Overview

HPE Smart Array SR Gen10 Controllers

for HPE ProLiant DL, ML and Apollo Servers

The HPE Smart Array SR 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 SR Gen10 controller portfolio is able 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 Smart Array SR Gen10 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 P816i-a SR Gen10 Ctrlr (804338-B21 & 869083-B21)

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

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

Models

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

Notes: An HPE Smart Storage energy pack is required with Performance RAID controllers. See below for energy pack options.

Standard Features

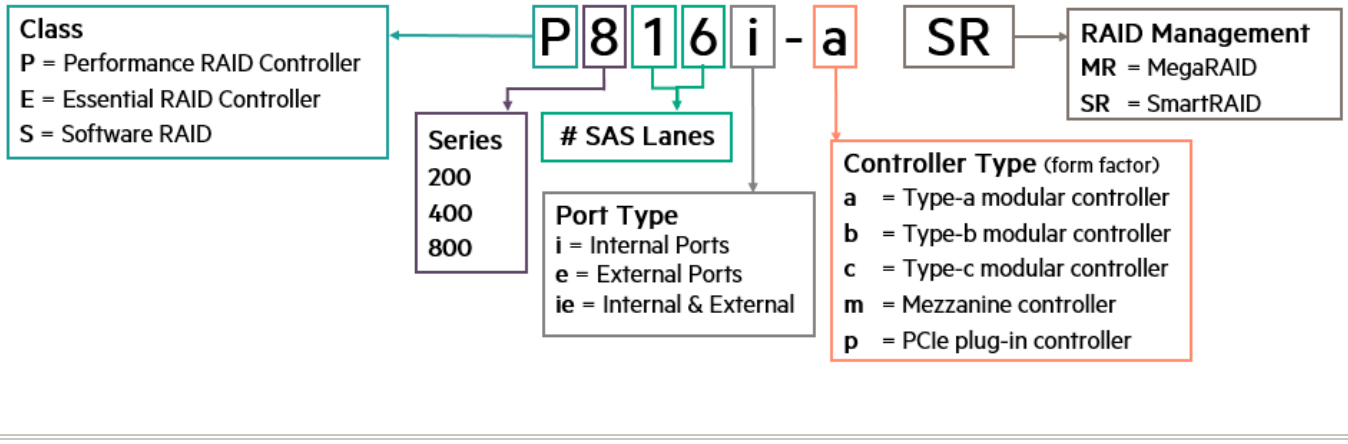
Compatibility						
Server Support Table						
SKU	804326-B21	869079-B21	804394-B21	804398-B21	804405-B21	804331-B21
Description	HPE Smart Array E208i-a SR Gen10 (8 Internal Lanes/No Cache) 12G SAS Modular Controller	HPE Smart Array E208i-a SR Gen10 (8 Internal Lanes/No Cache) 12G SAS Modular LH Controller	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
HPE Apollo 2000-XL170r Gen10			✓	✓	✓	
HPE Apollo 2000-XL190r Gen10			✓	✓	✓	
HPE Apollo 4510-XL450 Gen10	✓		✓	✓	✓	✓
HPE Apollo 6000-XL230k Gen10			✓	✓		
HPE Apollo 6500-XL270D Gen10						✓
HPE 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	✓		✓	✓	✓	✓

Standard Features

Server Support Table				
SKU	869081-B21	830824-B21	804338-B21	869083-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 Apollo 2000-XL170r Gen10		✓		
HPE Apollo 2000-XL190r Gen10		✓		
HPE Apollo 4510-XL450 Gen10		✓		
HPE Apollo 6000-XL230k Gen10		✓		
HPE 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		✓	✓	

Standard Features

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



Warranty

The warranty for this device is 3 years parts only.

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 HPE Services operational, which are sold at the HPE System level to which this product attaches.

Standard Features

XXXXXX-**X21** is SKU designation formed by a common six digit part number and a **-X21** suffix that identifies a SKU that is available across multiple server family lines. Refer to the table below to find the SKU suffix that applies to the specific server product line this option can be ordered with.

-B21	-H21	-K21
COMPUTE Server Line	**SPECIALIZED COMPUTE Server Line**	**STORAGE Line**
HPE Cloudline CL2100/CL2200/CL2800/CL3100/CL4100/CL5200/CL5800 Servers HPE Composable Cloud for ProLiant DL HPE ProLiant BL460c/BL660c Servers HPE ProLiant DL20/DL160/DL180 Servers HPE ProLiant DL325/DL360/DL380/DL385/DL560/DL580 Servers HPE ProLiant DX360/DX380 Servers HPE ProLiant MicroServer HPE ProLiant for Microsoft Azure Stack HPE ProLiant ML30/ML110/ML350 Servers HPE Synergy 480/660 Systems HPE ProLiant DX170r/DX190r, DX2000 Servers HPE ProLiant DX560 Gen10 server HPE ProLiant DX4200 Gen10 server	HPE Apollo 35/40/70 Systems HPE Apollo 2000/6000 Servers HPE XL170r/XL190r/XL270d (Apollo 6500) Gen10 Server for BlueData Software HPE Converged System 300/500/700/750 HPE Edgeline Systems and Servers HPE Integrity BL860c i6/BL870c i6/BL890c i6 Server Blades HPE Integrity MC990 X Server HPE Integrity rx2800 i6 Server HPE Integrity Superdome HPE SGI 8600 System HPE Solutions for SAP HANA (TDI)	HPE Apollo 4200 Gen9/Gen10 Servers HPE Apollo 4200 Gen10 LFF Server for BlueData Software HPE Apollo 4510 Gen10 System HPE D2220sb/D2500sb Storage Blade HPE D3000/D6020/D8000 Disk Enclosures HPE Scalable Object Storage with Scality RING HPE SimpliVity 2600 HPE SimpliVity 325/380 Gen10 HPE Storage File Controllers HPE StoreEasy 1460/1560/1650/1660/1860 Disclaimer: This may not be a complete listing of applicable servers

