

Overview

HPE Smart Array P741m Controller

The HPE Smart Array P741m is a PCI-Express (PCIe) 3.0 mezzanine card supporting direct attached and shared storage for the HPE ProLiant Gen9 BladeSystem servers. It supports 12Gb/s level bandwidth and provides enterprise level reliability, connectivity, and storage performance for HPE Gen9 Blade servers through its support of the latest SCSI technology and advanced RAID capabilities. The P741m can support up to 227 zoned direct attached SAS or SATA drives, tape drives, and can connect to D3600, D3700, D6000, and D6020 Disk Enclosures.



Model

HPE Smart Array P741m/2GB FBWC 12Gb 4-ports Ext Mezzanine SAS Controller (Extended)

726782-B21

NOTE: HPE Smart Array P741m/2GB FBWC controller option kit does not include the HPE Smart Storage Battery that is used as the backup power source necessary to protect the data on the Flash-backed Write Cache. HPE Smart Storage Battery has to be purchased separately if this is the first P-class Smart Array controller on your Gen9 server.

Standard Features

Key Features

Storage interface (SAS/SATA)
 8 physical links across 4 x2 external 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
 2 GiBytes Flash-Backed Write Cache (FBWC)
 PCI Express Gen3 x8 link
 RAID 0, 1, 10, 5, 50, 6, 60, 10 ADM (Advanced Data Mirroring)
 RAID or HBA mode
 Legacy and UEFI boot operation
 Up to 200 physical drives
 Up to 64 logical drives
 HPE SmartCache (license included)
 HPE Secure Encryption (optional license)
 SSD Smart Path
 Certified controller for Microsoft Storage Spaces
 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

Ports

External: 8 SAS/SATA physical links across 4 x2 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
 2 GiBytes 72-bit wide DDR3-1866MHz Flash-Backed Write Cache provides up to 12.8GB/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	<p>The following features offer detection of possible failures before they occur, allowing preventive action to be taken:</p> <p>S.M.A.R.T.: Self-Monitoring Analysis and Reporting Technology first developed at Hewlett Packard Enterprise detects possible hard disk failure before it occurs, allowing replacement of the component before failure occurs.</p> <p>Drive Parameter Tracking monitors drive operational parameters, predicting failure and notifying the administrator.</p> <p>Dynamic Sector Repairing continually performs background surface scans on the hard disk drives during inactive periods and automatically remaps bad sectors, ensuring data integrity.</p> <p>Smart Array Cache Tracking monitors integrity of controller cache, allowing pre-failure preventative maintenance.</p>
Fault Recovery	<hr/> <p>Minimizes downtime, reconstructs data, and facilitates a quick recovery from drive failure:</p> <p>Recovery ROM: This feature protects the user from a firmware image corruption by storing a redundant copy of the firmware image. If the active firmware image becomes corrupt, the controller will use the redundant firmware image and continue operating.</p> <p>On-Line Spares: There is no limit to the number of spare drives that can be installed prior to drive failure. If a failure occurs, recovery begins with an On-Line Spare and data is reconstructed automatically.</p> <p>DRAM ECC detects and corrects data bit errors.</p>
HPE SmartCache	<hr/> <p>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).</p> <p>For more information please visit: http://www.hpe.com/servers/smartcache.</p>
HPE Secure Encryption	<hr/> <p>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 P741m 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).</p> <p>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.</p> <p>FIPS 140-2 Cryptographic Module Validation</p> <p>FIPS provides a security assurance level validation for cryptographic modules. HPE Smart Array P741m 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.</p> <p>For more information on please visit: http://www.hpe.com/servers/secureencryption</p>
HPE SSD Smart Path	<hr/> <p>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 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-class controllers.</p>

Compatibility

Server Support

HPE ProLiant BL460c Gen9
HPE ProLiant BL660c Gen9

NOTE: For BL460c Gen9 and BL660c Gen9 - P741m is a Type B mezzanine controller that can only be installed on mezzanine slot 2 which requires a second processor for functionality.

