

Overview

HPE Smart Array Gen10 Controllers

for HPE ProLiant DL, ML and Apollo Servers

The HPE Smart Array Gen10 Controllers for the ProLiant DL and ML Gen10 Servers and Apollo Gen10 Servers, supporting 12Gb/s SAS and PCIe 3.0, are ideal for maximizing performance while supporting advanced RAID levels with up to 4 GB flash-backed write cache (FBWC). These controllers operate in Mixed Mode which combines RAID and HBA/JBOD operations simultaneously. The Smart Array Gen10 controller portfolio provides the ability to support up to 24 internally attached drives on a single controller, allowing connection to SAS or SATA drives without having to use the SAS Expander card. The Smart Array SR Gen10 Controllers also offer encryption for data-at-rest on any drive with HPE Smart Array SR Secure Encryption. The HPE controller portfolio provides enterprise-class storage performance, reliability, security and efficiency needed to address your evolving data storage needs.



HPE Smart Array P408i-a SR
Gen10 Ctrlr (804331-B21 &
869081-B21)



HPE Smart Array P408i-p SR
Gen10 Ctrlr (830824-B21)



HPE Smart Array P816i-a SR
Gen10 Ctrlr (804338-B21 &
869083-B21)



HPE Smart Array P824i-p MR
Gen10 Ctrlr (870658-B21)



HPE Smart Array E208i-a SR
Gen10 Ctrlr (804326-B21 &
869079-B21)



HPE Smart Array E208i-p SR
Gen10 Ctrlr (804394-B21)



HPE Smart Array E208e-p SR
Gen10 Ctrlr (804398-B21)



HPE Smart Array P408e-p SR
Gen10 Ctrlr (804405-B21)

Overview

Models

HPE Smart Array P824i-p MR Gen10 (24 Internal Lanes/4GB Cache/CacheCade) 12G SAS PCIe Controller	870658-B21	1
HPE Smart Array P816i-a SR Gen10 (16 Internal Lanes/4GB Cache/SmartCache) 12G SAS Modular Controller	804338-B21	2
HPE Smart Array P816i-a SR Gen10 (16 Int Lanes/4GB Cache/SmartCache) 12G SAS Modular LH Controller	869083-B21	2
HPE Smart Array P408i-a SR Gen10 (8 Internal Lanes/2GB Cache) 12G SAS Modular Controller	804331-B21	2
HPE Smart Array P408i-a SR Gen10 (8 Internal Lanes/2GB Cache) 12G SAS Modular LH Controller	869081-B21	2
HPE Smart Array P408i-p SR Gen10 (8 Internal Lanes/2GB Cache) 12G SAS PCIe Plug-in Controller	830824-B21	3
HPE Smart Array P408e-p SR Gen10 (8 External Lanes/4GB Cache) 12G SAS PCIe Plug-in Controller	804405-B21	3
HPE Smart Array E208e-p SR Gen10 (8 External Lanes/No Cache) 12G SAS PCIe Plug-in Controller	804398-B21	4
HPE Smart Array E208i-p SR Gen10 (8 Internal Lanes/No Cache) 12G SAS PCIe Plug-in Controller	804394-B21	4
HPE Smart Array E208i-a SR Gen10 (8 Internal Lanes/No Cache) 12G SAS Modular LH Controller	869079-B21	5
HPE Smart Array E208i-a SR Gen10 (8 Internal Lanes/No Cache) 12G SAS Modular Controller	804326-B21	5

¹Kit Contents includes controller, documentation information card, warranty statement, battery required card, and controller backup power cable.

²Kit Contents includes controller, documentation information card, warranty statement, and battery required card.

³Kit Contents includes controller, documentation information card, warranty statement, battery required card, controller backup power cable, and low-profile bracket.

⁴Kit Contents includes controller, documentation information card, warranty statement, and low-profile bracket.

⁵Kit Contents includes controller, documentation information card, and warranty statement.

NOTE: The HPE Smart Storage Battery is not included in the kit and is required with Performance RAID controllers (ie P408i-a, P824i-p, etc.)

