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 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 Network Storage System?	HP X3000 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 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 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
High Availability Shared Storage Solution bundles:

- All X3400 Network Storage Gateway skus now have two internal 300GB LFF SAS HDDs for OS.

Models
HP X3400 Network Storage Gateway
The HP X3400 Network Storage Gateway is a 1U rack-mount solution that makes adding gateway services to an array or SAN more affordable than ever before.

HP X3400 Network Storage Gateway	AP796B

HP X3400 High Availability Shared Storage Solutions
HP X3400 Network Storage Gateways can be used in conjunction with array storage to build affordable and highly-available direct-attach unified (file/block) storage solutions.

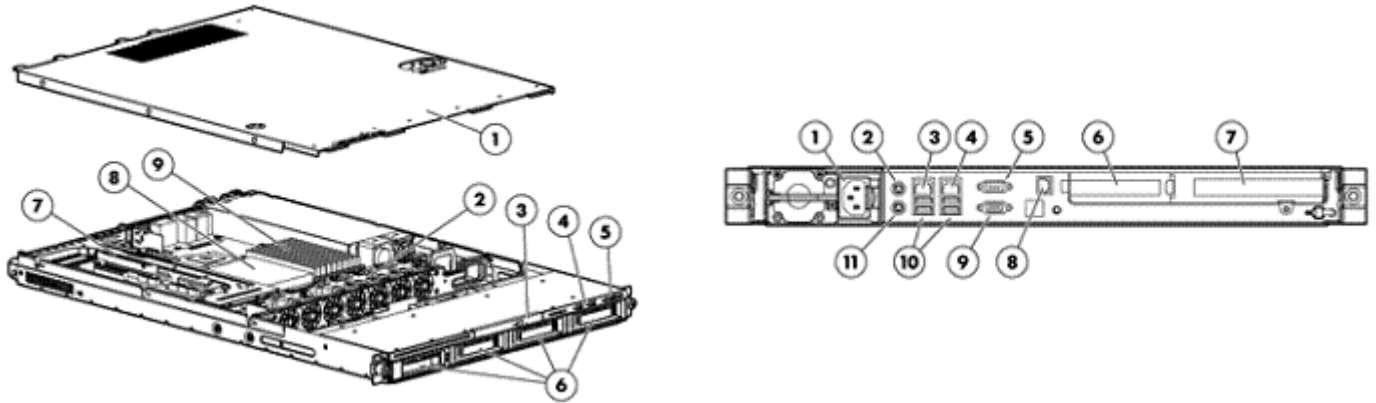|	
HP X3410 1-Node Network Storage System	AP798B
HP X3420 2-Node Network Storage System	AP799B

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 (optional)
9. VGA Port
10. USB Ports (4)
11. Keyboard connector

HP X3800 Network Storage Gateway

With two Quad-Core Intel® Xeon® processors and six PCIe slots, the HP X3800 Network Storage Gateway sets the standard for performance and expandability in gateway services for your array or Fibre Channel SAN.

HP X3800 Network Storage Gateway   AP797A
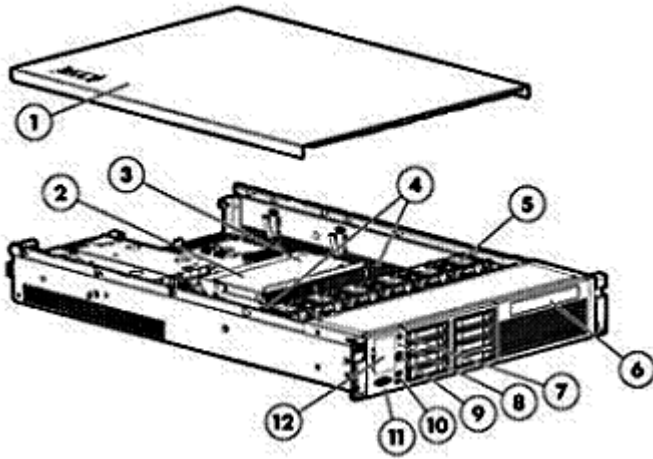
HP X3800 High Availability Shared Storage Solution

HP X3800 Network Storage Gateways can be used in conjunction with array storage to build affordable and highly-available direct-attach unified (file/block) storage solutions.

