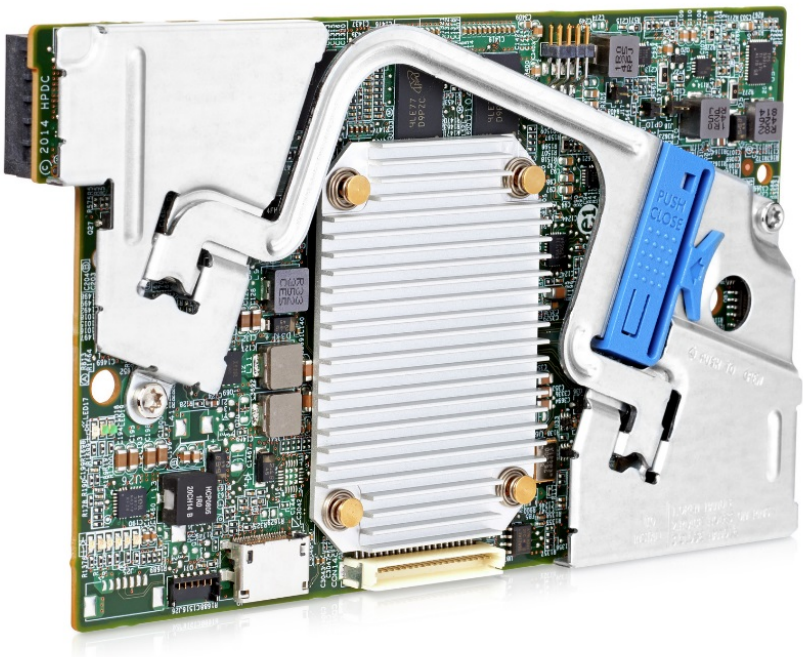
Overview

HPE Smart Array P246br Controller

The HPE Smart Array P246br Controller is a Flexible Smart Array, 12Gb/s SAS RAID controller that provides enterprise-class storage performance and data protection for the HPE ProLiant BL460c Gen9 Server Blade when adding D2220sb in adjacent slot. It features four internal physical links and delivers increased server uptime by providing advanced storage functionality with flash-backed write cache (FBWC). The Smart Array P246br Controller delivers increased server uptime by providing advanced storage functionality; including 1GB flash back write cache, pre-failure warning, and optional Secure Encryption. Data compatibility between HPE Smart Array Controllers means customers can easily upgrade to future Smart Array Controllers.

The Gen9 Server family of controllers supports the HPE Smart Storage Battery. With HPE Smart Storage Battery, multiple Smart Array controllers are supported without needing additional backup power sources for each controller, resulting in a simple upgrade process and at a reduced cost.



HPE Smart Array P246br Controller

Models

HPE Smart Array P246br/1GB FBWC 12Gb 4-ports Int SAS Controller (Recommended)	726793-B21

NOTE: HPE Smart Array P246br/1GB FBWC controller option kit includes the HPE Smart Storage Battery the backup power source necessary to protect the data on the Flash-backed Write Cache.

Standard Features

Key Features

- Storage interface (SAS/SATA)
  - 4 physical links across 4 x1 internal ports
  - 12Gb/s SAS, 6Gb/s SATA technology
  - Mix-and-match SAS and SATA drives to the same controller
  - Support for SAS tape drives, SAS tape autoloaders and SAS tape libraries
- 1 GiBytes Flash-Backed Write Cache (FBWC)
- PCI Express Gen3 x8 link
- RAID 0, 1, 5, 6, 10
- RAID or HBA mode
- Legacy and UEFI boot operation
- Up to 4 physical drives
- Up to 64 logical drives
- HPE SmartCache (optional license)
- HPE Secure Encryption (optional license)
- HPE SSD Smart Path
- Rapid Parity Initialization (RPI)
- Rapid rebuild
- Drive Erase
- Performance Optimization-Degraded Reads and Read Coalescing
- Power Efficiency
- Seamless upgrades to and from other HPE Smart Array controllers
- Recovery ROM to protect against controller ROM corruption
- PCI Express flexible card
  - Dimensions: 5.3 x 3.6 x 1.2 in (13.46 x 9.04 x 3.12 cm)