Overview

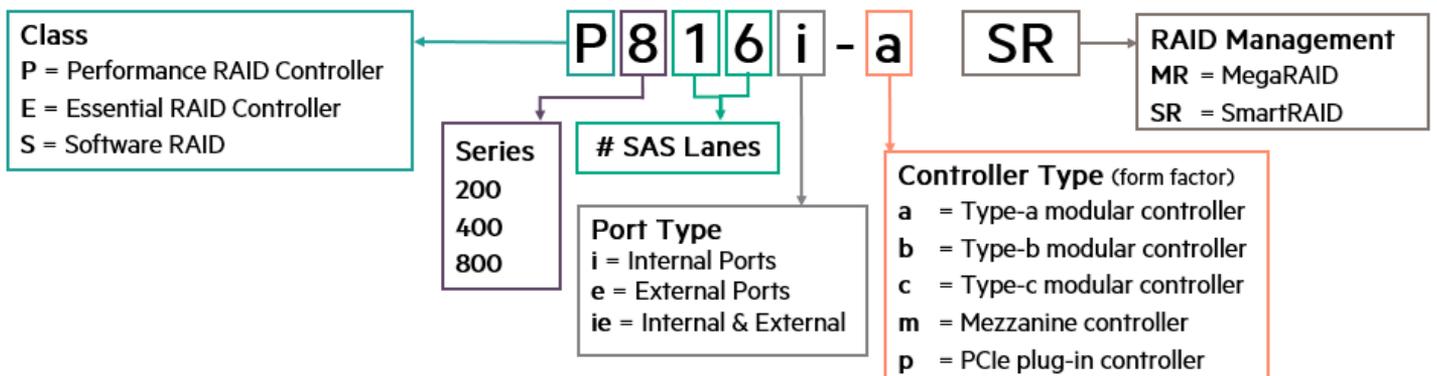
Compatibility						
Server Support Table						
SKU	804326-B21	869079-B21	804394-B21	804398-B21	804405-B21	804331-B21
Description	HPE Smart Array E208i-a SR Gen10 (8 Internal Lanes/No Cache) 12G SAS Modular Controller	HPE Smart Array E208i-a SR Gen10 (8 Internal Lanes/No Cache) 12G SAS Modular LH Controller	HPE Smart Array E208i-p SR Gen10 (8 Internal Lanes/No Cache) 12G SAS PCIe Plug-in Controller	HPE Smart Array E208e-p SR Gen10 (8 External Lanes/No Cache) 12G SAS PCIe Plug-in Controller	HPE Smart Array P408e-p SR Gen10 (8 External Lanes/4GB Cache) 12G SAS PCIe Plug-in Controller	HPE Smart Array P408i-a SR Gen10 (8 Internal Lanes/2GB Cache) 12G SAS Modular Controller
Apollo 2000-XL170r Gen10			✓	✓	✓	
Apollo 2000-XL190r Gen10			✓	✓	✓	
Apollo 4510-XL450 Gen10	✓		✓	✓	✓	✓
Apollo 6000-XL230k Gen10			✓	✓		
Apollo 6500-XL270D Gen10						✓
DL325 Gen10		✓		✓	✓	
HPE ProLiant DL360 Gen10	✓	✓	✓	✓	✓	✓
HPE ProLiant DL380 Gen10	✓		✓	✓	✓	✓
HPE ProLiant DL385 Gen10	✓		✓	✓	✓	✓
HPE ProLiant DL560 Gen10		✓	✓	✓	✓	
HPE ProLiant DL580 Gen10			✓	✓	✓	
HPE ProLiant Microserver Gen10			✓			
HPE ProLiant ML110 Gen10			✓	✓	✓	
HPE ProLiant ML350 Gen10	✓		✓	✓	✓	✓

Overview

Server Support Table

SKU	869081-B21	830824-B21	804338-B21	869083-B21	870658-B21
Description	HPE Smart Array P408i-a SR Gen10 (8 Internal Lanes/2GB Cache) 12G SAS Modular LH Controller	HPE Smart Array P408i-p SR Gen10 (8 Internal Lanes/2GB Cache) 12G SAS PCIe Plug-in Controller	HPE Smart Array P816i-a SR Gen10 (16 Internal Lanes/4GB Cache/SmartCache) 12G SAS Modular Controller	HPE Smart Array P816i-a SR Gen10 (16 Int Lanes/4GB Cache/SmartCache) 12G SAS Modular LH Controller	HPE Smart Array P824i-p MR Gen10 (24 Internal Lanes/4GB Cache/CacheCade) 12G SAS PCIe Controller
Apollo 2000-XL170r Gen10	✓				
Apollo 2000-XL190r Gen10	✓				✓
Apollo 4510-XL450 Gen10	✓				✓
Apollo 6000-XL230k Gen10	✓				
Apollo 6500-XL270D Gen10	✓		✓		
HPE ProLiantDL325 Gen10	✓			✓	
HPE ProLiant DL360 Gen10	✓	✓	✓	✓	✓
HPE ProLiant DL380 Gen10		✓	✓		✓
HPE ProLiant DL385 Gen10		✓	✓		✓
HPE ProLiant DL560 Gen10	✓	✓		✓	✓
HPE ProLiant DL580 Gen10		✓			✓
HPE ProLiant Microserver Gen10					
HPE ProLiant ML110 Gen10		✓			
HPE ProLiant ML350 Gen10		✓	✓		✓

Naming Framework The Gen10 controller naming framework is illustrated below to help simplify controller identification.



