

### Overview

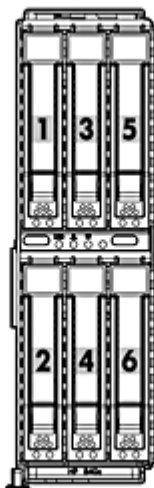
Do you need a direct attached or shared storage solution within your BladeSystem enclosure?

#### Direct attached storage

The StorageWorks SB40c Storage Blade delivers direct attached storage for c-Class servers, with support for up to six hot plug small form factor (SFF) SAS or SATA hard disk drives. The enclosure backplane provides a PCI Express connection to the adjacent c-Class server blade and enables high performance storage access without any additional cables. The SB40c Storage Blade features an onboard Smart Array P400 controller with 256 MB battery-backed write cache, for increased performance and data protection.

#### Shared storage

Use HP LeftHand P4000 Virtual SAN Appliance (VSA) software to turn the SB40c into an iSCSI SAN for use by all servers in the enclosure and any server on the network. HP LeftHand VSA software is installed in a virtual machine on a VMware ESX host server adjacent to the SB40c. HP LeftHand P4000 VSA turns the SB40c into a scalable and robust iSCSI SAN, featuring, storage clustering for scalability, Network RAID for storage failover, thin provisioning, snapshots, remote replication, and cloning. Expand capacity within the same enclosure or to other Bladesystem enclosures by adding additional SB40c Storage Blades and HP LeftHand VSA licenses. A cost effective bundle of the SB40c Storage Blade and a HP LeftHand P4000 VSA license makes purchasing convenient. If storage needs increase, add HP P4300 or P4500 systems externally and manage everything via a single pane of glass.



1. Hard Drive Bay 1
2. Hard Drive Bay 2
3. Hard Drive Bay 3

4. Hard Drive Bay 4
5. Hard Drive Bay 5
6. Hard Drive Bay 6

### What's New

- A specially priced bundle of the SB40c Storage Blade and LeftHand P4000 VSA license makes purchasing convenient.

### Overview

#### At A Glance

- **Storage Controller:**
  - Smart Array P400 controller with 256 MB cache, supports RAID 0/1/5/6 (ADG).
- **Internal Drive Support:**
  - Supports up to six (6) SAS or SATA Universal hot plug hard disk drives
  - Mix SAS and SATA drives in the same SB40c
- **Form Factor:**
  - Half-height c-Class storage blade
- **Warranty:**
  - Protected by HP Services and a worldwide network of HP Authorized Channel Partners. Three-year parts, 3 Year Labor and 3 Year on-site limited global warranty. Certain restrictions and exclusions apply. SATA hard drives have a one year warranty. SAS hard Drives have a three year warranty.

#### Models

HP StorageWorks SB40c Storage Blade	411243-B21
HP StorageWorks SB40c Configure-to-order Storage Blade	434879-B21
HP StorageWorks SB40c Storage Blade w/(4) 300GB 10K SAS 2.5-inch ENT HDD Bundle	AP762A
HP StorageWorks SB40c Storage Blade and HP LeftHand VSA bundle	AT459A

**NOTE:** Includes the SB40c Storage Blade and a single LeftHand P4000 VSA license. LeftHand VSA software is installed in a virtual machine on a VMware ESX host server adjacent to the SB40c.

**NOTE:** Includes 1 yr 9x5 software support for LeftHand P4000 VSA software.

**NOTE:** LeftHand P4000 VSA is supported on VMware ESX 3.0.2, 3.5 and ESX i version 3.5

For detailed deployment information, see the HP LeftHand P4000 VSA in an HP BladeSystem environment solution guide:

<http://bizsupport1.austin.hp.com/bc/docs/support/SupportManual/c01729139/c01729139.pdf>

### Product Highlights

#### Key Features

##### Features of the SB40c include:

SFF (SAS/SATA) support - Delivering data transfer rates up to 3 Gb/s for SAS and 1.5 Gb/s for SATA

