QuickSpecs

Product Overview

IP-based gateway services for arrays/SANs and highly available shared storage solutions built on industry standards

You made the decision to invest in a storage array, but now you've found that you still have file and application servers that aren't connected. So you're still spending time managing islands of storage and your array isn't meeting its full potential. Wouldn't it be nice to complete the consolidation to truly create one unified storage pool to expand and protect?

HP X3000 G2 Network Storage Systems boost the value of your array or SAN by adding Windows-powered IP-based gateway services to it. You'll spend less time and effort on maintenance and deliver a better return-on-investment for your array/SAN when you consolidate to a single, unified storage pool that can serve files to your clients and blocks to your servers via multiple protocols (FC/iSCSI or SAS/iSCSI). Industry-standards protect your investment by providing compatibility with your network and applications, and a Microsoft Cluster Server (MSCS) license is included to provide high availability and reduce downtime.

What is an X3000 G2 Network Storage System?	HP X3000 G2 Network Storage Systems are enhanced Windows-powered gateway and shared storage solutions for your medium business, workgroup, or datacenter environment. They are built on industry-standard HP ProLiant servers and come with the Microsoft® Windows Storage Server 2008 R2 Enterprise operating system -- including cluster services -- pre-installed. They connect via Ethernet and add file, print, iSCSI, and management services to an array or SAN, or they can be used in conjunction with array storage to build an affordable and highly-available unified storage solution. Since HP X3000 G2 Network Storage Systems are Windows-based, integration into your Windows environment is easy, your antivirus and backup applications run right on the box, and management has a familiar look and feel.

What's New
- All X3000 G2 Network Storage Systems now include Windows Storage Server 2008 R2, Enterprise X64 Edition Operating System
- X3800 G2 Network Storage System now built on ProLiant DL380 G7 server
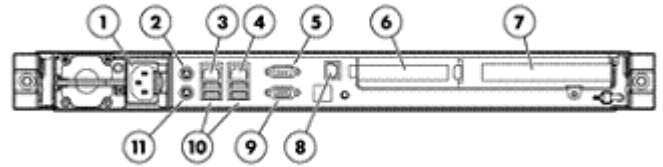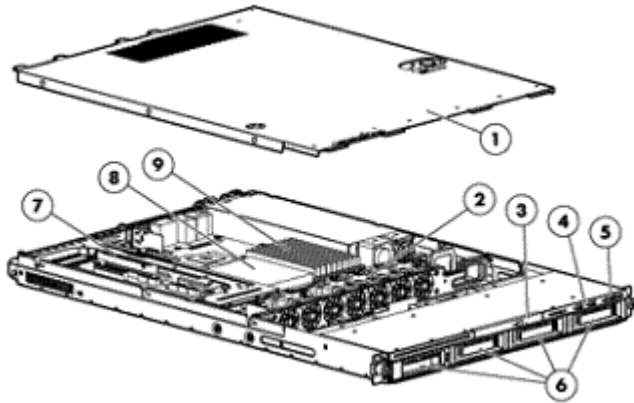
Models
HP X3400 G2 Network Storage Gateway
The HP X3400 G2 Network Storage Gateway is a 1U rack-mount solution that makes adding gateway services to an array or SAN more affordable than ever before. The X3400 G2 is built on a HP ProLiant DL320 G6 server.

HP X3400 G2 Network Storage Gateway   BV870A

Product Overview

Front View:

1. Access panel
2. System fans
3. DVD-RW drive
4. USB Ports (2)
5. Power Button, UID Button, and Front LED Indicators
6. Four (4) 3.5" hot-plug SAS/SATA hard drive bays - two occupied with drives for O/S mirror
7. PCIe expansion slot cage
8. Quad-Core Intel® Xeon® processor
9. DDR3 Registered (RDIMM) memory -- nine slots

Rear View:

1. Power supply
2. Mouse connector
3. NIC 1 Port / Shared iLO 2 Management Port
4. NIC 2 Port
5. Serial Port
6. PCIe slot (occupied by Smart Array controller for internal O/S drives)
7. PCIe slot (open for HBA addition)
8. Dedicated Integrated Lights-Out 2 management port
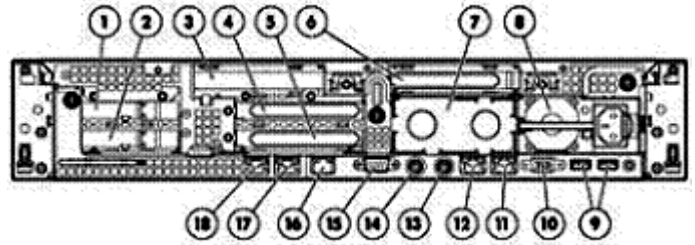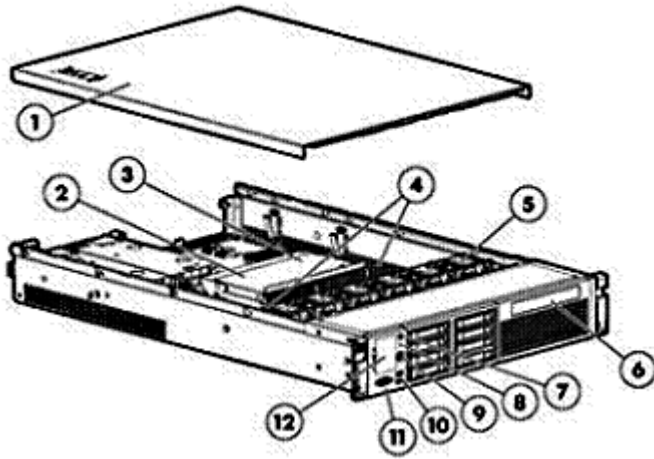9. VGA Port
10. USB Ports (4)
11. Keyboard connector

HP X3800 G2 Network Storage Gateway

With a Six-Core Intel® Xeon® processor and six open PCIe slots, the HP X3800 G2 Network Storage Gateway sets the standard for performance and expandability in gateway services for your array or Fibre Channel SAN. The x3800 G2 is built upon a ProLiant DL380 G7 server.

HP X3800 G2 Network Storage Gateway   BV871A

Product Overview

Front View:

1. Quick removal access panel
2. First Intel Processor
3. Second Intel Processor
4. Eighteen slots: DDR3 Registered (RDIMM) or Unbuffered (UDIMM) memory
5. Hot-plug fans, full N+1 redundancy
6. Slim Optical Bay
7. UID LED button
8. Health LED
9. Power On/Standby button and system power LED
10. USB connectors (2)
11. Video connector
12. Systems Insight Display

Rear View:

1. PCIe slot 5
2. PCIe slot 6
3. PCIe slot 4
4. PCIe slot 2
5. PCIe slot 3
6. PCIe slot 1
7. Power supply 2
8. Power supply 1
9. USB connectors (2)
10. Video connector
11. NIC 1 connector
12. NIC 2 connector
13. Mouse connector
14. Keyboard connector
15. Serial connector
16. iLO 3 NIC connector
17. NIC 3 connector
18. NIC 4 connector

