



# Meet growing storage needs for your blade servers

HP Storage Blade family



HP IO Accelerator for BladeSystem c-Class



HP D2200sb Storage Blade



HP StoreEasy 3830 Gateway Storage Blade



HP LTO Ultrium Tape Blades

Now that you have realized the substantial benefits of owning an HP BladeSystem, look to HP for your storage and data protection needs. Easily integrate internal storage blades into HP BladeSystem c-Class enclosures and further expand your external storage capacity using your existing NAS or SAN deployments. The broad portfolio of solutions from HP is designed to address specific storage challenges of organizations, regardless of its size.

## HP BladeSystem integrates storage and data protection

You have deployed an HP BladeSystem c-Class solution and successfully removed the barriers often found in “racked, stacked, and wired” data centers. Now you are looking at storage products and solutions that can meet your IT and business needs.

We provide a portfolio of direct attached, NAS, iSCSI, SAN, tape, and external storage solutions for HP BladeSystem, encompassing all your storage requirements. Configure up to 43.2 TB SAS or 48 TB SATA of shared storage in a HP BladeSystem c3000 enclosure or 86.4 TB SAS or 96 TB SATA of shared storage in a HP BladeSystem c7000 enclosure.

# HP IO Accelerator for BladeSystem c-Class



Is your business facing constant bottlenecks in application performance? Are you concerned about real-time data access?

HP IO Accelerator for BladeSystem c-Class is part of a comprehensive solid state storage portfolio from HP. It is targeted for markets and applications requiring high transaction rates and real-time data access that will benefit from application performance enhancement. HP IO Accelerator offers the equivalent storage performance of multiple disks. It also brings high I/O performance and low latency access to storage, with the reliability of solid state.

## Key features and benefits

### Higher performance

- Provides high read-and-write performance and accelerated application performance (up to 530K IOPs) for customers with high I/O requirements that buy large arrays in order to get the performance from large number of drives
- Offers high speed, (up to 1.5 GB/s) augmenting existing NAS/SAN HDD-based solutions, for customers with applications requiring high transaction rates and real-time data access
- Provides enhanced productivity for customers with local data high speed access (~50 microseconds)

### Low power consumption

- Unlike traditional hard drives, the HP IO Accelerator uses Solid State Disk Drives (SSDs). SSD's can shift to very low power modes

### Technical specifications

	HP IO Accelerator	HP IO Accelerator G2
<b>Capacity</b>	320 GB, 640 GB Native maximum, depending on model	365 GB, 785 GB, 1.2 TB Native maximum, depending on model
<b>BladeSystem supported</b>	HP BladeSystem c3000 and c7000	HP BladeSystem c3000 and c7000
<b>HP ProLiant Blade Servers supported</b>	BL2x220c G6, BL280c G6, BL460c G6, BL460c G7, BL490c G6, BL490c G7, BL465c G6, BL465c G7, BL495c G6, BL620c G7, BL680c G7, BL685c G6, BL685c G7	BL420c Gen8, BL460c Gen8, BL465c Gen8, BL660c Gen8
<b>Maximum IOPS</b>	140,000 IO/sec	530,000 IO/Sec
<b>OS supported</b>	OS-RHEL 4, OS-RHEL 5, OS-RHEL 6, OS-RHEL 6.1, SUSE Linux Enterprise Server 10, SUSE Linux Enterprise Server 11, Microsoft® Windows® Server 2003 SP2, Microsoft Windows Server 2008 R1 with SP2 or higher, Microsoft Windows Server 2008 R2, VMware ESX 4.0 Update 1, VMware ESXi 5.0 <b>Note:</b> • VMware ESX Partner supported. • VMware ESX CIM provider or SNMP provider are currently not available. <b>Important:</b> All operating systems must be 64-bit architecture.	Microsoft Windows Server 2008 R1 with SP2 or higher, Microsoft Windows Server 2008 R2, Microsoft Windows Hyper-V, OS-RHEL 5.7, OS-RHEL 6.1, SUSE Linux Enterprise Server 10, SUSE Linux Enterprise Server 11, VMware ESX 4.1, VMware ESXi 5.x <b>Note:</b> • Microsoft Windows HPC Server 2008 (x64) - SP2 and R2 w/SP1 and ESXi 4.1 OS are also supported • VMware ESX Partner supported • VMware ESX CIM provider or SNMP provider are currently not available <b>Important:</b> All operating systems must be 64-bit architecture.
<b>Warranty (parts-labor-onsite)</b>	3-year parts only	3-year parts only

quickly and return to full performance, without the penalty of delays associated with waiting for a disk to spin back up