- Support for up to six (6) hot plug SFF SAS or SATA Universal drives in a half-height blade
- Internal Smart Array P400 controller with 256 MB DDR2 BBWC
- Simple configuration and setup with HP's Array Configuration Utility (ACU)
- Easy to maintain and troubleshoot with industry standard management tools including HP System Insight Manager
- Use with HP LeftHand Virtual SAN Appliance software to create a robust shared storage environment inside BladeSystem enclosures

#### Mix and Match of Hard Drive Types

A benefit of SAS and SATA is the use of a common physical connection which allows for both drive types to be supported by the same storage device. This common backplane allows customers the choice of using SAS and/or SATA, allowing customers to choose the reliability of SAS or the lower cost of SATA for tiered storage.

#### Universal hot plug Hard Drive

Form factor is for use across multiple HP ProLiant servers, disk enclosures and storage systems. With compatibility across many enterprise platforms, you are free to deploy and re-deploy these drives to quickly deliver increased storage capacity, migrate data between systems, and easily manage spare drives.

#### LED Indicators

Front panel LEDs indicate drive activity and system health status.

#### Density

The SB40c fits into a half height bay on the BladeSystem c3000 and c7000 Enclosure.

#### Fault Tolerance

Using the internal Smart Array P400 controller with 256 MB DDR2 BBWC, the SB40c can be configured for RAID levels 0, 1, 1 + 0, 5, and 6 (RAID ADG)

#### Manageability

All Smart Array products utilize a standard set of management and utility software. These tools minimize Total Cost of Ownership (TCO) by reducing training requirements and technical expertise necessary to install and maintain the HP server storage.

### Product Highlights

#### Fault Prevention

The following features offer detection of possible failures before they occur, allowing preventive action to be taken:

- S.M.A.R.T.: Self Monitoring Analysis and Reporting Technology first developed at HP detects possible hard disk failure before it occurs, allowing replacement of the component before failure occurs.
- Drive Parameter Tracking monitors drive operational parameters, predicting failure and notifying the administrator.
- Dynamic Sector Repairing continually performs background surface scans on the hard disk drives during inactive periods and automatically remaps bad sectors, ensuring data integrity.
- Smart Array Cache Tracking monitors integrity of controller cache, allowing pre-failure preventative maintenance.
- Environment Tracking for External Storage System: Monitors fan speed and cabinet temperature of ProLiant Storage System and newer HP storage enclosures.

#### Operating Systems

Microsoft Windows Server 2003, 2008  
HP-UX 11i v3, HP-UX 11i v2 (when configured to HP Integrity BL860c sever blade only)  
OpenVMS (when configured with HP Integrity BL860c sever blade only)  
Red Hat Enterprise Linux  
SUSE LINUX Enterprise Server  
VMware  
Solaris

**NOTE:** For more information on HP's Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server, please visit our Support Matrix at: <http://www.hp.com/go/supportos>.

#### Software Suite

##### Systems Insight Manager

- Powerful server and server options/storage manager tool
- Monitors over 1,200 system wide parameters
- Configuration/Diagnostic Utilities

##### HP Array Configuration Utility (ACU)

- Powerful Web based configuration utility for all Smart Array controllers
- Provides a graphical view of HP drive array configurations
- Allows for management of multiple arrays over a secure internet connection from anywhere in the world
- Easy to use Wizards for configuration
- Runs offline for all supported Operating Systems and runs online for Windows and Linux. For online configuration of NetWare, use CPQONLIN

##### HP Option ROM Configuration for Arrays (ORCA)

- A simple method for managing logical drives during system power up by pressing F8 during POST
- Allows the ability to create arrays, logical drives, and assign an online spare drive
- Allows the ability to view and delete logical drives
- Allows the ability to select the boot controller or advanced array configurations use ACU

##### HP Array Diagnostic Utility (ADU)

## *Product Highlights*

- In depth diagnostic and reporting utility for all Smart Array controllers
- Runs offline for all supported Operating Systems, and runs online for Windows and Linux

### Service and Support, HP Care Pack, and Warranty Information

<b>Warranty</b>	Protected by HP Services and a worldwide network of HP Authorized Channel Partners. Three-year parts, 3 Year Labor and 3 Year on-site limited global warranty. Certain restrictions and exclusions apply. Hard drive Pre-Failure Warranty: When used with any one of the Smart Array Family controllers and monitored under HP Systems Insight Manager (v4.20 or later), HP hard drives are supported by a Pre-Failure (replacement) Warranty. SATA hard drives have a one year warranty.
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#### HP Care Pack Services. Scalable, Flexible, Dependable. Like your storage.