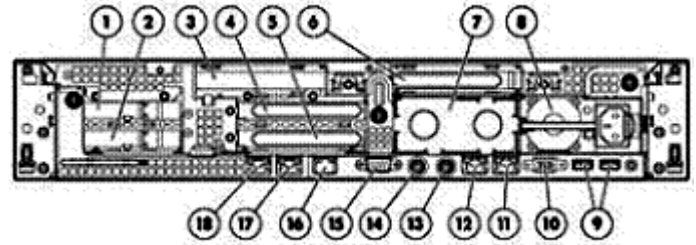HP X3820 2-Node Network Storage Systems   AP800A

Product Overview

Front View:

1. Access panel
2. Quad-Core Intel® Xeon® processor
3. Second Quad-Core Intel® Xeon® processor (standard)
4. DDR3 Registered (RDIMM) memory - eighteen slots
5. System fans, hot plug with N+1 redundancy
6. DVD-RW drive
7. UID LED button
8. Health LED
9. Power On/Standby button and system power LED
10. USB Ports (2)
11. VGA Port
12. Systems Insight Display

Rear View:

1. PCIe slot 5 (open)
2. PCIe slot 6 (open)
3. PCIe slot 4 (open)
4. PCIe slot 2 (open)
5. PCIe slot 3 (open)
6. PCIe slot 1 (open)
7. Power supply 2 (standard)
8. Power supply 1 (standard)
9. USB Ports (2)
10. VGA Port
11. NIC 1 Port
12. NIC 2 Port
13. Mouse connector
14. Keyboard connector
15. Serial Port
16. Integrated Lights-Out 2 management port
17. NIC 3 connector
18. NIC 4 connector

Features and Benefits

Add more data services to your array or SAN	HP X3000 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 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 Gateway nodes with MSA or other entry array.
Optimized file services for clients	In a Windows (SMB/CIFS) environment, there's no better way to serve files. Windows Storage Server 2008 delivers better file serving performance than standard Windows Server, 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 Gateways to enable high availability and scalable performance. Pre-bundled single sku HA solutions now available to make it easier to order.
Seamless integration into your Windows environment	It's running Windows, so it integrates natively into your Active Directory and 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 Network Storage Systems are built on HP ProLiant technology and feature Quad-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 2 with the included Advanced Pack). X3000 Network Storage Systems also integrate with HP Systems Insight Manager (HP SIM) and support ProLiant Support Pack.
Array / SAN Management	An X3000 Gateway can host a variety of storage management applications, including HP Command View EVA. Once you add an X3000 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, Enterprise x64 Edition

- 64-bit processing (compatible with 32-bit applications)
- Microsoft Cluster Server (MSCS) license included
  - NOTE: X3000 Network Storage Gateways may be clustered only with gateways also running Microsoft Windows Storage Server 2008, 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 installation on the same hardware.
- HP-enhanced File Server Management Console: Features the familiar look and feel of the Microsoft Management Console (MMC).
- HP Rapid Startup: Simplifies and accelerates new device deployment by presenting basic system settings on your first boot.
- Single-instance Storage (SIS): Recovers up to 35% of disk space by de-duplicating files and reducing the amount of redundant data stored. Identifies identical 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 or Windows XP.
- 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.
- 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.
- 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 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

Standard Features

Microsoft iSCSI Software Target	Microsoft iSCSI Software Target v3.2

- Microsoft iSCSI Software Target versions 3.1 and 3.2 are interoperable with iSCSI initiators that comply with the standard iSCSI protocol. At the request of certain OEM vendors, Microsoft has tested discovery, log-on/log-off, and I/O of the following non-Microsoft iSCSI initiators to determine interoperability with the Microsoft iSCSI Software Target:
- SUSE Linux Enterprise Server 10
- Red Hat Enterprise Linux 5
- QLogic QLE4062C-SP, firmware 3.00.01.24

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
- 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

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 2 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