The warranty for this device is 3 years parts only.

Overview

Warranty Upgrade Options

Warranty

- 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 to which this product attaches.
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Standard Features

Standard Features Table for Performance RAID Controllers					
Product	P408i-a SR	P816i-a SR	P408i-p SR	P408e-p SR	P824i-p MR
SKU	804331-B21 & 869081-B21	804338-B21 & 869083-B21	830824-B21	804405-B21	870658-B21
Form factor: Type-a modular controller	✓	✓			
Form factor: Standard PCIe plug-in controller			✓	✓	✓
Internal SAS lanes	8	16	8		24
External SAS lanes				8	
Ports/Connectors	2 (mini-SAS)	4 (mini-SAS)	2 (mini-SAS)	2 (mini-SAS HD)	6 (mini-SAS HD)
Cache size (FBWC)	2 GB	4 GB	2 GB	4 GB	4 GB
Read ahead caching	✓	✓	✓	✓	✓
Write-back caching	✓	✓	✓	✓	✓
Storage protocol: 12G SAS	✓	✓	✓	✓	✓
Storage protocol: 6G SATA	✓	✓	✓	✓	✓
I/O slot: PCI Express 3.0	x8 link	x8 link	x8 link	x8 link	x8 link
Maximum physical drives (up to)	238	238	238	238	238
Maximum logical drives	64	64	64	64	64
RAID:0/1/5/6/10/50/60/1 ADM/10 ADM	✓	✓	✓	✓	✓*
Mixed Mode (RAID & HBA/JBOD)	✓	✓	✓	✓	✓
Boot mode: UEFI	✓	✓	✓	✓	✓
Boot mode: Legacy	✓	✓	✓	✓	✓
SSD Accelerator	Smart Path	Smart Path	Smart Path	Smart Path	Fast Path
HPE Smart Array SR Secure Encryption (license)	Optional	Optional	Optional	Optional	Not supported
SSD Caching	Optional (SmartCache)	Enabled (SmartCache)	Optional (SmartCache)	Optional (SmartCache)	Enabled (CacheCade)
FIPS 140-2 Level 1**	✓	✓	✓	✓	
HPE OneView Support	✓	✓	✓	✓	

*P824i-p does not support 1 ADM or 10 ADM

**Validation Program FIPS 140-2 Implementation under Test List. Expected completion is in 2019.

Standard Features

Standard Features Table for Essential RAID Controllers			
Product	E208i-a SR	E208i-p SR	E208e-p SR
SKU	804326-B21 & 869079-B21	804394-B21	804398-B21
Form factor: Type-a modular controller	✓		
Form factor: Standard plug-in controller		✓	✓
Internal lanes	8	8	
External lanes			8
Ports/Connectors	2 (mini-SAS)	2 (mini-SAS)	2 (mini-SAS HD)
Cache size (FBWC)			
Read ahead caching			
Write-back caching			
Storage protocol: 12G SAS	✓	✓	✓
Storage protocol: 6G SATA	✓	✓	✓
I/O slot: PCI Express 3.0	x8 link	x8 link	x8 link
Maximum physical drives (up to)	238	238	238
Maximum logical drives	64	64	64
RAID: 0/1/5/10	✓	✓	✓
Mixed mode (RAID & HBA)	✓	✓	✓
Boot mode: UEFI	✓	✓	✓
Boot mode: Legacy	✓	✓	✓
SSD Accelerator	Smart Path	Smart Path	Smart Path
HPE Smart Array SR Secure Encryption (license)	Optional	Optional	Optional
SSD Caching			
FIPS 140-2 Level 1			
HPE OneView Support	✓	✓	✓

Compatibility

Operating System Support

Microsoft Windows Server

Red Hat Enterprise Linux (RHEL)

SUSE Linux Enterprise Server (SLES)

VMware ESXi

Canonical Ubuntu*

CentOS*

ClearOS*

NOTE*: Ubuntu, CentOS and Clear OS are not supported on Smart Array P824i-p MR Gen10 controller (870658-B21).