Features and Benefits

Add more data services to your array or SAN	HP X3000 G2 Network Storage Gateways are file and iSCSI bridges into a Fibre Channel or SAS array, or into a Fibre Channel SAN. They add IP-based data services, including file serving and iSCSI, in a package that can be clustered for high-availability and can host array management utilities.
Manage, expand, and protect a single centralized storage pool	If you're already consolidating your block storage into your array or SAN, complete the job by adding file and iSCSI services to your storage pool with an X3000 G2 Gateway. You'll have a unified solution that can serve files to your clients and blocks to your servers via multiple protocols (FC/iSCSI or SAS/iSCSI), and you'll drive a better return-on-investment for your array/SAN up by centralizing all of your storage -- not just that for your mission-critical servers. You can do the same on a smaller scale for more cost-conscious environments list small and remote offices: create a highly-available unified solution combining X3000 G2 Gateway nodes with a P2000 or other SAN arrays.
Optimized file services for clients	In a Windows (SMB/CIFS) environment, there's no better way to serve files. Windows Storage Server 2008 R2 delivers better file serving performance than standard Windows Server2008 R2, has exclusive features like Single Instance Storage (SIS) file de-duplication, and supports Volume Shadow Copy Service snapshots. In mixed environments, you get the flexibility of heterogeneous support for additional protocols like NFS, HTTP, FTP, and WebDAV.
Ready for High Availability	With the included Microsoft Cluster Server (MSCS) license, you can cluster X3000 G2 Gateways to enable high availability and scalable performance.
Seamless integration into your Windows environment	It's running Windows, so it integrates natively into your Active Directory (AD and Distributed File System (DFS) environments, runs your favorite antivirus, backup, and storage management applications, and the Microsoft Management Console (MMC) user interface has a familiar look and feel.
HP ProLiant industry-standard hardware	Relax -- your investment is protected because you're not locked into proprietary platforms. X3000 G2 Network Storage Systems are built on HP ProLiant Server technology and feature Multi-Core Intel® Xeon® processors, PCIe expansion, and support for multiple arrays and interconnects.
Intelligent storage services	Make more efficient use of storage space using the file de-duplicating Single-instance Storage (SIS) feature and enjoy the benefits of other storage-specific tools like Indexed Search, Quotas, File Screening, Storage Reporting, and Distributed File System (DFS) Replication.
Remote and Enterprise manageability	You can manage and troubleshoot from outside the office at both the operating system level (with Remote Desktop or HTTPS) and at the platform level (using Integrated Lights-Out with the included Advanced Pack License). X3000 G2 Network Storage Systems also integrate with HP Systems Insight Manager (HP SIM) and support ProLiant Support Pack.
Array / SAN Management	An X3000 G2 Gateway can host a variety of storage management applications, including HP Command View EVA. Once you add an X3000 G2 Gateway for file/iSCSI services, it's like getting an array or SAN manager for free.

Standard Features

Operating System   Microsoft Windows Storage Server 2008 R2, Enterprise x64 Edition

- 64-bit processing (compatible with 32-bit applications)
- Microsoft Cluster Server (MSCS) license included
  - **NOTE:** X3000 G2 Network Storage Gateways may be clustered only with gateways also running Microsoft Windows Storage Server 2008 R2, Enterprise x64 Edition operating system (HP recommends like hardware as well).
- Optimized for File Serving: Better file serving performance out of the box than a general-purpose Windows Server 2008 R2 installation on the same hardware.
- HP-enhanced File Server Management Console: Features the familiar look and feel of the Microsoft Management Console (MMC).
- HP Initial Configuration Tool: Simplifies and accelerates new device deployment by presenting basic system settings on your first boot.
- Single-instance Storage (SIS): Recovers up to 40% of disk space by de-duplicating files and reducing the amount of redundant data stored (based on Microsoft internal testing). Identifies duplicate files, stores a single copy of the file in a central repository, and replaces the files with pointers to the file in the SIS common store.
- Search Enhancements: Indexing Service extracts the information from a set of documents and organizes it in a way that makes it quick and easy to access that information through the Search function for computers running Windows 2000, Windows XP or Windows Vista.
- File Server Resource Manager (FSRM): Provides both on-demand and scheduled reports detailing storage use, allows administrators to create and manage folder and volume quotas, and permits both name-based screening of files and allowing/disallowing file creation on specified folder trees.
- File Classification Infrastructure: provides insight into your data to help you manage your data more effectively, reduce costs and mitigate risks by providing a built-in solution for file classification allowing administrators to automate manual processes with predefined policies based on the data's business value. Also provided is an extensible infrastructure upon which ISVs can build end-to-end solutions that enable organizations to perform advanced classification and data management.
- Storage Manager for SANs (SMfS): Natively provides basic SAN management (such as device discovery, LUN creation, and storage allocation) for SAN gateway installations. Moreover, SMfS enables shared storage solutions and clustering.
- Unified Share and Storage Management Snap-in: With a consistent and familiar interface, simplifies management of shares and volumes by unifying SMB and NFS share provisioning, integrating share and storage provisioning, and providing an overview of storage and shares.
- Distributed File System (DFS) Management Console: Updated DFS namespace failover, failback and prioritization controls.
- Distributed File System Replication (DFS-R): State-based, multi-master replication engine that supports replication scheduling and bandwidth throttling. DFS-R uses a new compression algorithm that efficiently updates files over limited bandwidth networks by replicating only the changes needed to ensure global file consistency.
- Hosted Branch Cache - Using a client/server architecture, Windows 7 client computers cache content on the local network to an X3000 G2 Network Storage System running Windows Storage Server 2008 R2, known as the Hosted Cache. Other clients who need the same content retrieve it directly from the Hosted Cache.
- Full support of Volume Shadow Copy Service, which creates point-in-time copies of files and folders at predetermined time intervals that can then be accessed from client computers.
- Unlimited Client Access Licenses (CALs) included
- Microsoft Services for Network File System (NFS)
- Simultaneous support for multiple file serving protocols, including SMB/CIFS, NFS, HTTP, FTP, and WebDAV
- Print Management Console: Manage multiple printers (license for unlimited printer support) from a

Standard Features

single console, whether locally or over the WAN
- Support for any number of SATA or SAS drives and multiple network ports
- Support for up to 1TB of SDRAM
- For more information on Windows Storage Server 2008 R2 see:
  http://www.microsoft.com/windowsserver2008/en/us/wss08.aspx

Windows Storage Server Roles	X1000 G2	X3000 G2
Active Directory Certificate Services	No	No
Active Directory Domain Services	No	No
Active Directory Federation Services	No	No
Active Directory Lightweight Directory Services	Allowed	Allowed
Active Directory Management Services	No	No
Application Server	No	No
DHCP Server	Allowed	Allowed
DNS Server	No	No
FAX Server	Enabled	Enabled
File Services	Enabled	Enabled
Hyper-V	Yes	Yes (see note below)
Network Policy and Access Services	No	No
Print Services	Enabled	Enabled
Terminal Services	No	No
UDDI Services	No	No
Web Server (IIS)	Enabled	Enabled
Windows Deployment Services	No	No

NOTE: All X3000 G2 products use Windows Storage Server 2008 R2, Enterprise Edition. The information below is from the WSS2008 R2 Enterprise Edition End User License Agreement (EULA):

Running Instances of the Server Software.
i. You may run on the licensed server, at any one time, one instance of the server software in one physical operating system environment, and up to two instances of the server software in virtual operating system environments (only one instance per virtual operating system environment).
ii. If you run all three permitted instances at the same time, the instance of the server software running in the physical operating system environment may be used only to:

- run hardware virtualization software
- provide hardware virtualization services
- run software to manage and service operating system environments on the licensed server.

Running Instances of the Additional Software. You may run or otherwise use any number of instances of additional software listed below in physical or virtual operating system environments on any number of servers. You may use additional software only with the server software directly, or indirectly through other additional software.

- AD Migration Tool
- FRS Monitoring Tools
- Remote Desktop Connection Client

Standard Features

- RSAT Client

Microsoft iSCSI Software Target

Microsoft iSCSI Software Target v3.3

- Microsoft iSCSI Software Target versions 3.3supports the following iSCSI initiators:
- Microsoft iSCSI Software Initiator 2.07 and 2.08 in Windows Server 2003.
- Microsoft iSCSI Software Initiator in Windows Server 2008 SP1 and SP2.
- Microsoft iSCSI Software Initiator in Windows Server 2008 R2.
- Microsoft iSCSI Software Initiator in Windows Vista.
- Microsoft iSCSI Software Initiator in Windows 7.
- Qlogic initiator QLE4062C-SP, firmware 3.00.01.24.
- RedHat Enterprise Linux iSCSI Initiator version 5.x.
- SuSE Enterprise Linux iSCSI Initiator version 10.x.

Support

HP is the customer's primary contact for the resolution of all iSCSI initiator/iSCSI target interoperability issues. Microsoft is committed to working with HP to resolve interoperability issues involving the Microsoft iSCSI Software Target, but Microsoft is not responsible for resolving any issues caused by non-Microsoft iSCSI initiators.