- Implementing HP IO Accelerator SSD's lower average power consumption reduces the demands on the data center to cool systems
- Having different availability characteristics, NAND storage delivers superior IOPs performance, lower power consumption, and rack space requirements

### Enhances business-critical applications

- Enables faster performance with rapid response where output must be a few seconds or less
- Reduces rendering time by achieving real-time rendering
- Data mining in customer relationship management applications can contribute significantly to the bottom line; contact customers with high likelihood of responding to an offer

HP IO Accelerator for BladeSystem c-Class enhances application performance with superior storage I/Os, and read-write performance for businesses with high transaction rates requiring real-time data access.

# HP D2200sb Storage Blade



HP D2200sb Storage Blade is ideal for existing and new HP BladeSystem c-class customers, who want a direct-attached or shared storage.

## Key features and benefits

### High-performance direct attached storage

- Supports 12 universal small form factor hot-plug SAS hard disk drives that expands the spindle count for the adjacent blade server providing 96 TB of storage capacity in a HP BladeSystem c7000 enclosure
- Provides peak direct attached storage (DAS) performance through a high-speed PCI Express (PCIe) connection to adjacent c-Class server blade

- Includes an HP Smart Array P410i controller 1 GB flash-backed write cache, for increased performance and data protection
- Comes with shared storage inside the enclosure or across enclosures through iSCSI when configured with a blade server running HP StoreVirtual VSA

Providing direct attached storage for c-Class servers, the D2200sb Storage Blade supports up to 12 universal hot-plug SFF SAS hard disk drives. Pair it with the HP StoreVirtual VSA Software to turn the D2200sb Storage Blade into an iSCSI SAN for use by all servers in the enclosure and any server on the network.

## Technical specifications

<b>Hard drives</b>	<b>SAS Hot Plug SFF Enterprise Drives</b> 900 GB 6G 10K SFF DP HDD; 1 TB 3G 7.2K LFF MDL SATA; 200 GB SLC SAS SSD; 400 GB SLC SAS SSD; 200 GB MLC SAS SSD; 400 GB MLC SAS SSD; 800 GB MLC SAS SSD; 60 GB 3G SLC SATA MDL SSD; 120 GB 3G SLC SATA MDL SSD Drive Please refer to Quick Specs for the complete list of supported drives.
<b>Internal drive support</b>	Supports up to 12 SAS universal hot plug hard disk drives
<b>Protocol support</b>	Connects to adjacent c-Class Server Blade using PCI Express
<b>Storage capacity</b>	Storage capacity Up to 12 TB SATA/10.8 TB SAS per storage blade
<b>RAID support</b>	RAID 0, 1+0, 5, 6 with Advanced Data Guarding
<b>Server blade support</b>	Supports all BladeSystem c-Class server blades Note: HP PCI Express Mezzanine Pass-Thru Card for HP BladeSystem c-Class is required to support HP BladeSystem c-Class full-height server blades
<b>Form factor</b>	Fits into a half-height bay on the BladeSystem c3000 and c7000 enclosures
<b>OS supported</b>	Microsoft Windows 2003 Microsoft Windows 2008 Red Hat Linux; SUSE Linux VMware ESX
<b>Warranty</b>	3-year parts, 3-year labor, 3-year NBD onsite
<b>QuickSpec URL</b>	<a href="http://h18000.www1.hp.com/products/quickspecs/13714_div/13714_div.pdf">http://h18000.www1.hp.com/products/quickspecs/13714_div/13714_div.pdf</a>

# HP StoreEasy 3830 Gateway Storage Blade



The HP StoreEasy 3830 Gateway Storage Blade is a new breed of efficient, secure, and highly available storage to simply address the file storage challenges of customers' medium to large business and branch office SAN environments. The StoreEasy 3830 Gateway Storage Blade, built on industry leading ProLiant DNA and Microsoft Windows Storage Server, integrates easily into new and existing SAN environments with a straightforward, consistent management experience for IT generalists or storage administrators.