Your storage is evolving. Get scalable support that evolves with it. HP Care Pack Services is an easy-to-buy, easy-to-use portfolio of packaged services covering your lifecycle needs. You can rely on our highly skilled, HP certified professionals to offer a breadth of expertise across leading storage technologies, and work side by side with you for optimal results. Partner with HP Technology Services to boost availability and avoid costly downtime by mitigating technology-related business risks. To help take the worry out of deploying, supporting and managing your storage technologies, we've designed a portfolio of service options that are as flexible, scalable and affordable as our storage.

#### Protect your business beyond the warranty

Standard warranty protects against product defects and some causes of downtime. HP Care Pack Services helps you proactively guard against unplanned downtime which can reduce your productivity and profitability. By using a standard approach to warranty uplifts, such as HP Care Pack Services, customers can be certain of consistency of operations for both mission-critical and standard business computing.

#### Extending warranties with HP Care Pack Services

The key to normalizing the warranty of combined solutions-is making service uplift simple: HP Care Pack Services. This portfolio of predefined packages, extending across the entire IT lifecycle, offering consulting, education, technical support, optimization, risk assessment, and more. It's entirely flexible allowing customers to extend the cover to the precise level of support required. Customer's standard hardware warranty, for example, can be upgraded to next-business-day response, to same-day coverage, or even to a committed six-hour call-to-repair service available 24 hours every day of the week.

Provide consistent, predictable levels of support across your entire department or business  
Give you direct access to proven technical and problem-solving expertise  
Offer a choice of response-time and repair-time commitments  
Are available whenever and wherever you do business

For many products, post-warranty HP Care Pack Services are available when your original warranty has expired. Choose the support levels that meet your business requirements, from basic to mission-critical. In the new world of business technology, when your technology has to work for your business to work, who can you trust to make your technology work? HP Technology 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.

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<b>Recommended Services</b>	<b>HP Care Pack Services recommended for optimal satisfaction of all deployments of your product.</b>
	3-Year HP Support Plus 24 3-Year HP Support Plus 24 provides integrated hardware and software support services designed specifically for your technology. HP Services engineers deliver reactive onsite hardware support and over-the-phone software support around-the-clock.
	HP Install Storage Blade Service HP Install Storage Blade Service provides initial hardware installation of your HP Storage Blade (System configuration is not included).

### Service and Support, HP Care Pack, and Warranty Information

Product Number	Product Name	Service Name	Care Pack Services Product # and Band	Alternate Care Pack Services Product #
434879-B21	HP BLc SB40c Mod X Storage Blade	3-Year HP Support Plus 24	HA110A3-87F	
		HP 3y 4h 13x5 BLcSB40c StrgBlade HW Supp		UF206E
411243-B21	HP BLc SB40c Storage Blade Opt Kit	3-Year HP Support Plus 24	HA110A3-87F	
		HP 3y 4h 24x7 BLcSB40c StrgBlade HW Supp		UF207E
AP762A	SB40c w/ (4) 300GB SAS SFF bundle	3-Year HP Support Plus 24	HA110A3-87F	
		HP 3y 6h 24x7 CTR SB40c StrgBlade HWSupp		UF208E
		HP Install Storage Blade Service	HA113A1-5LQ	UF213E

#### Related Services

Services that will enhance the user experience in many product deployments.

**HP Installation and Startup Service for HP BladeSystem c-Class Infrastructure (OS + ICE)** HP Installation and Startup Service for HP BladeSystem c-Class Infrastructure provides basic hardware and software installation of your c-class BladeSystem. This service includes service planning, deployment, Installation verification tests (IVT) and a customer orientation session.