- IETF-ratified iSCSI specification compliant
- IPv6 support
- iSNS integration
- IPSec encryption
- CHAP authentication
- Seamless integration into Microsoft Management Console (MMC) user interface
- LUN resizing
- IP Take-Over support
- Multi-Path I/O (MPIO) support
- Application-aware snapshots with Microsoft Volume Shadow Copy Service (VSS)
  NOTE: Limit of 512 snapshots per independent iSCSI/Application volume and 64 snapshots for file share volumes. If iSCSI LUNs and file shares are on a common volume the iSCSI snapshot limit is 448.
- Compatible with backup applications certified with Microsoft Windows Server 2008 and Windows Server 2008 r2
- Sample Application Server Compatibility: Microsoft Exchange 2000, 2003, and 2007 Servers; Microsoft SQL Server 2000, 2005, and 2008
- Sample Virtual Environment Compatibility: Microsoft Hyper-V, VMWare, Xen

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Standard Features

Management	Microsoft Management Console (MMC)-based user interface (also accessible via HTTPS)
	Remote system management via Remote Desktop or Telnet
	HP ProLiant Onboard Administrator (powered by the Integrated Lights-Out management processor) simplifies server setup, health monitoring, power and thermal control, and lights-out remote administration. It functions without additional software, and can be accessed from any location via a web browser.

Capabilities of the HP ProLiant Onboard Administrator include:

- Rom-based Setup Utility (RBSU) and Option Rom Configuration for Arrays (ORCA)
- IML and iLO event logging
- Automatic Server Recovery (ASR)
- OS independent hardware health status
- Present server power consumption
- Virtual Unit ID control
- Remote serial console
- Virtual power button control
- Dynamic Sector Repairing (with Smart Array controller)
- Drive Parameter Tracking (with Smart Array controller)
- Hot Spare Boot
- Advanced license (standard): Virtual KVM remote graphical console, power management capabilities such as power measurement, regulation, and capping, new iLO Text Console, automatic and on-demand video recording of server events, global team collaboration for up to four remote users, virtual media (floppy, CD/DVD, USB key), virtual folders, and enterprise security (directory services and two-factor authentication).

For additional information, please see: www.hp.com/go/iLO

Processor / Cache Memory	X3400 G2	X3800 G2
	Intel® Xeon® Processor E5503 (2.00 GHz, 4MB L3 Cache, 80W, DDR3-800)	Intel® Xeon® Processor X5650 (2.66 GHz, 12MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/2/2/3/3)

Chipset		
	Intel® 5520 Chipset	

Memory	Type	DDR3 Registered (RDIMM) standard	
		X3400 G2	**X3800 G2**
	Standard	4GB (2 x 2GB)	8GB (2 x 4GB)
	Maximum	72GB	192GB
	DIMM Sockets	9	18

Standard Features

Network Controller

Network Controller	X3400 G2	X3800 G2
NIC Ports	2	4
Controller	HP NC326i Integrated Dual Port Gigabit Server Adapter	2 x HP NC382i Integrated Dual Port Multifunction Gigabit Server Adapters with TCP/IP Offload Engine

Expansion Slots

	Slot Number	Bus Speed	Connector Width	Bus Number*	Form Factor	Notes
X3400 G2	4	x16 PCI-Express	x16	21	Full length, full height	
	5	x4 PCI-Express	x8	10	Half length, low-profile	Occupied by Smart Array controller
X3800 G2	1	x8 PCI-Express	x16	7	Half Length, full height	
	2	x4 PCI-Express	x8	10	Half Length, full height	
	3	x4 PCI-Express	x8	13	Half Length, full height	
	4	x8 PCI-Express	x16	16	Full length, full height	
	5	x4 PCI-Express	x8	20	Half length, low-profile	
	6	x4 PCI-Express	x8	23	Half length, low-profile	

* Default bus assignment. Inserting cards with PCI bridges may alter the actual bus assignment number.

Storage Controller

NOTE: X3000 G2 Network Storage Gateways include a storage controller designed for internal drives housing the O/S mirror only; an HBA is required to address external SAN or array storage.

	X3400 G2	X3800 G2
Controller(s)	HP Smart Array P212/256MB Controller with battery-backed write cache (BBWC)	Embedded HP Smart Array P410i/256MB Controller with BBWC
RAID	0/1/1+0/5/5+0	0/1/1+0/5/5+0
Internal SAS connectors	1	2
External SAS connectors	1	0

NOTE: Smart Array Advanced Pack License Key upgrade is required to enable RAID 6, 6+0.

Standard Features

Storage	Hard Drives		
		X3400 G2	**X3800 G2**
	Internal	Four 3.5" (Large Form Factor) hot-plug bays	Eight 2.5" (Small Form Factor) hot-plug bays
		• 2 x 300GB 6G SAS 15K LFF HDDs for O/S mirror	• 2 x 300GB 6G SAS 10K SFF HDDs for O/S mirror
	External	Designed for attach to Fibre Channel (HBA required), SAS (HBA required), or iSCSI (Microsoft iSCSI initiator included) arrays	Designed for attach to Fibre Channel (HBA required), SAS (HBA required), or iSCSI (Microsoft iSCSI initiator included) arrays
	Optical Drive	DVD-RW (X3400 G2 only)	

Power Supply	**X3400 G2**	**X3800 G2**
	400 Watts, Non Hot Plug (optional redundant - see note in options section on adding redundant power)	750 Watts, Hot Plug Redundant, 92% Efficiency

Power Cords	**X3400 G2**	**X3800 G2**
	One high voltage power cord (IEC C13 to C14) standard	Two high voltage power cords (IEC C13 to C14) standard

NOTE: X3000 G2 Network Storage Systems are primarily connected to PDUs in racks, so they ship standard with only PDU C-14 to C13 power cord(s). However, you may alternatively plug an X3000 G2 Network Storage System into a wall receptacle by ordering a separate power cord (see options below).

System Fans	**X3400 G2**	**X3800 G2**
	Non-hot plug, Non-redundant	Fully redundant hot plug (N+1)

Form Factor	**X3400 G2**	**X3800 G2**
	Rack Mount (1U), (1.75 in/4.45 cm)	Rack Mount (2U), (3.5 in/8.89 cm)

Standard Features

Rack Airflow Requirements	**Rack 10000 series Cabinets** The increasing power of new high-performance processor technology requires increased cooling efficiency for rack-mounted servers. The 10000 Series Racks provide enhanced airflow for maximum cooling, allowing these racks to be fully loaded with servers using the latest processors. **CAUTION:** If a third-party rack is used, observe the following additional requirements to ensure adequate airflow and to prevent damage to the equipment: Front and rear doors: If your 42U server rack includes closing front and rear doors, you must allow 5,350 sq cm (830 square inches) of hole evenly distributed from top to bottom to permit adequate airflow (equivalent to the required 64 percent open area for ventilation). Side: The clearance between the installed rack component and the side panels of the rack must be a minimum of 7 cm (2.75 inches) **CAUTION:** Always use blanking panels to fill all remaining empty front panel U-spaces in the rack. This arrangement ensures proper airflow. Using a rack without blanking panels results in improper cooling that can lead to thermal damage. **NOTE:** For additional information, refer to the Setup and Installation Guide or the Documentation CD provided with the server, or to the server documentation located in the Support section at the following URL: http://h18000.www1.hp.com/products/servers/proliantdl145/index.html
Telco and Threaded Hole Rack Support	Telco Rack Kit: **NOTE:** Support for all 2-post Telco racks requires the use of the standard rack kit and an additional option kit from Rack Solutions: http://www.racksolutions.com/hp

Optional Software

HP Data Protector Express Software	HP Data Protector Express is easy-to-use data protection and disaster recovery software. It is designed for smaller environments where ease of installation, use, and installation are needed. It enables backup to disk and/or tape of data stored on an X3000 G2 Network Storage System and disaster recovery in the event of a serious incident. An X3000 G2 Network Storage System can also act as the Backup Server and as a target for backup of data on other LAN connected machines or data protection can be integrated into an existing Data Protector Express installation. For more information on HP Data Protector Express Software: http://www.hp.com/go/dataprotectorexpress
HP Data Protector Software	HP Data Protector 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. All HP X3000 G2 Network Storage Systems support using Data Protector as a backup software solution. For more information on HP Data Protector: http://h18006.www1.hp.com/products/storage/software/dataprotector/index.html
HP Command View EVA Software	Command View EVA software provides a comprehensive software suite designed to simplify, enhance, and maximize the high performance EVA family of storage array products. And it provides a powerfully simple storage management experience when compared to managing traditional array storage management products. HP X3000 G2 Network Storage Gateways are excellent companion platforms for EVA arrays; not only can they host Command View EVA, but they also add file and iSCSI services to the array/SAN environment. For more information please visit: http://h18006.www1.hp.com/products/storage/software/cmdvieweva/index.html

Optional Software

HP Systems Insight Manager Software

HP SIM 5.x is the first unified server and storage management platform. Now, from a single management console, administrators can manage their complete HP server and storage environment with a feature rich, extensible and secure management tool set.