## Key features and benefits

### Efficiently Enhance Your Enterprise Resources While Saving Money

- Support large numbers of users concurrently accessing their files thanks to a high performance file serving controller and a range of drive media
- Increase capacity use with non-intrusive data de-duplication that provides an average 50-60% in space savings
- Leverage advanced data management to automatically enhance resource use, enable compliance with data retention policies, and apply added protection to sensitive files
- Consolidate multiple workloads and roles in a single platform with included support for a broad range of file access protocols, Microsoft Hyper-V and SQL Server application storage, iSCSI block access, and support for services such as print, DNS, and DHCP
- Reduce branch office WAN usage by automatically caching frequently accessed corporate data center files with Hosted BranchCache

### Security is Built-in with Onboard Data Protection

- Install and run endpoint protection such as antivirus on the system itself—eliminating the cost and complexity of connecting an external endpoint protection server
- Prevent against data loss with Volume Shadow Copy Service online snapshots and support for agent based backup software
- Protect data while at rest with file system encryption and while it is being transferred with SMB 3.0 encryption and signing

### Highly Available, Reliable and Robust Platform

- Increase uptime with such standard features as clustering, constant health monitoring with HP Active Health System, mirrored operating system disks, hot plug redundant fans and power, advanced memory protection, and a 3-year onsite warranty
- Confidently deploy large volumes leveraging improved file system self-healing, file system online analysis, and greatly reduced downtime for corruption correction
- Built on Microsoft Windows Storage Server 2012

Flexible SAN gateway built for HP BladeSystem, consolidates file-serving access onto Fibre Channel, SAS, or iSCSI storage and increases efficiency of existing SAN infrastructure.

## Technical specifications

### HP StoreEasy 3830 Gateway Storage Blade



<b>Drive description</b>	2 SFF SAS, included Mirrored OS image preinstalled
<b>Drive type</b>	2 x 450 GB 6G 10K SFF SAS
<b>Processor</b>	One Intel® Xeon® Processor E5-2609 (2.40 GHz)
<b>Processor cache</b>	10 MB L3
<b>Memory</b>	16 GB PC3L-10600R-9 DIMMs, included
<b>Capacity</b>	900 GB raw internal SAS 0 GB usable Internal drive capacity for OS mirror only, X3800sb G2 is designed to utilize external array/SAN storage
<b>Storage expansion options</b>	Attach to 3PAR StoreServ, P4000, P2000, EVA/P6000, XP/P9500 arrays
<b>BladeSystem supported</b>	HP BladeSystem c3000 and c7000 enclosures
<b>Maximum blades per enclosure</b>	Up to 16 StoreEasy 3830 per c7000 enclosure and up to 8 StoreEasy 3830 per c3000 enclosure
<b>Network controller</b>	One HP FlexFabric 10Gb 2-port 554FLB FlexibleLOM
<b>Storage controllers</b>	One HP Smart Array P220i Controller with 512MB Flash-Backed Write Cache (FBWC)
<b>Expansion slots</b>	Two I/O expansion mezzanine slots
<b>Supported operating systems</b>	Windows Storage Server 2012, Standard Edition installed
<b>Management</b>	Windows Server Manager
<b>Number of users</b>	Range: 100–3300
<b>Form factor</b>	Half-height BladeSystem c-Class
<b>Warranty</b>	3-year parts, 3-year labor, 3-year onsite
<b>QuickSpec URL</b>	<a href="http://h18000.www1.hp.com/products/quickspecs/13842_div/13842_div.PDF">http://h18000.www1.hp.com/products/quickspecs/13842_div/13842_div.PDF</a>

# HP StoreEver LTO Ultrium Tape Blades



Exclusive to HP BladeSystem c-Class environments, HP StoreEver LTO-5 SB3000c Tape Blade and HP StoreEver LTO-4 SB1760c Tape Blade deliver versatile, integrated tape backup solutions that are ideal if you are looking for a data protection solution integrated into the blade enclosure.