Ports

- Internal: 4 SAS/SATA physical links across 4 x1 internal ports

Performance

- 12Gb/s SAS (1200 MB/s theoretical bandwidth per physical lane)
- 6Gb/s SATA (600 MB/s theoretical bandwidth per physical lane)
- PCI Express Gen3 x8 link width
- 1 GiBytes 40-bit DDR3-1866MHz Flash-Backed Write Cache provides up to 7.5GB/s maximum cache bandwidth
- Read ahead caching
- Write-back caching

Online Management Features

- Online array expansion
- Online capacity expansion
- Online logical drive extension
- Online RAID level migration
- Online stripe size migration
- Online mirror split, recombine, and rollback
- Online active drive replacement
- Online drive firmware upgrade
- Online and high performance offline Rapid Parity Initialization (RPI)
- Unlimited global online spares assignment
- User selectable expand and rebuild priority
- User selectable RAID level and stripe size
- User selectable read and write cache sizes
- Supports Predictive Spare Activation

Standard Features

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 HPE 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.

Fault Recovery

Minimizes downtime, reconstructs data, and facilitates a quick recovery from drive failure

- DRAM ECC corrects against single bit data and address corruption.
- Flash Backed Write Cache upgrade provides indefinite data retention.

HPE SmartCache

The HPE SmartCache feature is a controller-based read and write caching solution in a DAS environment that caches the most frequently accessed data ("hot" data) onto lower latency SSDs to dynamically accelerate application workloads. The HPE SmartCache architecture is flexible and supports any HPE ProLiant Gen9 supported HDD for bulk storage and any HPE ProLiant Gen9 supported SSD as an accelerator. HPE SmartCache is deployed and managed using the HPE Smart Storage Administrator (HPE SSA). HPE SmartCache license comes standard with P840 controller.

For more information please visit: **http://www.hpe.com/servers/smartcache**.

HPE Secure Encryption

HPE Secure Encryption is a Smart Array controller-based data encryption solution for ProLiant Gen9 servers that protects sensitive, mission critical data. This is an enterprise-class encryption solution for data at rest on any bulk storage attached to the HPE Smart Array controllers including data on the cache memory of the controller. HPE Secure Encryption is an optional license per server requiring encryption enablement (see Related Options for more information on the license).

The solution is available for both local and remote key management mode deployments. Local Key Management Mode is focused on single server deployment where there is one Master key per controller that is managed by the user. Remote Key Management Mode is for enterprise wide deployments from just a few servers to thousands of servers.

FIPS 140-2 Cryptographic Module Validation
FIPS provides a security assurance level validation for cryptographic modules. HPE Smart Array P246br controller has completed FIPS 140-2 Level 1 validation (certificate #2506). The validation for this controller has recently moved to the Historical List. HPE is actively engaged in activities to return this controllers to the Validated Modules List. The National Institute of Standards and Technology (NIST) issued the FIPS 140-2 requirements and standards for cryptography modules that include both hardware and software components.

For more information on please visit: **http://www.hpe.com/servers/secureencryption**

HPE SSD Smart Path

The HPE SSD Smart Path feature included in the Smart Array software stack improves Solid State Disk (SSD) read performance. With up to 4x better SSD read performance, HPE SSD Smart Path chooses the optimum path to the SSD and accelerates reads for all RAID levels and RAID 0 writes. HPE SSD Smart Path requires updated firmware, drivers, and configuration utility available

Standard Features

at: **http://www.hpe.com/servers/ssa**. HPE SSD Smart Path is ideal for read intensive workloads and is included as a base feature on HPE Smart Array P-series controllers.

Warranty

The warranty for this device is 3 years parts only.

Pre-Failure Warranty: Drives attached to the Smart Array Controller and monitored under Insight Manager are supported by a Pre-Failure (replacement) Warranty. For complete details, consult the HPE Support Center or refer to your HPE Server Documentation.