HP SIM also serves as a central access point for ProLiant Essentials, Integrity Essentials, and Storage Essentials software options that deliver targeted functionality for these platforms. For more information: http://h18013.www1.hp.com/products/servers/management/hpsim/index.html

Insight Management Agents - Allow all HP servers to present system instrumentation, health and configuration information into HP Systems Insight Manager and the HP System Management Homepage. The HP System Management Homepage aggregates systems data from Insight Management Agents and other HP management tools, providing a consolidated browser-based interface for managing individual servers

HP Storage Essentials NAS Manager Software

Provides comprehensive Network Attached Storage (NAS) management capabilities for X3000 Network Storage Systems. Visualize your distributed HP NAS solutions and centrally manage their capacity, performance, events, and dependencies to ensure NAS availability and performance and unify SAN and NAS management. For more information on the complete line of HP Storage Essential products go to: Storage Essentials - NAS Manager

SAN / Array Compatibility

HP X3000 G2 Network Storage Gateways are designed to be connected to a SAN or storage array by adding a recommended Fibre Channel or SAS HBA, or by using an iSCSI initiator.

Host Bus Adapter (HBA) **Support**	HBA selection is left as your choice based on existing infrastructure and/or desired array support. Please see compatible HBAs listed in the 'Options' section below. **NOTE:** See the following URL for additional information about Fibre Channel HBAs: http://h18006.www1.hp.com/storage/saninfrastructure/hba.html

HP SAN / Array Support	**HP 3PAR**	http://h18006.www1.hp.com/storage/disk_storage/3par/index.html **NOTE:** When connecting to a 3PAR array the Fibre Channel driver on the x3800 must be replaced with version 9.1.8.25 from HP's web site, replacing version 9.1.8.27.
	HP P6000/EVA	http://h18006.www1.hp.com/products/storageworks/eva/index.html
	HP P9000/XP	http://h18006.www1.hp.com/storage/xparrays.html
	HP P4000 Storage Systems	http://h18000.www1.hp.com/products/quickspecs/13254_div/13254_div.html
	HP P2000/MSA	http://h18006.www1.hp.com/storage/disk_storage/msa_diskarrays/index.html

HP X3000 G2 Network Storage Gateways and third-party storage arrays/SAN interoperability statement

HP acknowledges that some third-party storage arrays/SAN environments have been successfully tested for interoperability with X3000 G2 Storage Server Gateway products. HP will provide support for the HP Gateway products when connected to third-party storage arrays, but HP will not provide support on third-party storage arrays/SAN unless specifically called out in an HP Support contract. HP may support the third-party SAN environment attached to HP Gateway product(s) when specifically under contract with HP, but that SAN coverage does not extend to supporting the SAN connectivity of the third-party array.

If you call HP Services and the problem is determined to be caused by a third-party storage array or the storage arrays' connectivity into a non-HP supported SAN, you will be directed to contact the third-party storage array supplier for support. Please refer to the third-party supplier for information relating to specific support of their storage arrays with Windows Storage Server 2008 R2 Enterprise Edition.

QuickSpecs

Models (Pre-configured)

These models come with factory-selected drives and the Microsoft Windows Storage Server 2008 R2 operating system pre-installed

Choose a Pre-configured Model

NOTE: All options ship separately and are not factory integrated.

HP X3000 G2 Network Storage Systems

Common Specifications		
	Operating System	Microsoft Windows Storage Server 2008 R2, Enterprise x64 Edition with Microsoft iSCSI Software Target and a Microsoft Cluster Server (MSCS license)
	Management	Microsoft Management Console (MMC)-based user interface (also accessible via HTTPS)
	Remote Access	HP ProLiant Integrated Lights-Out with Advanced Pack license; Telnet; Remote Desktop

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X3400 G2 Gateway

Specifications		
	Processor	Intel® Xeon® Processor E5503 2.00 GHz
	Memory	4GB (2 x 2GB)
	Storage Controller	Smart Array P212 with 256MB BBWC Controller with internal SAS port for O/S drives
	Internal Storage	2 x 300GB 6G SAS 15K 3.5" ENT hot-plug LFF HDDs (O/S mirror)
	Optical Drive	DVD-RW
	Network Ports	2 x Gigabit Ethernet (1 shared with iLO2)
	Expansion Slots	2 x PCIe (one slot occupied by Smart Array Controller)
	Form Factor	1U Rack

HP X3400 G2 Network Storage Gateway   BV870A

X3800 G2 Gateway

Specifications		
	Processors	Intel® Xeon® Processor X5650 2.66 GHz
	Memory	8GB (2 x 4GB)
	Storage Controller	Embedded Smart Array P410i with 256MB BBWC Controller with internal SAS ports for O/S drives
	Internal Storage	2 x 300GB 6G SAS 10K 2.5" ENT hot-plug SFF HDDs (O/S mirror)
	Network Ports	4 x Gigabit Ethernet
	Expansion Slots	6 x PCIe
	Redundancy	Hot plug redundant power supply and fully redundant (N+1) hot plug fans
	Form Factor	2U Rack

HP X3800 G2 Network Storage Gateway   BV871A

Options

Add a second processor for X3800 G2

HP DL380 G7 Intel® Xeon® X5650 (2.66GHz/6-core/12MB/95W) Processor Kit	587482-B21

Add More Memory

X3400 G2 / X3800 G2

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

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

HP 8GB (1x8GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500662-B21
HP 8GB (1x8GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit	604506-B21

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

HP 16GB (1x16GB) Quad Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit	500666-B21

NOTE: All DDR3 memory option kits consist of one DIMM per kit. For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator.
NOTE: Kits described as LP include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, see: www.hp.com/go/proliant-energy-efficient
NOTE: PC3L is a low voltage memor.

Add a Network Adapter

NOTE: Expansion slot availability varies by model.
NOTE: Multifunction Server Adapters support the installed Microsoft Windows Server Scalable Networking Pack, which enables TCP Chimney offload, Receive-side Scaling (RSS), and Network Direct Memory Access (NetDMA) features.

X3400 G2 / X3800 G2　　**Gigabit Ethernet adapters**

HP NC112T PCIe Gigabit Server Adapter	503746-B21
HP NC360T PCI Express Dual Port Gigabit Server Adapter	412648-B21
HP NC364T PCI Express Quad Port Gigabit Server Adapter	435508-B21
HP NC365T 4-port Ethernet Server Adapter	593722-B21
HP NC373F PCI Express Multifunction Gigabit Server Adapter	394793-B21
HP NC373T PCI Express Multifunction Gigabit Server Adapter	394791-B21
HP NC375T PCI Express Quad Port Gigabit Server Adapter	538696-B21
HP NC382T PCI Express Dual Port Multifunction Gigabit Server Adapter	458492-B21

10 Gigabit Ethernet Adapters

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

Options

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

HP NC522SFP Dual Port 10GbE Gigabit Server Adapter	468332-B21
HP NC550SFP Dual Port 10GbE Server Adapter	581201-B21
HP NC523SFP 10Gb 2-port Server Adapter	593717-B21
HP NC552SFP 10Gb 2-port Ethernet Server Adapter	614203-B21
HP 10 GbE PCI-e G2 Dual Port Network Interface Card	516937-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information: www.hp.com/go/ProLiantNICs

High Performance Computing (HPC) interconnect technologies are available for this server under the Cluster Platform product portfolio. These high-speed interconnects are fully supported by HP when they are part of these configure to order clusters. Solutions can be defined with a lot of flexibility with the help of configuration tools. Please visit the following URL to configure HPC Clusters with InfiniBand or Gigabit Ethernet Interconnects: http://www.hp.com/techservers/clusters/ucp/index.html

HP Infiniband	HP 4X QDR PCI-e G2 QLogic InfiniBand Dual Port HCA	583211-B21

NOTE: Please see the QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/13078_div/13078_div.html

HP I/O Accelerator Options	The IO Accelerator is an advanced storage device that uses solid state storage technology directly on the PCI bus, assuring high read and write data rates and accelerated application performance. The associated application performance improvements will have a positive impact on business results and the ability to make decisions quickly, resulting in significant cost and time savings.