Standard Features

- 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	X3800
	Intel® Xeon® Processor E5504 (2.00 GHz, 4MB L3 Cache, 80W, DDR3-800)	2 x Intel® Xeon® Processor E5530 (2.40 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2)

Chipset	
	Intel® 5520 Chipset

Memory	Type	DDR3 Registered (RDIMM) standard	
		X3400	X3800
	Standard	2GB (1 x 2GB)	12GB (6 x 2GB)
	Maximum	72GB	128GB
	DIMM Sockets	9	18

Network Controller		X3400	X3800
	NIC Ports	2 (1 shared with iLO2)	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

Standard Features

Expansion Slots	Slot Number	Bus Speed	Connector Width	Bus Number*	Form Factor	Notes
X3400 1		x16 PCI-Express	x16	21	Full length, full height	
2		x4 PCI-Express	x8	10	Half length, low-profile	Occupied by Smart Array controller
X3800 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 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	X3800
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	**X3800**
	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 146GB 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 (all models)	

Power Supply	**X3400**	**X3800**
	500 Watts, Non Hot Plug, Non Redundant	750 Watts, Hot Plug Redundant, 92% Efficiency

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

NOTE: X3000 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 Network Storage System into a wall receptacle by ordering a separate power cord (see options below).

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

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

QuickSpecs

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 Storage Mirroring Software	HP Storage Mirroring offers a host-based application that performs remote copy over an IP LAN/WAN. Key features include asynchronous replication that can be scheduled to a fine granular level, Logical Unit Number (LUN), file or byte level. Other features include multiple replication configuration options including peer-to-peer and many-to-one. In addition, Storage Mirroring is a very cost effective disaster recovery alternative from one host to another within a LAN, storage center, or between direct attached storage in metro offices and regional centers. Additional configurations allow replication from small office environments to ensure business continuity without an outside IT staff.

For more information on HP Storage Mirroring Software:
http://www.hp.com/go/storageworks/storagemirrorring |
| **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 Network Storage System and disaster recovery in the event of a serious incident. An X3000 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 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 |

Optional Software

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 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
HP File Migration Agent	HP FMA is an automated solution designed to help simplify Windows-based file, web, and application server administration in small business to enterprise environments. This is accomplished through policy-based file migration and archive to popular storage targets, including HP Reference Information Storage System (RISS), and NAS, via Common Internet File System (CIFS). The following Windows Storage Server features or add-ons are currently NOT supported by HP File Archiving software: **NOTE:** Single Instance Storage (SIS) - (NOT SUPPORTED) **NOTE:** DFS-Replication (DFS-R) - (NOT SUPPORTED) **NOTE:** File Server Resource Manager (FSRM) - Content Filter, & File Screening - (NOT SUPPORTED) For more information: http://h18006.www1.hp.com/products/storage/software/fma/
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 HP ProLiant Storage Servers. 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: http://www.hp.com/go/storageessentials

SAN / Array Compatibility

HP X3000 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 Enterprise Virtual Array (EVA)	http://h18006.www1.hp.com/products/storageworks/eva/index.html
	HP Disk Array 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 Modular Smart Array (MSA)	http://h18006.www1.hp.com/storage/disk_storage/msa_diskarrays/index.html

HP X3000 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 and ProLiant Storage Server SAN 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 Enterprise Edition.

Models (Pre-configured)

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

Choose a Pre-configured Model

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

HP X3000 Network Storage Systems

Common Specifications	Operating System	Microsoft Windows Storage Server 2008, Enterprise x64 Edition with Microsoft iSCSI Software Target and a Microsoft Cluster Server (MSCS license)
	Optical Drive	DVD-RW standard for QuickRestore disaster recovery
	Management	Microsoft Management Console (MMC)-based user interface (also accessible via HTTPS)
	Remote Access	HP ProLiant Integrated Lights-Out 2 with Advanced Pack license; Telnet; Remote Desktop
	Factory Racking	The factory can integrate select X3000 Network Storage Systems with other HP products such as HP ProLiant Servers, MSA arrays, or Enterprise Virtual Arrays. NOTE: #0D1 will appear after the part number on the sales order if HP factory integration is supported.