**HP Entry Storage Data Migration Service for Windows** 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

Service Name	Care Pack Services Product # and Band	Alternate Care Pack Service Product #
HP Installation and Startup Service for HP BladeSystem c-Class Infrastructure (OS + ICE)	HA114A1-5N9	UF817E
HP Entry Storage Data Migration Service for Windows	Contact your HP sales rep or Channel Partner for assistance	Contact your HP sales rep or Channel Partner for assistance

### Service and Support, HP Care Pack, and Warranty Information

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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>

#### Remote Support Technology (RST)-HP Remote Support Pack

Taking a more proactive approach to IT support, the HP Remote Support pack plug-in module easily integrates with HP Systems Insight Manager to provide a powerful, unified "single pane of glass" solution for onsite and remote management.

HP Remote Support Pack enhances HP Systems Insight Manager with intelligent event diagnosis plus the automatic submission of hardware event notifications securely to HP support, including acknowledgment and status returns. It adds remote configuration collections to allow the delivery of assessment and proactive services for your SAN storage and HP-UX environments.

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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](http://www.hp.com/learn/storage)

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#### 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://h20129.www2.hp.com/services/cache/77318-0-0-225-121.html>

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#### 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>

### Configuration Information - Factory Integrated Models

#### Step 1: SB40c Storage Blade Configuration

Models	HP StorageWorks SB40c Storage Blade	411243-B21
	HP StorageWorks SB40c Configure-to-order Storage Blade	434879-B21
	HP StorageWorks SB40c Storage Blade w/(4) 300GB 10K SAS 2.5-inch ENT HDD Bundle	AP762A
	HP StorageWorks SB40c and LeftHand P4000 VSA bundle	AT459A
	<b>NOTE:</b> Includes the SB40c Storage Blade and a single LeftHand P4000 VSA license. LeftHand VSA software is installed in a virtual machine on a VMware ESX host server adjacent to the SB40c.	
	<b>NOTE:</b> Includes 1 yr 9x5 software support for LeftHand P4000 VSA software.	
	<b>NOTE:</b> LeftHand P4000 VSA is supported on VMware ESX 3.0.2, 3.5 and ESX i version 3.5	

### Options

c-Class Mezzanines HP PCI Express Mezzanine pass-thru card for HP BladeSystem 431643-B21

**NOTE:** Required to support the HP StorageWorks SB40c Storage Blade (P/N 411243-B21) with HP c-Class BladeSystem full-height server blades

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### Support for up to six Hard SAS Hot Plug SFF Enterprise (ENT) Drives

HP 500GB 6G SAS 7.2K SFF DP HDD	507610-B21
HP 300GB 6G SAS 10K SFF DP HDD	507127-B21
HP 300GB 3G SAS 10K SFF DP HDD	492620-B21
HP 146GB 6G SAS 10K SFF DP HDD	507125-B21
HP 146GB 3G SAS 10K SFF DP HDD	418367-B21
HP 146GB 6G SAS 15K SFF DP HDD	512547-B21
HP 146GB 3G SAS 15K SFF DP HDD	504062-B21
HP 72GB 6G SAS 15K SFF DP HDD	512545-B21
HP 72GB 3G SAS 15K SFF DP HDD	418371-B21

**NOTE:** SAS drives have a 3 year warranty.

**NOTE:** Please see the for Technical Specifications and additional information:  
[http://h18000.www1.hp.com/products/quickspecs/12244\\_na/12244\\_na.html](http://h18000.www1.hp.com/products/quickspecs/12244_na/12244_na.html)