X3800 G2	HP 160GB SLC PCIe ioDrive	600278-B21

NOTE: A low-profile PCI bracket is included for use in low-profile slots.

HP 320GB MLC PCIe ioDrive	600279-B21

NOTE: A low-profile PCI bracket is included for use in low-profile slots.

HP 320GB SLC PCIe ioDrive Duo	600281-B21
HP 640GB MLC PCIe ioDrive Duo	600282-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13587_div/13587_div.html (Worldwide)

Add Storage

HP X3000 G2 Network Storage Gateways are designed and optimized for integration with a SAN or storage array.
NOTE: HBAs are not included standard. HBA selection is left as your choice based on existing infrastructure and/or desired array support.
NOTE: Expansion slot availability varies by model.

X3800 G2 Spare Disk	**HP 300GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive**	507127-B21

X3400 G2 / X3800 G2	**Brocade Fibre Channel HBAs**

Options

HP 81B PCIe 8Gb FC Single Port HBA	AP769A
HP 82B PCIe 8Gb FC Dual Port HBA	AP770A
HP 41B PCIe 4Gb FC Single Port HBA	AP767A
HP 42B PCIe 4Gb FC Dual Port HBA	AP768A

Emulex Fibre Channel HBAs

HP 81E 8Gb SP PCI-e FC HBA	AJ762A
HP 82E 8Gb Dual-port PCI-e FC HBA	AJ763A
HP FC2142SR 4Gb PCI-e HBA	A8002A
HP FC2242SR Dual Channel 4 Gb PCI-e HBA	A8003A

QLogic Fibre Channel HBAs

HP 81Q PCI-e FC HBA	AK344A
HP 82Q 8Gb Dual Port PCI-e FC HBA	AJ764A
HP FC1142SR 4Gb PCI-e HBA	AE311A
HP FC1242SR Dual Channel 4 Gb PCI-e HBA	AE312A

SAS HBAs

HP SC08e 6Gb 2-ports Ext PCIe SAS HBA   614988-B21
NOTE: This is a 2 x4 External Port HBA
NOTE: This is only approved for the HP P2000 G3 SAS Modular Smart Array. 614988-B21
NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18004.www1.hp.com/products/quickspecs/13651_div/13651_div.html (SC08e 6Gb HBA)

NOTE: The HP SC08Ge SAS HBA enables connection to HP MSA2000sa arrays.

HP SC08Ge Host Bus Adapter   488765-B21
NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18004.www1.hp.com/products/quickspecs/13082_div/13082_div.html (SC08Ge HBA)

HP SC11Xe Host Bus Adapter   412911-B21
NOTE: Transfer rate: 1.5 Gb/s SATA, 3 Gb/s SAS.

NOTE: Any factory integrated SAS HBA purchase automatically includes the HP HBA SAS-SATA 4x 1 LN Cable Kit (452130-B21)

SAS Controllers

NOTE: HP X3000 G2 Network Storage Gateways are primarily intended for connection to arrays/SANs, but they can support internal storage and/or direct attach storage with Smart Array Controllers and MSA enclosures. In that case, however, storage cannot be shared between clustered nodes.

Smart Array P800 Controller

HP Smart Array P800/512MB BBWC Controller   381513-B21

HP Smart Array P212 Controller

HP P212/256 Smart Array Controller	462834-B21
HP P212/ZM Smart Array Controller	462828-B21

HP Smart Array P411 Controller

Options

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

Smart Array P812 Controller

HP Smart Array P812/1G Flash Backed Cache Controller	487204-B21

Optional Upgrades

256 MB Cache Module	462968-B21

NOTE: Supported on HP Smart Array P212 Controller.

512MB Battery-backed write cache	462967-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/13203_div/13203_div.html (Smart Array P212 Controller)
http://h18000.www1.hp.com/products/quickspecs/13201_div/13201_div.html (Smart Array P411 Controller)
http://h18000.www1.hp.com/products/quickspecs/12616_div/12616_div.html (Smart Array P800 Controller)

SCSI HBAs

HP U320e SCSI Host Bus Adapter	AH627A

NOTE: AH627A is only supported on the X3400 G2 Network Storage Gateway.

HP SC11Xe Host Bus Adapter	412911-B21

NOTE: Recommended HBA for SCSI tape drive connect.

NOTE: Please see the QuickSpecs for additional information:
http://h18000.www1.hp.com/products/quickspecs/12566_div/12566_div.html (SC11Xe HBA)

X3400 G2 / X3800 G2

HP Modular Smart Arrays

MSA2000fc (Fibre Channel) Arrays

HP 2012fc Single Controller Modular Smart Array	AJ742A
HP 2012fc Dual Controller Modular Smart Array	AJ743A
HP 2212fc Dual Enhanced Controller Modular Smart Array	AJ745A
HP 2000fc Modular Smart Array Controller	AJ744A
HP 2312fc G2 Dual Controller Modular Smart Array (LFF) (Pre-configured with two array controllers)	AJ795A
HP 2324fc G2 Dual Controller Modular Smart Array (SFF) (Pre-configured with two array controllers)	AJ797A
HP 2312fc G2 Single Controller Modular Smart Array SAN Starter Kit (LFF) (includes single controller, 12-drive bay LFF array head, 8-port 8Gb switch, two 8Gb HBAs, SFPs and cables)	AJ954A
HP 2324fc G2 Single Controller Modular Smart Array SAN Starter Kit (SFF) (includes single controller, 24-drive bay SFF array head, 8-port 8Gb switch, two 8Gb HBAs, SFPs and cables)	AJ955A

Options

HP 2300fc G2 Modular Smart Array SAN Starter HA Upgrade Kit (includes additional single controller, 8-port 8Gb switch, two more 8Gb HBAs, SFPs and cables)	AJ956A

For upgrading AJ954A or AJ955A to dual controller, high availability configurations

NOTE: All 2000fc series array enclosures require a Fibre Channel Host Bus Adapter
NOTE: Please see the 2000fc Modular Smart Array QuickSpecs for additional options and configuration information at:
http://h18000.www1.hp.com/products/quickspecs/12991_div/12991_div.html (MSA2000fc)
http://h18000.www1.hp.com/products/quickspecs/13187_div/13187_div.html (MSA2000fc G2)

MSA2000sa (SAS) Arrays

HP 2012sa Single Controller Modular Smart Array	AJ752A
HP 2012sa Dual Controller Modular Smart Array	AJ753A

NOTE: All 2000sa series arrays require an SC08Ge SAS Host Bus Adapter (488765-B21)
NOTE: Please see the Modular Smart Array 2000sa QuickSpecs for additional options and configuration information at:
http://h18000.www1.hp.com/products/quickspecs/13045_div/13045_div.html (Worldwide)

MSA2000i (iSCSI) Arrays

HP 2012i Single Controller Modular Smart Array	AJ746A
HP 2012i Dual Controller Modular Smart Array	AJ747A
HP 2000i Modular Smart Array Controller	AJ748A

NOTE: Please see the 2000i Modular Smart Array QuickSpecs for additional options and configuration information at:
http://h18000.www1.hp.com/products/quickspecs/12992_div/12992_div.html (Worldwide)

MSA2000fc (Fibre Channel) models

Additional Fibre Channel SAN / Array Support: XP and EVA
NOTE: Requires Fibre Channel Host Bus Adapter.
NOTE: Please see the Storage Array Systems QuickSpecs below for more information about configuration requirements.