X3400 Gateway

Specifications	Processor	Intel® Xeon® Processor E5504 2.00 GHz; 1 standard
	Memory	2GB (1 x 2GB)
	Storage Controller	Smart Array 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)
	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 Network Storage Gateway   AP796B

X3400 High Availability Shared Storage Solution Bundles

HP X3400 Network Storage Gateways can be used in conjunction with array storage to build affordable and highly-available direct-attach unified (file/block) storage solutions. The following bundles are ordered with a single sku and bundle all the components necessary (except the HDDs for MSA) for either a 1-node HA ready or 2 node full HA solution combining X3400 Network Storage Gateways with an MSA2312sa array for external storage. These solutions are shipped from the factory pre-configured and ready for installation.

NOTE: The X3400 HA Solution Bundles have a license restriction that does not allow the more than two node(s) in the cluster Also, each node in the bundle cannot be expanded beyond one included processor, the included 2GB of memory or beyond the included MSA2312sa enclosure. If it is anticipated that more processors, memory or capacity will be required in the future than what's provided in the bundle then an HA Solution should be ordered separately by using sku AP796A above and all other skus required individually.

NOTE: The HPSC08Ge Host Bus Adapter occupies the second PCIe slot in each X3400 Gateway in these bundles.

Models (Pre-configured)

HP X3410 1-Node Network Storage System   AP798B

The above sku contains all the following:

Component	Part Number	Quantity
HP X3400 Network Storage Gateway* (see note above for restrictions)	AP796B	1
HP SC08Ge Host Bus Adapter	488765-B21	1
HP 2012 Modular Smart Array 3.5-in Drive Bay Chassis (LFF)	AJ948A	1
HP 2300sa G2 Modular Smart Array Controller	AJ808A	1
mini-SAS 4x 2M Cable All	407339-B21	1

HP X3420 2-Node Network Storage System   AP799B

The above sku contains all the following:

Component	Part Number	Quantity
HP X3400 Network Storage Gateway* (see note above for restrictions)	AP796B	2
HP SC08Ge Host Bus Adapter	488765-B21	2
HP 2012 Modular Smart Array 3.5-in Drive Bay Chassis (LFF)	AJ948A	1
HP 2300sa G2 Modular Smart Array Controller	AJ808A	2
mini-SAS 4x 2M Cable All	407339-B21	4

X3800 Gateway

Specifications		
	Processors	Intel® Xeon® Processor E5530 2.40 GHz; 2 standard
	Memory	12GB (6 x 2GB)
	Storage Controller	Embedded Smart Array Controller with internal SAS ports for O/S drives
	Internal Storage	2 x 146GB 6G SAS 10K 3.5" 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

Models (Pre-configured)

HP X3800 Network Storage Gateway	AP797A

X3800 High Availability Shared Storage Solution Bundles

HP X3800 Network Storage Gateways can be used in conjunction with array storage to build affordable and highly-available direct-attach unified (file/block) storage solutions. The following bundle is ordered with a single sku and bundles all the components necessary (except the HDDs for MSA) for a 2 node full HA solution combining X3800 Network Storage Gateways with an MSA2312fc array for external storage. These solutions are shipped from the factory pre-configured and ready for installation.

NOTE: The HP 82E 8Gb Dual-port PCI-e FC HBA occupies one PCIe slot in each X3800 Gateway in these bundles reducing available expansion slots to 5.

NOTE: Drives for the 2312fc MSA must be ordered separately. For more information and specifications for the 2312fc MSA please go to:
http://h18006.www1.hp.com/storage/disk_storage/msa_diskarrays/san_arrays/index.html

HP X3820 2-Node Network Storage System		AP800A

The above sku contains all the following:

Component	Part Number	Quantity
HP X3800 Network Storage Gateway	AP797A	2
HP 2012 Modular Smart Array 3.5-in Drive Bay Chassis (LFF)	AJ948A	1
HP 2300fc G2 Modular Smart Array Controller	AJ798A	2
HP 82E 8Gb Dual-port PCI-e FC HBA	AJ763A	2
2 m LC-LC Multi-Mode Fibre Channel Cable	221692-B21	4

Options

The following options are available for X3000 Network Storage Systems
NOTE: Options ship separately and are not factory integrated.
NOTE: Carefully match options to your model to ensure compatibility.