Warranty Upgrade Options

- Response - Upgrade on-site response from next business day to same day 4 hours
- Coverage - Extend hours of coverage from 9 hours x 5 days to 24 hours x 7 days
- Duration - Select duration of coverage for a period of 1, 3, or 5 years
- Warranty upgrade options can come in the form of Care Packs, which are sold at the HPE System level this product attaches too

Compatibility

Server Support	HPE ProLiant BL460c Gen9 HPE ProLiant BL660c Gen9
Operating Systems	Microsoft Windows Server Microsoft Windows Hyper-V Server VMware vSphere ESXi Red Hat Enterprise Linux (RHEL) SUSE Linux Enterprise Server (SLES) Oracle Solaris Oracle Linux Canonical Ubuntu CentOS Wind River Citrix XenServer **NOTE:** For more information on HPE's Certified and Supported ProLiant Servers for OS and Virtualization Software, please visit our Support Matrix at: **http://www.hpe.com/info/ossupport**
Software Suite	**HPE Smart Storage Administrator** (HPE SSA) Comprehensive management for HPE Smart Storage products with advanced scripting and diagnostic features and simplified and intuitive interface and functionality. For more information please visit: **http://www.hpe.com/servers/ssa** **HPE Systems Insight Manager** Powerful server and server options/storage manager tool with configuration/diagnostic utilities **HPE Storage Management Utility** Offers the simplest method for configuring the storage system via Initial System Configuration Wizard

Service and Support

HPE Support Services	Protect your business beyond warranty with HPE Support Services HPE Pointnext provides a comprehensive portfolio including Advisory and Transformational, Professional, and Operational Services to help accelerate your digital transformation. From the onset of your transformation journey, Advisory and Transformational Services focus on designing the transformation and creating a solution roadmap. Professional Services specializes in creative configurations with flawless and on-time implementation, and on-budget execution. Finally, operational services provides innovative new approaches like Flexible Capacity and Datacenter Care, to keep your business at peak performance. HPE is ready to bring together all the pieces of the puzzle for you, with an eye on the future, and make the complex simple.
Recommended Support	**HPE Proactive Care* with 24x7 coverage, three year Support Service** HPE Proactive Care gives customers an enhanced call experience. When your products are connected to HPE, Proactive Care helps prevent problems and maintains IT stability by utilizing personalized proactive reports with recommendations and advice. This Service combines three years proactive reporting and advice with our 24x7 coverage, four hour hardware response time when there is a problem. This service also includes collaborative software support for Independent Software Vendors (ISVs), (Red Hat, VMWare, Microsoft, etc.) running on your HPE servers. **https://www.hpe.com/h20195/v2/GetPDF.aspx/4AA3-8855ENW.pdf** **HPE Proactive Care* with 6 hour call-to-repair commitment, three year Support Service** HPE Proactive Care gives customers an enhanced call experience. When your products are connected to HPE, Proactive Care helps prevent problems and maintains IT stability by utilizing personalized proactive reports with recommendations and advice. This Service combines three years' proactive reporting and advice with our highest level of hardware support - HPE's 24x7, six hour hardware call-to-repair. HPE is the only leading manufacturer who makes this level of coverage available as a standard service offering for your most valuable servers. This service also includes collaborative software support for Independent Software Vendors (ISVs), (Red Hat, VMWare, Microsoft, etc.) running on your HPE servers. **https://www.hpe.com/h20195/v2/GetPDF.aspx/4AA3-8855ENW.pdf** *HPE Proactive Care and HPE Proactive Care Advanced require that the customer connect their devices to make the most of these services and receive all the deliverables.
HPE Education Services	Keep your IT staff trained making sure they have the right skills to deliver on your business outcomes. Book on a class today and learn how to get the most from your technology investment. **http://www.hpe.com/ww/learn**
HPE Support Center	The HPE Support Center is a personalized online support portal with access to information, tools and experts to support HPE business products. Submit support cases online, chat with HPE experts, access support resources or collaborate with peers. Learn more **http://www.hpe.com/support/hpesc** HPE's Support Center Mobile App* allows you to resolve issues yourself or quickly connect to an agent for live support. Now, you can get access to personalized IT support anywhere, anytime. HPE Insight Remote Support and HPE Support Center are available at no additional cost with a HPE warranty, HPE Support Service or HPE contractual support agreement. *HPE Support Center Mobile App is subject to local availability

Service and Support

Parts and materials

Hewlett Packard Enterprise will provide HPE-supported replacement parts and materials necessary to maintain the covered hardware product in operating condition, including parts and materials for available and recommended engineering improvements.

Parts and components that have reached their maximum supported lifetime and/or the maximum usage limitations as set forth in the manufacturer's operating manual, product quick-specs, or the technical product data sheet will not be provided, repaired, or replaced as part of these services.