HP P4000 Storage Systems
http://h18000.www1.hp.com/products/quickspecs/13254_div/13254_div.html
HP Enterprise Virtual Array Family
http://h18006.www1.hp.com/products/quickspecs/12408_div/12408_div.html
HP XP Disk Arrays
http://h18006.www1.hp.com/products/quickspecs/12072_div/12072_div.html

HP D2000 Disk Enclosures

HP D2600 Disk Enclosure	AJ940A
HP D2700 Disk Enclosure	AJ941A
HP D2600 w/12 450GB 6G SAS 15K LFF Dual Port HDD 5.4TB Bundle	AW522A
HP D2600 w/12 600GB 6G SAS 15K LFF Dual Port HDD 7.2TB Bundle	AW523A
HP D2700 w/25 146GB 6G SAS 15K SFF Dual Port HDD 3.6TB Bundle	AW524A
HP D2700 w/25 300GB 6G SAS 10K SFF Dual Port HDD 7.5TB Bundle	AW525A

Options

HP D2700 w/25 500GB 6G SAS 7.2K SFF Dual Port MDL HDD 12.5TB Bundle	AW526A

NOTE: Please see the following QuickSpecs for Technical Specifications additional D2000 hard drives, controllers, options and cable information:
http://h18000.www1.hp.com/products/quickspecs/13404_div/13404_div.html

MDS600 Disk Enclosure

HP MDS600 with two Dual Port I/O Module System	AJ866A
HP MDS 600 Dual I/O Module Option Kit	AP763A
HP MDS 600 with (35) 1TB LFF SATA Hard Disk Drive Bundle	AP764A
HP MDS 600 with (35) 450GB LFF SAS Hard Disk Drive Bundle	AP765A
HP MDS 600 with (35) 300GB LFF SAS Hard Disk Drive Bundle	AX670A
HP MDS600 with (70) 1TB LFF SATA Hard Disk Drive Bundle	AX668A
HP MDS 600 with (70) 450GB LFF SAS Hard Disk Drive Bundle	AX669A
HP MDS 600 with (70) 300GB LFF SAS Hard Disk Drive Bundle	AX671A

NOTE: Please see the following QuickSpecs for Technical Specifications additional MDS600 hard drivfe, controllers, options and cable information:
http://h18000.www1.hp.com/products/quickspecs/13257_div/13257_div.html

HP Modular Smart Array External Enclosures

HP MSA2000 Single I/O 3.5-inch 12 LFF Drive Enclosure (w/ two .6m SAS to SAS cables) Used with single controller array head	AJ749A
HP MSA2000 Dual I/O 3.5-inch inch 12 LFF Drive Enclosure (w/ two .6m SAS to SAS cables) Used with dual controller array head	AJ750A
HP 60 Modular Smart Array (MSA60)	418408-B21

NOTE: Rack-mountable 12 drive (3.5" SAS/SATA) 2U enclosure with 3Gb/s SAS host connectivity and redundant power supplies.

HP MSA60 1.8TB SAS HDD Bundle (MSA60 w/12 146GB 15K SAS LFF HDD)	AG822A
HP MSA60 9TB SATA HDD Bundle (MSA60 w/12 750GB 15K SATA LFF HDD)	AG823A
HP MSA60 3.6TB SAS HDD Bundle (MSA60 w/12 300GB 15K SAS LFF HDD)	AG824A
HP 70 Modular Smart Array (MSA70)	418800-B21

NOTE: Rack-mountable 25 drive (2.5" SAS/SATA) 2U enclosure with 3Gb/s SAS host connectivity and redundant power supplies.

HP MSA70 1.8TB SAS HDD Bundle (MSA70 w/25 72GB 15K SAS SFF HDD)	AG825A
HP MSA70 3.6TB SAS HDD Bundle (MSA70 w/25 146GB 10K SAS SFF HDD)	AG893A

NOTE: Please see the following QuickSpecs for Technical Specifications additional information:
http://h18000.www1.hp.com/products/quickspecs/12627_div/12627_div.html (MSA60)
http://h18000.www1.hp.com/products/quickspecs/12652_div/12652_div.html (MSA70)

MSA2000 LFF (3.5")	**Large Form Factor (LFF) MSA2 Hard Drives**	
	SAS Drives 3.5", Hot Plug	
	HP MSA2 146GB 3G 15K 3.5 inch Dual-port SAS LFF HDD	AJ735A
	HP MSA2 300GB 3G 15K 3.5 inch Dual-port SAS LFF HDD	AJ736A

Options

HP MSA2 450GB 3G 15K 3.5 inch Dual-port SAS LFF HDD	AJ737A
SATA Drives 3.5", Hot Plug	
HP MSA2 500GB 7.2K 3.5-inch SATA LFF HDD	AJ738A
HP MSA2 750GB 7.2K 3.5-inch SATA LFF HDD	AJ739A
HP MSA2 1TB 7.2K 3.5-inch SATA LFF HDD	AJ740A

X3400 G2 (internal) / MSA60	**Large Form Factor (LFF) Hard Drives**	
	SAS Enterprise (ENT) and Midline (MDL) Drives 3.5", Hot Plug	
	HP 600GB 6G SAS 15K LFF (3.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	516828-B21
	HP 450GB 6G SAS 15K LFF (3.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	516816-B21
	HP 3TB 6G SAS 7.2K rpm LFF (3.5-inch) Dual Port Midline 1yr Warranty Hard Drive	625031-B21
	HP 2TB 6G SAS 7.2K rpm LFF (3.5-inch) Dual Port Midline 1yr Warranty Hard Drive	507616-B21
	HP 1TB 6G SAS 7.2K rpm LFF (3.5-inch) Dual Port Midline 1yr Warranty Hard Drive	507614-B21
	SATA Midline (MDL) and Entry (ETY) Drives 3.5", Hot Plug	
	HP 3TB 3G SATA 7.2K rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive	628059-B21
	HP 2TB 3G SATA 7.2K rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive	507632-B21
	HP 1TB 3G SATA 7.2K rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive	454146-B21
	HP 750GB 3G SATA 7.2K rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive	458930-B21
	HP 500GB 3G SATA 7.2K rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive	458928-B21
	HP 250GB 3G SATA 7.2K rpm LFF (3.5-inch) Entry 1yr Warranty Hard Drive	571230-B21
	HP 160GB 3G SATA 7.2K rpm LFF (3.5-inch) Entry 1yr Warranty Hard Drive	458945-B21
	SATA Hot Plug 3.5" Midline (MDL) Solid State Drives	
	HP 120GB 3G SATA 3.5in MDL 1y Wty SSD	570763-B21
	HP 60GB 3G SATA 3.5in MDL 1y Wty SSD	570761-B21

X3800 G2 (internal) / MSA70 / D2700 / MSA2000 SFF (2.5")	**Small Form Factor (SFF) Hard Drives**	
	SAS Enterprise (ENT) and Midline (MDL) Drives 2.5" Drives, Hot Plug	
	HP 900GB 6G SAS 10K rpm SFF (2.5-inch) Enterprise 3yr Warranty Hard Drive	619291-B21
	HP 600GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	581286-B21
	HP 450GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	581284-B21
	HP 300GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	507127-B21
	HP 146GB 6G SAS 15K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	512547-B21
	HP 146GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	507125-B21
	HP 72GB 6G SAS 15K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	512545-B21
	HP 1TB 6G SAS 7.2K rpm SFF (2.5-inch) Hot Plug Midline 1yr Warranty Hard Drive	605835-B21
	HP 500GB 6G SAS 7.2K rpm SFF (2.5-inch) Dual Port Midline 1yr Warranty Hard Drive	507610-B21
	SATA Hot Plug Midline (MDL and Entry (ETY) Drives	
	HP 1TB 3G SATA 7.2K rpm SFF (2.5-inch) Hot Plug Midline 1yr Warranty Hard Drive	625609-B21
	HP 500GB 3G SATA 7.2K rpm SFF (2.5-inch) Midline 1yr Warranty Hard Drive	507750-B21

QuickSpecs

Options

HP 160GB 3G SATA 7.2K rpm SFF (2.5-inch) Midline 1yr Warranty Hard Drive	530888-B21
HP 250GB 3G SATA 5.4K rpm SFF (2.5-inch) Entry 1yr Warranty Hard Drive	460355-B21
SATA Hot Plug Midline (MDL) Solid State Drives	
HP 120GB 3G SATA 2.5in MDL 1y Wty SSD	572073-B21
HP 60GB 3G SATA 2.5in MDL 1y Wty SSD	572071-B21

Add a Power Cord

HP X3000 G2 Network Storage Systems come standard with at least one rack (IEC-IEC) PDU power cord. If you wish to use wall outlet power instead, you can choose a country- or region-specific power cord.