Add More Memory

NOTE: All models are expandable to 1TB (by O/S license); however, the X3400 model can be physically expanded to 72GB and the X3800 model can be physically expanded to 128GB.
NOTE: Number of available DIMM sockets varies by model.

X3400 / X3800	Registered DIMMs (RDIMMs)	
	HP 2GB 2Rx8 PC3-10600R-9 Kit	500656-B21
	HP 4GB 2Rx4 PC3-10600R-9 Kit	500658-B21
	HP 4GB 4Rx8 PC3-8500R-7 LP Kit	500660-B21
	HP 8GB 2Rx4 PC3-8500R-7 Kit	516423-B21

NOTE: All DDR3 memory option kits consist of one DIMM per kit.
NOTE: Kits described as LP include Low Power DIMMs.

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 / X3800	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
	HP NC522SFP Dual Port 10GbE Server Adapter	468332-B21

NOTE: A minimum of two gigabyte (2 GB) of server memory is required per each NC522SFP adapter.

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

X3400	Dedicated Integrated Lights-Out 2 management port	514206-B21

Options

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	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)	
X3400/X3800	Fibre Channel HBAs	
	NOTE: Fibre Channel HBAs enable connection to HP XP, EVA, and MSA2000fc arrays and Fibre Channel SANs. For more information on Fibre Channel HBAs, see: http://h18006.www1.hp.com/storage/saninfrastructure/hba.html.	
	Brocade Fibre Channel HBAs	
	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

Add Storage

HP X3000 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.

X3400 / X3800	Brocade Fibre Channel HBAs	
	HP 81B PCIe 8Gb FC Single Port HBA	AP769A

Options

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.
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 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

HP P411/256 Smart Array Controller	462830-B21
HP P411/512 BBWC Smart Array Controller	462832-B21

Options

	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 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 / X3800

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
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) For upgrading AJ954A or AJ955A to dual controller, high availability configurations	AJ956A

Options

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
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

Options

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
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

Options

HP MSA2 1TB 7.2K 3.5-inch SATA LFF HDD	AJ740A

X3400 (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 450GB 3G SAS 15K LFF (3.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	454232-B21
HP 300GB 6G SAS 15K LFF (3.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	516814-B21
HP 300GB 3G SAS 15K LFF (3.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	416127-B21
HP 146GB 3G SAS 15K LFF (3.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	384854-B21
HP 1TB 3G SAS 7.2K rpm LFF(3.5-inch) Dual Port Midline 1yr Warranty Hard Drive	461137-B21
HP 750GB 3G SAS 7.2K rpm LFF(3.5-inch) Dual Port Midline 1yr Warranty Hard Drive	461135-B21

SATA Midline (MDL) and Entry (ETY) Drives 3.5", Hot Plug

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) Midline 1yr Warranty Hard Drive	458926-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

X3800 (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 300GB 6G SAS 10K SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	507127-B21
HP 300GB 3G SAS 10K SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	492620-B21
HP 146GB 6G SAS 15K SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	512547-B21
HP 146GB 3G SAS 15K SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	504062-B21
HP 146GB 6G SAS 10K SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	507125-B21
HP 146GB 3G SAS 10K SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	418367-B21
HP 72GB 6G SAS 15K SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	512545-B21
HP 72GB 3G SAS 15K SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	418371-B21
HP 500GB 6G SAS 7.2K rpm SFF (2.5inch) Midline 1yr Warranty Hard Drive	507610-B21

SATA Hot Plug Midline (MDL and Entry (ETY) Drives

HP 500GB 3G SATA 7.2K rpm SFF (2.5-inch) Midline 1yr Warranty Hard Drive	507750-B21
HP 160GB 3G SATA 7.2K rpm SFF (2.5-inch) Midline 1yr Warranty Hard Drive	530888-B21
HP 250GB 3G SATA 5.4K rpm SFF (2.5-inch) Entry 1yr Warranty Hard Drive	460355-B21
HP 120GB 1.5G SATA 5.4K rpm SFF (2.5-inch) Entry 1yr Warranty Hard Drive	458924-B21