### SFF SATA Hot Plug Entry (ETY) Drives

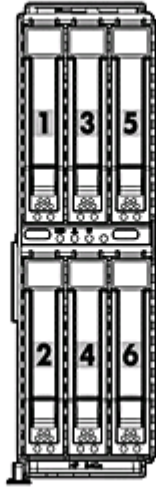
HP 500GB 3G SATA 7.2k SFF MDL HDD	507750-B21
HP 160GB 3G SATA 7.2k SFF MDL HDD	530888-B21
HP 250GB 3G SATA 5.4K SFF ETY HDD	460355-B21
HP 120GB 1.5G SATA 5.4K SFF ETY HDD	458924-B21
HP 120GB 3G SATA SFF MDL SSD	572073-B21
HP 60GB 3G SATA SFF MDL SSD	572071-B21

**NOTE:** SATA drives have a 1 year warranty. Please see the QuickSpecs for Technical Specifications and additional information:

[http://h18000.www1.hp.com/products/quickspecs/13021\\_na/13021\\_na.html](http://h18000.www1.hp.com/products/quickspecs/13021_na/13021_na.html)

**NOTE:** Go to the HP Hard Drive Compatibility table for complete drive compatibility information (<http://www.hp.com/products/harddiskdrives>). Using hard drives in unsupported configurations will result in voiding the warranty and could result in damage to the drive and/or loss of data.

### Storage



1-6 6 x SFF SAS or SATA Universal hot plug hard drive bays

#### Hard Drives

##### SAS Hot Plug SFF Enterprise (ENT) Drives

Quantity Supported  
6

Position Supported  
1-6

Controller  
Smart Array P400 Controller

##### SFF Serial-ATA (SATA) Hard Drive

Quantity Supported  
6

Position Supported  
1-6

Controller  
Smart Array P400 Controller

### Technical Specifications

HP StorageWorks SB40c Storage Blade	<b>Dimensions (HxWxD)</b>	2.19 x 7.154 x 20.058 in (5.56 x 18.17 x 50.95 cm)	
	<b>Weight (unloaded)</b>	8 lb (3.63 kg)	
	<b>Weight (loaded)</b>	11 lb (4.99 kg)	
	<b>Protocol Support</b>	3 Gb/s SAS 1.5 Gb/s SATA	
	<b>O/S Support</b>	Defined by specific HP array controller or SAS/SATA adapter used; please refer to the QuickSpecs and/or User Guide of the specific array controller or adapter	
	<b>LED Indicators</b>	UID System Health LED	
	<b>Drive LED Indicators (on drive trays)</b>	Drive LED (top) - On-line/Activity Drive Failure LED (bottom) - Drive Fault/Locate	
	<b>Relative Humidity (non-condensing)</b>	Operating	10% to 90%
		Shipping	5% to 95%
	<b>Temperature Range</b>	Operating	50° to 94° F (10° to 35° C°)
	Shipping	-22° to 140° F (-30° to 60° C)	

**NOTE:** To maintain proper cooling and airflow, a drive blank or drive must occupy all bays during operation.

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Smart Array P400 Controller	<b>Disk Drive and Enclosure Interface</b>	3G SAS (Serial Attached SCSI) 1.5G SATA (Serial Advanced Technology Attachment)	
	<b>SAS Connectors</b>	2 internal (SFF8484) x4 wide port connectors	
	<b>Cache Memory Speed</b>	DDR2-533MHz with provides up to 4.2 GB/s maximum bandwidth.	
	<b>SAS Speed</b>	x8 3G SAS provides 2.4 GB/s maximum bandwidth.	
	<b>Cache Memory</b>	40-bit 256 MB cache; ECC protection, battery-backed, and transportable	
	<b>Logical Drives Supported</b>	Up to 32 logical drives	
	<b>Maximum Logical Drive Capacity</b>	1.5 TB (6 x 250 GB SFF SATA HDD)	
	<b>Host Memory Addressing</b>	64-bit, supporting greater than 4GB server memory space	
	<b>RAID Support</b>	RAID 6 with ADG (Advanced Data Guarding) RAID 5 (Distributed Data Guarding) RAID 1+0 (Striping & Mirroring) RAID 0 (Striping)	
	<b>Upgradeable Firmware</b>	Upgradeable Firmware with recovery ROM feature	

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### Technical Specifications

#### 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.

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

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