

Overview

HPE Smart Array SR SmartCache

HPE Smart Array SR SmartCache is a controller-based caching solution in a Direct Attached Storage (DAS) environment that caches the most frequently accessed data ("hot" data) onto lower latency high performing SSDs to dynamically accelerate application workloads. SmartCache consists of firmware that provides the caching feature within the Smart Array controllers and requires a license key for activation. SmartCache is offered on HPE Smart Array P-series controllers for HPE ProLiant Gen8, Gen9, and Gen10 servers, and HPE Synergy Gen9 and Gen10 compute modules.

	SmartCache License	Write-back support*	Write-through support*	Minimum firmware version
For HPE Gen10 servers				
HPE Smart Array P816-a Controller	Standard	✓	✓	Any
HPE Smart Array P416ie-m Controller	Optional	✓	✓	Any
HPE Smart Array P408i-m Controller	Optional	✓	✓	Any
HPE Smart Array P408i-p Controller	Optional	✓	✓	Any
HPE Smart Array P408e-p Controller	Optional	✓	✓	Any
HPE Smart Array P408i-a Controller	Optional	✓	✓	Any
For HPE Gen9 servers				
HPE Smart Array P841 Controller	Standard	✓	✓	Any
HPE Smart Array P840 Controller	Standard	✓	✓	Any
HPE Smart Array P840ar Controller	Standard	✓	✓	Any
HPE Smart Array P741m Controller	Standard	✓	✓	Any
HPE Smart Array P542D Controller	Optional	✓	✓	Any
HPE Smart Array P441 Controller	Optional	✓	✓	Any
HPE Smart Array P440 Controller	Optional	✓	✓	Any
HPE Smart Array P440ar Controller	Optional	✓	✓	Any
For HPE Gen8 servers				
HPE Smart Array P830 Controller	Standard	✓	✓	3.54
HPE Smart Array P822 Controller	Standard		✓	Any
HPE Smart Array P731m Controller	Standard	✓	✓	3.54
HPE Smart Array P721m Controller	Standard		✓	Any
HPE Smart Array P431 Controller	Optional	✓	✓	3.54
HPE Smart Array P430 Controller	Optional	✓	✓	3.54
HPE Smart Array P421 Controller	Optional		✓	3.42
HPE Smart Array P420 Controller	Optional		✓	3.42
HPE Smart Array P420i Controller	Optional		✓	3.42

*Notes: See Caching Features section on Page 3 for more details.

Models

HPE Smart Array SR SmartCache

- One license is required for every server to be deployed.
- Each license includes one year of 24x7 HPE Software Technical Support Services.
- Licenses are non-transferable. Full details are contained in the End User License Agreement.

Single-Server License

HPE Smart Array SR SmartCache (Single Key/Single Server) LTU

D7S26A

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).

Flexible-Quantity License

HPE Smart Array SR SmartCache (Single Key/Multiple Servers) LTU

D7S27A

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).

Flexible-Quantity Electronic License

HPE Smart Array SR SmartCache (Single Key/Multiple Servers) E-LTU

D7S27AAE

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).



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- Get faster time to market
- Save on TCO, align costs to business
- Scale quickly, meet unpredictable demand
- Simplify IT operations across your data centers and clouds

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HPE GreenLake Management Services provides services that monitor, operate, and optimize your infrastructure and applications, delivered consistently and globally to give you unified control and let you focus on innovation.

Recommended Services

HPE Pointnext Tech Care.

HPE Pointnext Tech Care is the new operational service experience for HPE products. Tech Care goes beyond traditional support by providing access to product specific experts, an AI driven digital experience, and general technical guidance to not only reduce risk but constantly search for ways to do things better. HPE Pointnext Tech Care has been reimagined from the ground up to support a customer-centric, AI driven, and digitally enabled customer experience to move your business forward. HPE Pointnext Tech Care is available in three response levels. Basic, which provides 9x5 business hour availability and a 2 hour response time. Essential which provides a 15 minute response time 24x7 for most enterprise level customers, and Critical which includes a 6 hour repair commitment where available and outage management response for severity 1 incidents.

<https://www.hpe.com/services/techcare>

HPE Pointnext Complete Care

HPE Pointnext Complete Care is a modular, edge-to-cloud IT environment service that provides a holistic approach to optimizing your entire IT environment and achieving agreed upon IT outcomes and business goals through a personalized and customer-centric experience. All delivered by an assigned team of HPE Pointnext Services experts. HPE Pointnext Complete Care provides:

- A complete coverage approach -- edge to cloud
- An assigned HPE team
- Modular and fully personalized engagement
- Enhanced Incident Management experience with priority access
- Digitally enabled and AI driven customer experience

<https://www.hpe.com/services/completercare>



Standard Features

Key Features

- Up to 32 SSD Cache volumes
- Up to 64 total number of HDD volumes and cache volumes
 - Maximum logical drive size is 281 TB
- 1 TB maximum SSD SmartCache capacity per controller
- Supported with all ProLiant Gen8, Gen9, and Gen10 supported SSDs
See <http://www.hpe.com/servers/solidstate> for more details

Caching Features

HPE Smart Array SR SmartCache provides the following caching support:

- **Write-through Cache Policy:** Write-through caching accelerates read operations. All write operations go to Primary Source (HDDs); write operations may also go to the Cache (SSDs). Write operations may be slower compared to a configuration without Write-through Cache.
- **Write-back Cache Policy:** Write-back caching accelerates both read and write operations. Writes may be cached on the Cache (SSDs) and written to the Primary Storage (HDDs) at a later point of time.