Disk Enclosure Support

HPE D3600 Disk Enclosure
HPE D3700 Disk Enclosure
HPE D6000 Disk Enclosure
HPE D6020 Disk Enclosure
HPE MSA 2040 SAN Storage
HPE 6Gb SAS Switch for HPE BladeSystem c-Class

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>

Storage Management 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

Service and Support

NOTE: HPE Smart Array controllers are supported as a part of the HPE Server Infrastructure. No separate care packs are needed to be purchased.

HPE Technology Services for Industry Standard Servers

HPE Technology Services delivers confidence, reduces risk and helps customers realize agility and stability. Connect to Hewlett Packard Enterprise to help prevent problems and solve issues faster. Our support technology lets you to tap into the knowledge of millions of devices and thousands of experts to stay informed and in control, anywhere, any time.

Protect your business beyond warranty with HPE Pointnext operational services

HPE Pointnext operational services enable you to order the right service level, length of coverage and response time as you purchase your new server, giving you full entitlement for the term you select.

Get connected to HPE to improve your support experience

Connecting products to Hewlett Packard Enterprise will help prevent problems with 24x7 monitoring, pre-failure alerts, automatic call logging, and parts dispatch. With Connected products, you can have a dashboard to manage your IT anywhere, anytime, from any device.

HPE Support Center

Personalized online support portal with access to information, tools and experts to support Hewlett Packard Enterprise business products. Submit support cases online, chat with Hewlett Packard Enterprise experts, access support resources or collaborate with peers. Learn more <http://www.hpe.com/support/hpesc>

The HPE 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 Hewlett Packard Enterprise warranty, HPE Care Pack or Hewlett Packard Enterprise contractual support agreement.

* **NOTE:** The Hewlett Packard Enterprise Support Center Mobile App is subject to local availability

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.

For more information

To learn more on HPE BladeSystem services, please contact your Hewlett Packard Enterprise sales representative or Hewlett Packard Enterprise Authorized ServiceOne Channel Partner, or visit: <http://www.hpe.com/services/bladeSystem>

Extended Option

This controller is an Extended Option. Extended Options provide an extended catalog of products tailored for customers in specific markets or with specific workloads, requiring the utmost in performance or value.

Service and Support

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.

Enhancements to warranty services are available through Care Pack services.

For more information, visit HPE Pointnext operational services at: <http://www.hpe.com/services>

Related Options

HPE Smart Storage Battery	HPE 12W Smart Storage Battery for BL Servers (Extended)	P01363-B21
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HPE Secure Encryption	HPE Smart Array SR Secure Encryption (Data at Rest Encryption/per Server Entitlement) E-LTU	Q2F26AAE
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NOTE: HPE Secure Encryption licensing is based on the number of servers requiring encryption for direct attached storage.

For more information visit: <https://www.hpe.com/us/en/product-catalog/detail/pip.6532260.html>

Related Options

Environment-friendly Products and Approach - End-of-life Management and Recycling Hewlett Packard Enterprise offers end-of-life Hewlett Packard Enterprise product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: <https://www.hpe.com/us/en/about/environment/product-recycling.html>. To recycle your product, please go to: <https://www.hpe.com/us/en/about/environment/product-recycling.html> or contact your nearest Hewlett Packard Enterprise sales office. Products returned to Hewlett Packard Enterprise 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 Enterprise web site at:

<https://www.hpe.com/us/en/about/environment/product-recycling.html>. 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:
4-Jun-2018	Version 7	Changed	Updated FIPS and Battery SKU
08-Jan-2018	Version 6	Added	Related Options, SKUs and Parts and Material were Updated
23-Oct-2017	Version 5	Added	Care Pack naming and Service and Support- Parts and Materials updated.
19-Aug-2016	Version 4	Changed	Overview, Standard Features, Compatibility, and Related Options were revised.
29-Apr-2016	Version 3	Changed	Overview, Standard Features, Compatibility, and Related Options were revised.
11-Dec-2015	Version 2	Removed	Support for MSA 2040 and P2000 Smart Array G3 was removed from the QuickSpecs.
30-Mar-2015	Version 1	Created	QuickSpecs was created



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