X3400 G2 / X3800 G2	HP 1.83m 10A C13-UL US Power Cord	AF556A
	HP 1.83m 10A C13 China Power Cord	AF557A
	HP 2.5m 10A C13-Argentina Power Cord	AF558A
	HP 1.83m 10A C13 Brazil Power Cord	AF559A
	HP 1.83m 10A C13 Korea Power Cord	AF560A
	HP 1.83m 10A C13 Taiwan Power Cord	AF561A
	HP 2.0m 10A C13 India Power Cord	AF562A
	HP 2.5m C13 AU/NZ Power Cord	AF569A
	HP 1.83m 10A C13 CH Power Cord	AF565A
	HP 1.83m 10A C13 DK Power Cord	AF566A
	HP 1.83m 10A C13 EU Power Cord	AF568A
	HP 1.83m 10A C13 IL Power Cord	AF564A
	HP 1.83m C13 IT/CL Power Cord	AF571A
	HP 2m C13 Japan Power Cord	AF572A
	HP 1.83m 10A C13 UK Power Cord	AF570A
	HP 2.5m C13 ZA/IN Power Cord	AF567A
	HP 1.83m 10A C13 NBR14136 Brazil Power Cord	AF591A

Add redundant power for the X3400 G2

X1400 G2	HP 400W Factory Integrated Power Supply Kit	515739-B21

NOTE: This kit is used to add redundant power to a DL320 G6 server in the factory only. Since the X1400 G2 is based on the DL320 G6, the kit can be used to provide redundant power capability on the X1400 G2. The kit contains (2) two 400W power supplies and a redundant power supply cage. The X1400 G2 already has a power supply and cage so only (1) power supply from this kit is needed for redundant power. The additional power supply and cage will not be used from the factory kit.

Options

Add Optional Software

HP X3000 G1 Gateway Storage Servers

HP StorageWorks X3000 G1 Upgrade to Windows Storage Server 2008 R2 Enterprise Software

X3000 G1 Network Storage Server Gateways with the Microsoft Windows Storage Server 2008 Enterprise x64 Edition operating system are eligible for a software-only pay for OS upgrade to the Microsoft Windows Storage Server 2008 R2 Enterprise x64 Edition operating system:

This upgrade requires a clean install and contains all X3000 G2 Network Storage System features, including Microsoft iSCSI Software Target.

* A minimum of two OS drives that are the same type and capacity (146GB minimum) must be present in the system before installation.

NOTE: Some expansion cards, including HBAs and NICs, may not be supported by Windows Storage Server 2008 R2. Check Windows Server 2008 R2 driver availability before purchase and installation.

NOTE: Check for HP and 3rd-party software qualification with 64-bit Windows Server 2008 R2 operating systems before purchase and installation.

HP X3000 G1 Upgrade to Windows Storage Server 2008 R2 Enterprise Software   TC338A

Add a Backup Solution

NOTE: For the complete listing of data protection offerings for X3000 G2 Network Storage Systems, please visit:
http://www.hp.com/products1/storage/compatibility/tapebackup/NAS/index.html

Service and Support, HP Care Pack, and Warranty Information

Warranty

HP X3000 G2 Network Storage Systems come with a standard 3-3-3 warranty (3 years parts exchange, 3 years labor and 3 years onsite, next business day response). Software media is warranted to be free of physical defect for a period of 90 days from delivery.

Services Included with the Product   One year of HP Software Support, standard 9x5 business hours (software advisory and remedial software telephone support, new version license rights, and media and documentation distribution service).

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-you can't afford not to. 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/services/storage

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

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

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

Service and Support, HP Care Pack, and Warranty Information

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

Recommended Services

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
- Enjoy consistent service coverage across geographically dispersed sites
- Update HP software at a predictable cost
- Increase customer satisfaction-with no interoperability gaps

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

HP Installation and Startup Service for X1000/X3000 G2 Storage Systems

For smooth startup, HP Installation and Startup Service for X1000/X3000 G2 Storage Systems - provides deployment of your HP ProLiant Storage Server while helping you establish readily available access to and management of your critical data and applications. 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.

- System installation and setup by a HP technical specialist
- Reduced implementation time and cost
- Verification prior to installation that all service prerequisites are met
- Availability of an HP service specialist to answer basic questions related to this service during the orientation session
- Potential expansion of the number of shares and hosts

http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA2-6112ENL.pdf

HP Proactive Select Service

HP Proactive Select Service improves your IT performance and manageability through the use of cost effective flexible services. HP provides technical expertise and best practices to accelerate ROI of your technology investment. Selectable proactive services span a wide range of technology and process services - a flexible way to purchase proactive services that fit your particular environment and situation.

HP Proactive Select Service is technology agnostic and purchased in addition to your choice of underlying reactive support.

- Access to a list of flexible and customizable proactive service activities
- Enhance customers' in-house IT team with complementary assistance from HP
- Improved time to solution
- Reduce business risk and project costs by accessing HP specialists
- Simplify IT operational procedures by leveraging HP best practices

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

Service and Support, HP Care Pack, and Warranty Information

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

Optional Services	**HP Entry Storage Data Migration Service for Windows** For customers who need to safely migrate Windows data within their TCP/IP networks with minimal impact to their operations: You have a need to migrate data between Windows servers within your TCP/IP network. Or you have a need to migrate storage for your Windows servers. Or both. And you need to accomplish these migrations efficiently while minimizing risk at the same time. HP Entry Storage Data Migration Service for Windows offers you a cost competitive and convenient way to accommodate data migration triggered by a need to refresh or consolidate storage, or to create different storage tiers. This service offers a migration cost in line with the costs of storage products in small and medium-sized storage environments. The service is delivered via a skilled HP service specialist with special consideration for data availability, integrity, and ongoing operational performance during the transfer process. http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA2-4734ENW.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

Service and Support, HP Care Pack, and Warranty Information

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

Memory

Standard Memory

DDR3 Registered (RDIMM) with ECC Capabilities

- 4GB (2 x 2GB): X3400 G2
- 8GB (2 x 4GB): X3800 G2

Maximum Memory

- 1TB (by O/S license)
- Physical maximums:
  - X3400 G2: 72 GB
  - X3800 G2: 192GB

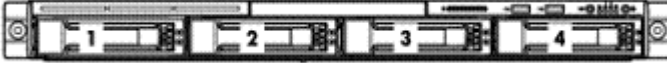DDR3 memory population guidelines

Installation guidelines for additional memory are summarized below:

- For X3400 G2 Network Storage Systems (with nine memory slots)
  - There are three (3) channels per processor
  - There are three (3) DIMM slots for each memory channel; nine (9) total slots
  - Memory channel 1 consists of the three (3) DIMMs that are closest to the processor
  - Memory channel 3 consists of the three (3) DIMMs that are furthest from the processor
- For X3800 G2 Network Storage Systems (with eighteen memory slots)
  - There are three (3) channels per processor; six (6) channels total
  - There are three (3) DIMM slots for each memory channel; eighteen (18) total slots
  - Memory channel 1 consists of the three (3) DIMMs that are closest to the processor
  - Memory channel 3 consists of the three (3) DIMMs that are furthest from the processor
- DIMM slots that are white should be populated first
- Do not mix Unbuffered memory (UDIMMs) with Registered memory (RDIMMs)
- Do not install DIMMs if the corresponding processor is not installed
- If only one processor is installed in a 2CPU system, only half of the DIMM slots are available