SATA Hot Plug Midline (MDL) Solid State Drives

Options

HP 120GB 3G SATA 2.5in MDL 1y Wty SSD	572073-B21

Add a Power Cord

HP X3000 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 / X3800	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 Optional Software

X3400 / X3800   **HP Storage Mirroring Software v5.2**

Natural and man-made disasters can occur when you least expect it – serving as a reminder that in less than a moment's notice, volumes of data loss can occur. To prevent data loss from failure, error, or disaster, HP Storage Mirroring Software provides replication and recovery of valuable Windows and Linux data to another server. Proactive replication is a key strategy coupled with tape backup and snapshot technology for up-to-the-second data protection. Having replicated data co-located enables customers to recover their static and transactional data in seconds to minutes.

Patented replication and failover technology continuously captures byte-level data changes as they occur in your production environment and replicates those changes to one or more servers in any location without geographic limitations. By replicating only the bytes that change, Storage Mirroring Software uses the absolute minimum bandwidth required to replicate customer data. The software does not require special hardware to run and utilizes existing LAN or WAN infrastructure -saving time, additional investment, and maintenance. Storage Mirroring software is storage independent and will support any DAS, NAS, and SAN storage device. Additional flexibility is achieved with Windows and Linux operating system support. Storage Mirroring works on Windows Server 2003, Windows Server 2008, Windows Storage Server, 64-bit Windows, Windows on Itanium and Red Hat Linux. The platform

flexibility, resource optimization, and application-specific protection enable customers to solidify their data and disaster protection strategies.

Special note about Microsoft iSCSI Software Target and replication:
All X3000 Network Storage Systems include the Distributed File System Replication (DFS-R) feature in the pre-installed Windows Storage Server 2008 operating system. DFS-R is a file-based replication technology that only replicates files when they are closed. Microsoft iSCSI Software Target does not close the virtual disk files (.vhd files) while they are in use, and so these files are not replicated during normal usage when replicating using DFS-R. Therefore, if iSCSI Software Target virtual disk files need to be replicated, DFS-R should not be used, and HP Storage Mirroring software should be considered instead. Storage Mirroring software asynchronously replicates each write into the file system to a secondary system, and therefore it can be used to effectively replicate iSCSI Software Target virtual disk files.

Stock LTU (channel stocked license(s))
E-LTU (electronic delivery – order any number of licenses – 10 or higher)
LTU (paper delivery which replaces all previous 10 pack licenses–an alternative to electronic delivery)

NOTE: For more information on HP Storage Mirroring Software:
http://www.hp.com/go/storageworks/storagemirroring

HP ProLiant G5 SAN Gateway Storage Servers

HP X3000 Upgrade to Windows Storage Server 2008 Enterprise Software
Select ProLiant G5 SAN Gateway Storage Servers with the Microsoft Windows Unified Data Storage Server 2003 Enterprise x64 Edition operating system are eligible for a software-only upgrade to the Microsoft Windows Storage Server 2008 Enterprise x64 Edition operating system:

- DL380 G5 x64 SAN Storage Server (AG771A)
- DL380 G5 SAN Gateway Storage Server (AG771B)
- SB460c SAN Gateway Storage Server (AN583A)

This upgrade requires a clean install and contains all X3000 Network Storage System features, including Microsoft iSCSI Software Target and a Microsoft Cluster Server (MSCS) license.

NOTE: X3000 Network Storage Gateways may be clustered only with gateways also running Microsoft Windows Storage Server 2008, Enterprise x64 Edition operating system (HP recommends like hardware as well).