NOTE: HPE Smart Array controllers are supported by the server operating system. Please also see the server operating system compatibility. For more information on HPE's server operating systems and virtualization software, please visit:

<http://www.hpe.com/info/ossupport>

Storage Management Software Suite

HPE Smart Array SR Gen10 Controllers

HPE Smart Storage Administrator (SSA) GUI
HPE Smart Storage Administrator (SSA) CLI
HPE Smart Storage Administrator (SSA) Scripting
HPE Intelligent Provisioning
UEFI System Utilities (storage configuration)
UEFI Storage RESTful

NOTE: For additional information see the HPE Smart Array SR Gen10 Configuration Guide at: <http://www.hpe.com/info/SmartArrayGen10-docs>

HPE Smart Array MR Gen10 Controllers

HPE MR Storage Administrator
HPE StorCLI
UEFI System Utilities (storage configuration)

NOTE: For additional information see the HPE MR Storage Administrator User Guide and HPE StoreCLI User Guide at: <http://www.hpe.com/info/P824i-pdocs>

Disk Enclosure Support E208e-p SR Gen10 Controller (804398-B21)

HPE D3610 Disk Enclosure
HPE D3710 Disk Enclosure
HPE D6020 Disk Enclosure
HPE MSA 1040 SAN Storage
HPE MSA 1050 SAN Storage
HPE MSA 2040 SAN Storage
HPE MSA 2050 SAN Storage

P408e-p SR Gen10 Controller (804405-B21)

HPE D3610 Disk Enclosure
HPE D3710 Disk Enclosure
HPE D6020 Disk Enclosure

Additional Information HPE Smart Array SR Gen10 Controllers

For additional information on the features for HPE Smart Array SR Gen10 Controllers, please see the HPE Smart Array SR Gen10 User Guide, HPE Smart Array SR Gen10 Configuration Guide, and HPE Smart Array SR Secure Encryption Installation and User Guide at: <http://www.hpe.com/info/SmartArrayGen10-docs>

HPE Smart Array MR Gen10 Controllers

For additional information on the features for HPE Smart Array P824i-p MR Gen10 Controller, please see the HPE Smart Array P824i-p MR Gen10 User Guide, HPE MR Storage Administrator User Guide, and HPE StorCLI User Guide at: <http://www.hpe.com/info/P824i-pdocs>

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: The Smart Array 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](#)
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Additional Service Information

<http://www.hpe.com/services>

Related Options

HPE Smart Array SR SmartCache	<p>HPE Smart Array SR SmartCache (Single Key/Single Server) LTU D7S26A</p> <p>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.</p>
	<p>HPE Smart Array SR SmartCache (Single Key/Multiple Servers) LTU D7S27A</p> <p>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.</p>
	<p>HPE Smart Array SR SmartCache (Single Key/Multiple Servers) E-LTU D7S27AAE</p> <p>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.</p> <p>NOTE: Not supported on HPE Smart Array P824i-p MR Gen10 Controller. NOTE: For more information please visit: http://www.hpe.com/servers/smartscale</p>
HPE Smart Array SR Secure Encryption	<p>HPE Smart Array SR Secure Encryption (Data at Rest Encryption/per Server Entitlement) E-LTU Q2F26AAE</p> <p>NOTE: HPE Smart Array SR Secure Encryption licensing is based on the number of servers requiring encryption for direct attached storage. NOTE: Not supported on HPE Smart Array P824i-p MR Gen10 Controller. NOTE: For more information visit: http://www.hpe.com/servers/secureencryption or see the HPE Smart Array SR Secure Encryption Installation and User Guide at: http://www.hpe.com/info/SmartArrayGen10-docs.</p>
HPE Smart Storage Battery	<p>HPE 96W Smart Storage Battery (up to 20 Devices) with 145mm Cable Kit P01366-B21 HPE 96W Smart Storage Battery (up to 20 Devices) with 260mm Cable Kit P01367-B21</p> <p>NOTE: Smart Array Gen10 controllers are supported by the HPE Smart Storage Battery. This battery supports multiple devices and is sold separately. NOTE: See server QuickSpecs for compatibility.</p>
Cables	<p>HPE DL38X/560/580/ML350 Gen10 P824i-p Cable Kit P00614-B21</p> <p>NOTE: Supported on HPE ProLiant DL380, DL385, DL560, DL580, and ML350 Gen10 servers.</p> <p>HPE DL360 Gen10 P824i-p Cable Kit 867992-B21</p>

Related Options

NOTE: Supported on HPE ProLiant DL360 Gen10 server.

Summary of Changes

Date	Version History	Action	Description of Change
01-Oct-2018	Version 2	Changed	Overview were revised.
04-Sep-2018	Version 1	New	New QuickSpecs



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