For more information on memory configuration, consult QuickSpecs for the HP ProLiant DL320 G6 Server (X3400 G2), HP ProLiant DL380 G7 Server (X3800 G2), or the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator
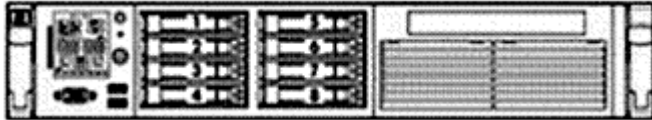
Storage

X3400 G2

1 - 4   Four 3.5" (LFF) hot plug SATA / SAS hard drive bays

X3800 G2

1 - 8   Eight 2.5" (SFF) hot plug SAS / SATA hard drive bays

Hard Drive Factory Pre-configurations

Model	Drives	Position Installed	O/S Volume	Notes
X3400 G2	2 x 300GB 6G 15K LFF SAS	1, 2 (X3400 G2)	RAID1 (Drives 1, 2)	Internal drives connected to SA P212 internal SAS port
X3800 G2	2 x 300GB 6G 10K SFF SAS	1, 2 (X3800 G2)	RAID1 (Drives 1, 2)	Internal drives connected to embedded SA P410i

Power Specifications

X3400 G2 - See the DL320 G6 QuickSpecs for the HP 400W Factory Integrated Power Supply Kit

X3800 G2 - See the DL380 G7 QuickSpecs for the HP 750W Common Slot Gold Hot Plug Power Supply Kit

HP 750W Power Supply

Part Number - AC 750W PSU	512327-B21						
Input Voltage Range (Vrms)	100 to 240						
Frequency Range (Nominal) (Hz)	50/60						
Nominal Input Voltage (Vrms)	**100**	**120**	**208**	**200**	**220**	**230**	**240**
Maximum Rated Output Wattage	750	750	750	750	750	750	750
Nominal Input Current (A rms)	8.9	7.4	4.3	4.1	3.9	3.7	3.6
Max Rated Input Wattage Rating (Watts)	857	847	824	825	820	820	820
Max. Rated VA (Volt-Amp)	894	884	859	859	854	854	854
Efficiency (%) at Max. Rated Output Wattage	87.5	88.5	91	91	91.5	91.5	91.5
Power Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Leakage Current (mA)	0.42	0.50	0.83	0.87	0.92	0.96	1.00
Max. Inrush Current (A peak)	30	30	30	30	30	30	30
Max. Inrush Current duration (mS)	20	20	20	20	20	20	20
Maximum British Thermal Unit Rating (BTU-Hr)	2925	2892	2812	2812	2797	2797	2797

QuickSpecs

HP X3000 G2 Network Storage Systems

Technical Specifications

X3400 G2

System Unit	**Dimensions** (H x W x D) (with bezel)		1.70 x 17.64 x 26.85 in (4.32 x 44.80 x 68.20 cm)
	Weight (approximate)	All hard drives, power supplies, and processors installed	33.50 lb (15.20kg)
	Input Requirements (per power supply)	Rated Line Voltage	90 - 132 VAC, 180 - 264 VAC
		Rated Input Current	6 A (at 100 VAC), 3 A (at 200 VAC)
		Rated Input Frequency	47 to 63 Hz
		Rated Input Power	486 W (at 100 VAC), 479 W (at 200 VAC)
	BTU Rating	Maximum	1836 BTU/hr (at 100 VAC), 1706 BTU/hr (at 200 VAC)
	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	-30° to 60°C (-22° to 140°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.
		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	
		LWAd	6.30 B
		LpAm	52.07dBA

Technical Specifications

		Operating	
		LWAd	6.38 B
		LpAm	52.77 dBA

X3800 G2 System Unit	**Dimensions** (H x W x D) (with bezel)	SFF Drives: 3.38 x 17.54 x 27.25 in (8.59 x 44.55 x 69.22 cm) LFF Drives: 3.38 x 17.54 x 29.25 in (8.59 x 44.55 x 74.30 cm)	
	Weight (approximate)	Maximum (all hard drives, power supply, and processor installed)	60.00 lb (27.27 kg)
		Minimum (one hard drive, power supply, and processor installed)	47.18 lb (21.45 kg)
	Input Requirements (per power supply)	Rated Line Voltage	100 to 120 VAC 200 to 240 VAC
		Rated Input Current	For 1200 W Power Supply: 10 A (at 100 VAC), 4.9 A (at 200 VAC) For 750 W Power Supply: 8.9 A (at 100 VAC), 4.3 A (at 200 VAC) For 460 W Power Supply: 5.5 A (at 100 VAC), 2.6 A (at 200 VAC)
		Rated Input Frequency	50 to 60 Hz
		Rated Input Power	For 1200 W Power Supply: 930 W (at 100 VAC), 1348 W (at 200 VAC) For 750 W Power Supply: 857 W (at 100 VAC), 824 W (at 200 VAC) For 460 W Power Supply: 526 W (at 100 VAC), 505 W (at 200 VAC)
	BTU Rating	Maximum	For 1200 W Power Supply: 3530 BTU/hr (at 100 VAC), 4600 BTU/hr (at 200 VAC) For 750 W Power Supply: 2925 BTU/hr (at 100 VAC), 2812 BTU/hr (at 200 VAC) For 460 W Power Supply: 1794 BTU/hr (at 100 VAC), 1725 BTU/hr (at 200 VAC)
	Power Specifications	**NOTE:** To review typical system power ratings use the HP Power Advisor which is available online located at url: www.hp.com/go/proliant-energy-efficient or www.hp.com/go/hppoweradvisor	

Technical Specifications

Power Supply Output (per power supply)	Rated Steady-State Power	For 1200 W Power Supply: 800 W (at 100 VAC), 900 W (at 120 VAC), 1200 W (at 200 to 240 VAC) For 750 W Power Supply: 750 W (at 100 to 120 VAC), 750 W (at 200 to 240 VAC) For 460 W Power Supply: 460 W (at 100 to 120 VAC), 460 W (at 200 to 240 VAC)
	Maximum Peak Power	For 1200 W Power Supply: 800 W (at 100 VAC), 900 W (at 120 VAC), 1200 W (at 200 to 240 VAC) For 750 W Power Supply: 750 W (at 100 to 120 VAC), 750 W (at 200 to 240 VAC) For 460 W Power Supply: 460 W (at 100 to 120 VAC), 460 W (at 200 to 240 VAC)
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	-30° to 60°C (-22° to 140°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.
	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). **NOTE:** The Listed sound levels apply to standard shipping configurations. Additional options may result in increased sound levels.

Technical Specifications

Idle		**1P SKU**	**2P SKU**
	LWAd	4.1 B	4.7 B
	LpAm	22 dBA	28 dBA
Operating		**1P SKU**	**2P SKU**
	LWAd	4.1 B	4.7 B
	LpAm	22 dBA	28 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.
NOTE: The Listed sound levels apply to standard shipping configurations. Additional options may result in increased sound levels.

X3400 G2

Embedded NC326i Dual Port Gigabit Server Adapter	**Network Interface**	10Base-T/ 100Base-TX/ 1000Base-TX	
	Compatibility	IEEE 802.3 10Base-T	
		IEEE 802.3ab 1000Base-T	
		IEEE 802.3u 100Base-TX	
	Data Transfer Method	Four lane (x4), 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)	2000 Mb/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)

Technical Specifications

X3800 G2

HP NC382i Dual Port Multifunction Gigabit Server Adapters	**Network Interface**	10Base-T/100Base-TX/1000Base-TX	
	Compatibility	EEE 802.3 10Base-T	
		IEEE 802.3ab 1000Base-T	
		IEEE 802.3u 100Base-TX	
		IEEE 802.3ad 1000Base-TX	
		IEEE 802.1p 100Base-TX	
		IEEE 802.1q 100Base-TX	
	Data Transfer Method	PCI Express, four lanes (x4)	
	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	Two RJ-45	
	Cable Support	10Base-T	Categories 3, 4 or 5 UTP; up to 328 ft (100 m)
		100Base-TX	Category 5 or higher UTP; up to 328 ft (100 m)
		1000BaseTX	Category 5 or higher UTP; up to 328 ft (100 m)

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