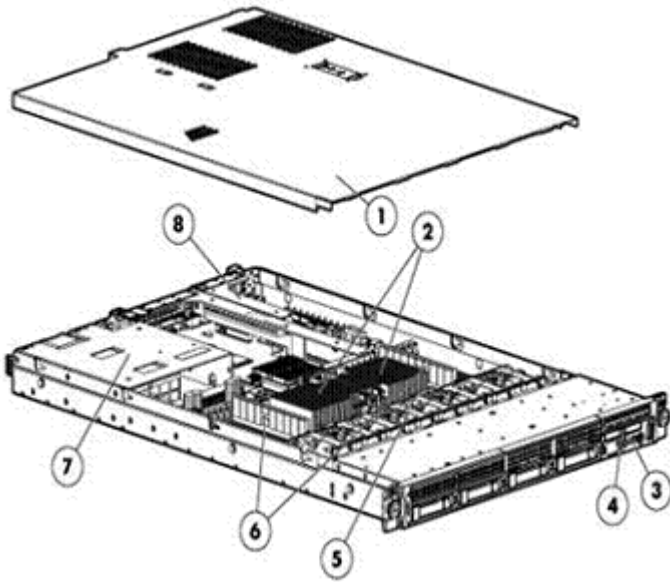


Models

Network Controller	Embedded Dual NC382i Multifunction Gigabit NICs HP NC364T PCI-E Quad Port Gigabit NIC
Internal Storage Controller	Smart Array P410i/Zero Memory Controller (RAID 0/1/1+0)
Hard Drive (Internal storage)	(2) 146GB 3G SAS 15K SFF HDDs
Optical Drive	Slimline DVD-ROM Drive
Fibre Channel (SAN) Storage Compatibility	The entire HP storage portfolio of SAN attached storage is supported including MSA, EVA and XP storage arrays. Consult your HP Storage Specialist for information on compatibility with non-HP storage arrays.
Remote Management	HP Lights-Out Drivers and Agents Windows Storage Server
Intelligent Management	<ul style="list-style-type: none">● HP Systems Insight Manager (HP SIM) helps maximize system uptime and performance and reduce system maintenance costs by providing proactive notification of problems before these problems result in unplanned downtime or reduced productivity. For more details on HP SIM visit: http://www.hp.com/go/hpsim● SmartStart is a tool that simplifies setup, providing a rapid way to deploy reliable and consistent server configurations. For more information, visit: http://www.hp.com/servers/smartstart● Management Agent forms the foundation for HP's intelligent Manageability strategy. They provide direct, browser-based access to in-depth instrumentation built into HP servers and send alerts to HP Systems Insight Manager and other enterprise management applications in case of subsystem or environmental failures. For more information, visit: http://www.hp.com/servers/manage● Redundant ROM● Remote Flash ROM● Integrated Management Log● Automatic Server Recovery (ASR)● Dynamic Sector Repairing (with Smart Array Controllers)● Drive Parameter Tracking (with Smart Array Controllers)● Hot Spare Boot
	<p>NOTE: Upon the event of a failed processor or VRM in a multi-processing environment, the system will automatically reboot and use the remaining good processor(s). Pre-Failure Warranty covers processors, hard drives and memory.</p>
Power Supply	Two 460W Hot Plug Power Supplies, redundant
System Fans	3 total (3 fans in 1 Processor Models, 1 additional fans with 2 Processor Model) redundancy standard
Form Factor	1U

Models

HP ProLiant DL360 Generation 6 (G6)



Front View:

1. Hood Cover
2. Up to two Intel Quad-Core or Dual-Core Xeon™ processors)
3. Video Connector
4. Slide-out System Insight Display
5. Removable fans for easy serviceability
6. Eighteen DIMM slots: DDR3 Registered (RDIMM) or Unbuffered (UDIMM) memory
7. Redundant Hot Plug Power Supplies (upgradeable option)
8. 2 PCI-E Slots

Rear View:

1. PCI Express expansion slot 1, low-profile, half-length
2. PCI Express expansion slot 2 full height full length x16 (16, 8, 4, 2, 1), 75W +EXT 75W (optional PCI-X support)
3. Power supply bay 1 (populated)
4. Power supply bay 2
5. iLO 2 NIC connector
6. Serial connector
7. Video connector
8. Mouse connector
9. Keyboard connector
10. NIC 2 connector
11. NIC 1 connector
12. USB connector

Technical Specifications

System Unit	Dimensions (H x W x D) (with bezel)	1.70 x 16.78 x 27.25 in (4.32 x 42.62 x 69.22 cm)		
	Weight (approximate)	Maximum	39.5 lb (17.92 kg)	
		(all hard drives, power supplies, and processors installed)		
		Minimum	32 lb (14.51 kg)	
		(one hard drive, power supply, and processor installed)		
	Input Requirements (for Standard 460W PSU, see power specifications tables for detail on 460W, 750W and 1200W power supplies)	Rated Line Voltage	100 to 240 VAC	
		Rated Input Current	4.5 Amps (at 120VAC) to 2.2 Amps (at 240 VAC)	
		Rated Input Frequency	50 to 60 Hz	
	BTU Rating	Maximum	1773 BTU / hr (at 120 VAC), 1715 (at 240 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 or www.hp.com/go/hppoweradvisor		
	- Click on the system of interest. Example: DL360 G6 - Follow the instructions of the next screens.			
Power Supply Output (per power supply)	Rated Steady-State Power	460 W (at 100 VAC), 460 W (at 200 VAC)		
	Maximum Peak Power	460 W (at 100 VAC), 460 W (at 200 VAC)		
	NOTE: See Power Supply Specifications tables for complete details on 460W PSU and optional 750W and 1200W Power Supply Options.			
System Inlet Temperature	Operating	10° to 35° C (50° to 95° F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8° F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 10° C/hr (18° F/hr). The upper limit may be limited by the type and number of options installed. System performance may be reduced if operating with a fan fault or above 30° C (86° F).		
	Non-operating	-40° to 70° C (-40° to 158° F). Maximum rate of change is 20° C/hr (36° F/hr).		
Relative Humidity (non-condensing)	Operating	10 to 90% relative humidity (Rh), 28° C (82.4° F) maximum wet bulb temperature, non-condensing.		

Technical Specifications

	Non-operating	5 to 95% relative humidity (Rh), 38.7° C (101.7° F) maximum wet bulb temperature, non-condensing.
Altitude	Operating	3050 m (10,000 ft). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
	Non-operating	9144 m (30,000 ft). Maximum allowable altitude change rate is 457 m/min (1500 ft/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	
	L WAd	6.4 B
	L pAm	49 dBA
	Operating	
	L WAd	6.4 B
	L pAm	49 dBA
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.

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

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