Requirements

Server

- HPE ProLiant Gen10 servers
- HPE ProLiant Gen9 servers
- HPE ProLiant Gen8 servers
- HPE Synergy Gen10 compute modules
- HPE Synergy Gen9 compute modules

Drive

- Minimum one HDD and one SSD (SAS or SATA)

Controller

- HPE Smart Array controller with 1GB or greater Flash-Backed Write Cache (FBWC)
- Minimum Smart Array controller firmware version: see table on page 1

Configuration Utility

- Minimum HPE SSA version:
 - 1.0 version or later for write-through SmartCache
 - 2.0.22.0 or later for write-back SmartCache
- Minimum ACU version: 9.40.12.0 version or later

SmartCache Line Size

There is a choice of SmartCache cache line size. Please use this table to determine the optimal SmartCache line size. The line size increases the total amount of SmartCache and also increases the amount of space a single I/O consumes (i.e. the # of cache lines does not grow).

SmartCache line size	SmartCache capacity
64 KiB (default)	1.7 TB
128 KiB	3.4 TB
256 KiB	6.8 TB

Standard Features

Features and Benefits HPE Smart Array SR SmartCache provides the following features and benefits:

- **Workload Acceleration** - Workload acceleration performance by caching hot data on SSDs.
- **Simplified Deployment** - Seamless integration into your datacenter with no application or operating system changes
- **Unified Management** - Manage your array and HPE Smart Array SR SmartCache through the Array Configuration Utility (ACU) or HPE Smart Storage Administrator (HPE SSA)
- **Efficient Operations** - Performance and efficiency gains utilizing your existing HPE ProLiant server technology
- **RAID on cache volume (SSDs)** - RAID 0 and 1 are supported on Smart Array Px2x and Px3x series of controllers. RAID 5 is supported with write-back policy on Px3x series of controllers with minimum firmware version 3.54.
On Smart Array Gen9 and Gen10 controllers, RAID 0, 1 and 10 are supported with both write-through and write-back policy. On Smart Array Gen9 and 10 controller, RAID 5 is supported with write-back policy only.

SmartCache Elements

- **Bulk Storage** - The first element is the bulk storage device, which is any supported SSD or HDD with SAS or SATA interface, attached to the HPE Smart Array controller.
- **Accelerator** - The second element is the accelerator, which is any supported SAS or SATA SSD device that caches the data. The capacity of the accelerator must be less than or equal to the capacity of the bulk storage device.
- **Metadata** - The final element is the metadata, which information is held in a relatively small storage area that maps the location of information residing on the accelerator and bulk storage devices.

HPE Software Support Hewlett Packard Enterprise offers a number of software support services, many of which are provided to customers at no additional charge.

Software Technical Support Service

HPE Smart Array SR SmartCache includes one year of 24 x 7 HPE Software Technical Support Service. This service provides access to Hewlett Packard Enterprise technical resources for help in resolving software implementation or operations problems. The service also provides access to reference manuals either in electronic form or on physical media as they are made available from HPE. (Customers who purchase an electronic license to use are eligible for electronic updates only.)

For more information on Hewlett Packard Enterprise support services, contact any of our worldwide sales offices or visit the following website: www.hpe.com/services/support



Summary of Changes

Date	Version History	Action	Description of Change
15-Nov-2019	Version 14	Changed	Service and Support Section was updated
07-Oct-2019	Version 13	Changed	Models Section was updated
05-Mar-2018	Version 12	Changed	Models descriptions were updated
05-Feb-2018	Version 11	Changed	Added compatibility with Gen10 controllers and servers. Included note that the maximum logical drive size is 281 TB.
11-Jul-2017	Version 10	Changed	Added compatibility with Gen10 controllers and servers. Overview, Models, and Standard Features were updated. Note the name was changed to HPE Smart Array SR SmartCache..
07-Oct-2016	Version 9	Added	Added RAID 1 and 5 support for Px3x controllers with minimum firmware version 3.54.
19-Aug-2016	Version 8	Added	New Models section was added to the QuickSpecs.
		Changed	Overview, and Standard Features were revised.
24-Jul-2015	Version 7	Changed	Overview, Standard Features and Technical Specifications sections were revised.
30-Jan-2015	Version 6	Removed	Removed Activation Key Agreement.
09-Sep-2014	Version 5	Changes	Overview, Standard Features and Technical Specifications sections were revised.
31-Mar-2014	Version 4	Changes	Updated the Overview and Technical Specifications Section.
23-Aug-2013	Version 3	Changes	Updated the Overview and Technical Specifications Section.
01-Mar-2013	Version 2	Changes	Updated the Overview and Technical Specifications Section.
19-Feb-2013	Version 1	New	Initial version



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

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