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

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

HP X3000 Upgrade to Windows Storage Server 2008 Enterprise Software   TA726A

Options

Add a Backup Solution

NOTE: For the complete listing of data protection offerings for X3000 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 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/hps/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

Service and Support, HP Care Pack, and Warranty Information

http://www.hp.com/go/lookuptool

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 Storage Systems
For smooth startup, HP Installation and Startup Service for X1000/X3000 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

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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

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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

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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/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 |

Memory

Standard Memory
DDR3 Registered (RDIMM) with ECC Capabilities

- 2GB (1 x 2GB): X3400
- 12GB (6 x 2GB): X3800

Maximum Memory

- 1TB (by O/S license)
- Physical maximums:
    - X3400: 72 GB
    - X3800: 128GB

DDR3 memory population guidelines

Installation guidelines for additional memory are summarized below:

- For X3400 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 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), HP ProLiant DL380 G6 Server (X3800), or the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator
Memory options:

Registered DIMMs (RDIMMs)

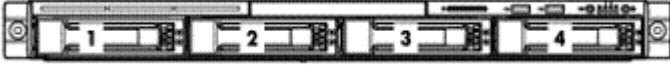|	
HP 2GB 2Rx8 PC3-10600R-9 Kit	500656-B21
HP 4GB 2Rx4 PC3-10600R-9 Kit	500658-B21
HP 4GB 4Rx8 PC3-8500R-7 LP Kit	500660-B21
HP 8GB 2Rx4 PC3-8500R-7 Kit	516423-B21

NOTE: All DDR3 memory option kits consist of one DIMM per kit.
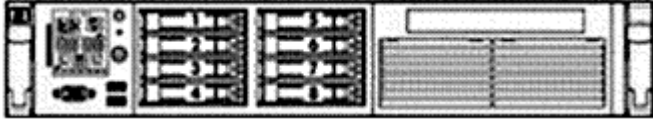NOTE: Kits described as LP include Low Power DIMMs.

Storage

X3400

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

X3800

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	2 x 300GB 6G 15K LFF SAS	1, 2 (X3400)	RAID1 (Drives 1, 2)	Internal drives connected to SA P212 internal SAS port
X3800	2 x 146GB 6G 10K SFF SAS	1, 2 (X3800)	RAID1 (Drives 1, 2)	Internal drives connected to embedded SA P410i

Power Specifications

X3400

HP 500W Power Supply

Part Number - AC 500W PSU	537150-B21					
Input Voltage Range (Vrms)	100 to 240					
Frequency Range (Nominal) (Hz)	47/63					
Nominal Input Voltage (Vrms)	100	120	200	220	230	240
Maximum Rated Output Wattage	500	500	500	500	500	500
Nominal Input Current (A rms)	5.74	4.99	2.86	2.58	2.46	2.36
Max Rated Input Wattage Rating (Watts)	568	568	562	556	556	556
Max. Rated VA (Volt-Amp)	574	574	573	567	567	567
Efficiency (%) at Max. Rated Output Wattage	88	88	89	90	90	90
Power Factor	0.99	0.99	0.98	0.98	0.98	0.98
Leakage Current (mA)	0.42	0.50	0.81	0.91	0.95	1.00
Max. Inrush Current (A peak)				30		
Max. Inrush Current duration (mS)				20		
Maximum British Thermal Unit Rating (BTU-Hr)						

X3800

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

Technical Specifications

X3400

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

Technical Specifications

	LpAm	52.07dBA
Operating		
	LWAd	6.38 B
	LpAm	52.77 dBA

X3800

System Unit	Dimensions (H x W x D) (with bezel)		3.38 x 17.54 x 27.25 in (8.59 x 44.54 x 69.98 cm)
	Weight (approximate)	Maximum (all hard drives, power supply, and processor installed)	60 lb (27.22 kg)
	Input Requirements (per power supply)	Rated Line Voltage	100 to 240 VAC
		Rated Input Current	7.1 Amps (at 120VAC) to 3.5 Amps (at 240 VAC)
		Rated Input Frequency	50 to 60 Hz
	BTU Rating	Maximum	750W - 2892 BTU / hr (at 120 VAC), 2797 (at 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

Technical Specifications

accordance with ISO 9296 (ECMA 109).

NOTE: The Listed sound levels apply to standard shipping configurations. Additional options may result in increased sound levels.

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.

X3400

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

HP NC382i Dual Port Multifunction Gigabit Server Adapters	Network Interface Compatibility	10Base-T/100Base-TX/1000Base-TX	
		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.