The defective media retention service feature option applies only to Disk or eligible SSD/Flash Drives replaced by Hewlett Packard Enterprise due to malfunction.

Related Services

HPE Server Hardware Installation
Provides for the basic hardware installation of HPE branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner.
https://www.hpe.com/h20195/V2/GetPDF.aspx/5981-9356EN.pdf

HPE Installation and Startup Service provides for the installation and startup of HPE technology including BladeSystems, C-Class enclosure, HPE ProLiant c-Class and Integrity server blades, storage blades, SAN switch blades, HPE Virtual Connect modules (Ethernet and Fibre Channel), Ethernet network interconnects, and InfiniBand, as well as the installation of one supported operating system type (Windows® or Linux).

NOTE: This controller is covered under the HPE Service Contract applied to the HPE ProLiant Server. No separate HPE support services need to be purchased.

- Warranty and Support Services will extend to include HPE options configured with your server or storage device. The price of support service is not impacted by configuration details. HPE sourced options that are compatible with your product will be covered under your server support at the same level of coverage allowing you to upgrade freely. Installation for HPE options is available as needed. To keep support costs low for everyone, some high value options will require additional support. Additional support is only required on select high value workload accelerators, fibre switches, InfiniBand and UPS batteries over 12KVA. See the specific high value options that require additional support **HERE**.

Recommended Option

This controller is a Recommended Option. Offering the best combination of performance, value and availability, Recommended Options have been selected by HPE experts to provide the right technology for a range of workloads and market segments.

Additional Service Information

http://www.hpe.com/services

Related Options

HPE SmartCache	HPE Smart Array SR SmartCache (Single Key/Single Server) LTU	D7S26A
	Single-Server License Used to purchase a license for one server. Contains one license per server, a printed license entitlement certificate, end user license agreement, and license key installation card **delivered via physical shipment**. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Include one year of 24x7 HPE Software Technical Support Services.	
	HPE Smart Array SR SmartCache (Single Key/Multiple Servers) LTU	D7S27A
	Flexible-Quantity License Used to purchase multiple licenses with a single activation key. Contains license(s) for a customer defined quantity of servers, a license entitlement certificate for the quantity of licenses purchased, end user license agreement, and license key installation card **delivered via physical shipment**. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Include one year of 24x7 HPE Software Technical Support Services.	
	HPE Smart Array SR SmartCache (Single Key/Multiple Servers) E-LTU	D7S27AAE
	Flexible-Quantity Electronic License Used to purchase multiple licenses with a single activation key. Contains license(s) for a customer defined quantity of servers, a license entitlement certificate for the quantity of licenses purchased, end user license agreement, and license key installation information **delivered via e-mail.** The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Include one year of 24x7 HPE Software Technical Support Services. For more information please visit: **http://www.hpe.com/servers/smartcache**	
HPE Secure Encryption	HPE Smart Array SR Secure Encryption (Data at Rest Encryption/per Server Entitlement) E-LTU	Q2F26AAE
	NOTE: HPE Secure Encryption licensing is based on the number of servers requiring encryption for direct attached storage. For more information visit: **http://www.hpe.com/servers/secureencryption**	
Environment friendly Products and Approach - End-of life Management and Recycling	Hewlett Packard Enterprise offers end-of-life **product return, trade-in, and recycling programs**, in many geographic areas, for our products. Products returned to Hewlett Packard Enterprise will be recycled, recovered or disposed of in a responsible manner. The EU WEEE Directive (2012/19/EU) 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 Enterprise web site**. These instructions may be used by recyclers and other WEEE treatment facilities as well as Hewlett Packard Enterprise OEM customers who integrate and re-sell Hewlett Packard Enterprise equipment.	

Summary of Changes

Date	Version History	Action	Description of Change
04-Jun-2018	Version 5	Changed	Updated FIPS
05-Feb-2018	Version 4	Changed	Replaced Secure Encryption SKU C9A82AAE with Q2F26AAE. Updated Service and Support.
23-Oct-2017	Version 3	Added	Care Pack naming and Service and Support- Parts and Materials updated.
19-Aug-2016	Version 2	Changed	Overview, Standard Features, Compatibility, and Related Options were revised.
09-Sep-2014	Version 14	New	Initial version.

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

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