These half-height tape blades provide direct-attach data protection for the adjacent server and network backup protection for all data residing within the enclosure. They offer a complete data protection, disaster recovery, and archiving solution for BladeSystem c-Class customers.

With HP TapeAssure customers can be confident that their data is safe by monitoring drive and media utilization, operational performance, and life or health information for drive and media. In addition, each tape blade supports HP One-Button Disaster Recovery (OBDR) solution, which allows quick recovery of the operating system, applications, and data from the latest full backup set. HP LTO Ultrium Tape Blades are the industry's first tape blades and are developed exclusively for HP BladeSystem c-Class enclosures.

## Key features and benefits

### Integrated data protection solution

- Tape-based data protection solution that integrates in the enclosure and utilizes enclosure management tools such as Onboard Administrator (OA)
- HP LTO Ultrium Tape Blades protect data by occupying only a single half-height slot

### Complete data protection and disaster recovery solution

- HP LTO Ultrium Tape Blades ship standard with the option to download Yosemite Server Backup Basic software.
- HP TapeAssure offers customers the ability to make the best use of their investment and be confident that their data is safe by monitoring drive and media utilization, operational performance, and life or health information for drive and media, allowing the switch from reactive to proactive management.

- LTO-5 SB3000c and LTO-4 SB1760c Tape Blades offer AES 256-bit hardware data encryption, providing easy-to-enable security to protect the most sensitive data and prevent unauthorized access of tape cartridges.
- LTO-5 SB3000c Tape Blade with LTFS makes cartridges become self-describing, file-based, and easy-to-use, providing users with the ability to use standard file operations on tape media for accessing, managing and sharing files with an interface that behaves just like a hard disk. In addition, LTFS provides the ability to share data across platforms, as you would with a USB drive or memory stick. Simply load a tape into the drive, mount it into the file system, and it becomes visible as a disk.
- HP LTO Ultrium Tape Blades support HP OBDR, which allows quick recovery of operating system, applications, and data from the latest backup set in the event of a hard drive failure.

### Versatile data protection solution

- HP LTO Ultrium Tape Blades provide direct attach data protection of adjacent server and network backup of all other data residing within the BladeSystem c-Class enclosure. They protect both half-height and full-height BladeSystem c-Class server blades.
- An option to download Yosemite Server Backup Basic software is provided with HP Ultrium Tape Blades, which includes support for hardware data encryption and OBDR, cables, and documentation.

Integrates and protects all data residing in the enclosure and provides increased data security with hardware encryption capability.

## Technical specifications



	<b>HP StoreEver LTO-5 SB3000c Tape Blade</b>	<b>HP StoreEver LTO-4 SC1760c Tape Blade</b>
<b>Recording technology</b>	LTO-5 Ultrium	LTO-4 Ultrium
<b>Maximum capacity (Compressed)</b>	3 TB	1.6 TB
<b>Sustained transfer rate (Compressed 2:1)</b>	1 TB/hr	576 GB/hr
<b>Buffer size</b>	256 MB	128 MB
<b>Interface</b>	6 Gb/SAS	3 Gb/SAS
<b>Worm capability</b>	Yes	Yes
<b>Encryption capability</b>	AES 256-bit	AES 256-bit
<b>BladeSystem supported</b>	HP BladeSystem c-Class	
<b>Maximum blades per enclosure</b>	Max configuration of 8 tape blades with 8 half-height server blades in an HP BladeSystem c-Class c7000 enclosure. Max configuration of 4 tape blades with 4 half-height server blades in an HP BladeSystem c-Class c3000 enclosure.	
<b>Form factor</b>	Half-height BladeSystem c-Class blade form factor	
<b>Warranty</b>	3-year parts only	
<b>QuickSpec URL</b>	<a href="http://h18000.www1.hp.com/products/quickspecs/12729_div/12729_div.pdf">http://h18000.www1.hp.com/products/quickspecs/12729_div/12729_div.pdf</a>	