Standard Features

Standard Features Table for Performance RAID Controllers

Product	P408i-a SR	P816i-a SR	P408i-p SR	P408e-p SR
SKU	804331-B21 & 869081-B21	804338-B21 & 869083-B21	830824-B21	804405-B21
Form factor: Type-a modular controller	✓	✓		
Form factor: Standard PCIe plug-in controller			✓	✓
Internal SAS lanes	8	16	8	
External SAS lanes				8
Ports/Connectors	2 (mini-SAS)	4 (mini-SAS)	2 (mini-SAS)	2 (mini-SAS HD)
Cache size (FBWC)	2 GB	4 GB	2 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
Maximum physical drives *(with SAS Expander)	238	238	238	238
Maximum logical drives	64	64	64	64
RAID:0/1/5/6/10/50/60/ 1TP/10TP	✓	✓	✓	✓
Mixed Mode (RAID & HBA/JBOD)	✓	✓	✓	✓
Boot mode: UEFI	✓	✓	✓	✓
Boot mode: Legacy	✓	✓	✓	✓
SSD Accelerator	Smart Path	Smart Path	Smart Path	Smart Path
HPE Smart Array SR Secure Encryption (license)	Optional	Optional	Optional	Optional
SSD Caching	Optional (SmartCache)	Enabled (SmartCache)	Optional (SmartCache)	Optional (SmartCache)
FIPS 140-2 Level 1	✓	✓	✓	✓
HPE OneView Support	✓	✓	✓	✓
Kit contents	Controller, documentation information card, warranty statement, and battery required card.	Controller, documentation information card, warranty statement, and battery required card.	Controller, documentation information card, warranty statement, battery required card, controller backup power cable, and low-profile bracket.	Controller, documentation information card, warranty statement, battery required card, controller backup power cable, and low-profile bracket.

Standard Features

Standard Features Table for Essential RAID Controllers			
Product	E208i-a SR	E208i-p SR	E208e-p SR
SKU	804326-B21	804394-B21	804398-B21
	869079-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	✓	✓	✓
Kit contents	controller, documentation information card, and warranty statement	Controller, documentation information card, warranty statement, and low-profile bracket	Controller, documentation information card, warranty statement, and low-profile bracket

Compatibility

Operating System Support

- Microsoft Windows Server
- Red Hat Enterprise Linux (RHEL)
- SUSE Linux Enterprise Server (SLES)
- VMware ESXi
- Canonical Ubuntu
- CentOS
- ClearOS

Notes: 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

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

Compatibility

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

Notes: For Disk Enclosures, including but not limited to, some expanders do not scan the drives on time for the controller to discover them. To prevent the logical device from being marked as failed once the controller is up, users need to configure the expander's minimum scan duration setting. This setting instructs the controller to wait for a specified number of seconds to scan and discover drives attached to the expander during the next power cycle. The setting can be found in the following menu path: "RBSU > System Utilities > System Configuration > HPE Smart Array E208e-p SR Gen10 > Configure Controller Settings > Modify Expander Minimum Scan Duration (Seconds)."

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**

Service and Support

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No matter where you are in your digital transformation journey, you can count on HPE Services to deliver the expertise you need when, where and how you need it. From planning to deployment, ongoing operations and beyond, our experts can help you realize your digital ambitions.

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No matter where you are in your journey to hybrid cloud, experts can help you map out your next steps. From determining what workloads should live where, to handling governance and compliance, to managing costs, our experts can help you optimize your operations.

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HPE Complete Care Service

HPE Complete Care Service is a modular, edge-to-cloud IT environment service designed to help optimize your entire IT environment and achieve agreed upon IT outcomes and business goals through a personalized experience. All delivered by an assigned team of HPE Services experts. HPE Complete Care Service 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/completecare

HPE Tech Care Service

HPE Tech Care Service is the operational support service experience for HPE products. The service 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 Tech Care Service delivers a customer-centric, AI driven, and digitally enabled customer experience to move your business forward. HPE Tech Care Service 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

Service and Support

HPE Lifecycle Services

HPE Lifecycle Services provide a variety of options to help maintain your HPE systems and solutions at all stages of the product lifecycle. A few popular examples include:

- Lifecycle Install and Startup Services: Various levels for physical installation and power on, remote access setup, installation and startup, and enhanced installation services with the operating system.
- HPE Firmware Update Analysis Service: Recommendations for firmware revision levels for selected HPE products, taking into account the relevant revision dependencies within your IT environment.
- HPE Firmware Update Implementation Service: Implementation of firmware updates for selected HPE server, storage, and solution products, taking into account the relevant revision dependencies within your IT environment.
- Implementation assistance services: Highly trained technical service specialists to assist you with a variety of activities, ranging from design, implementation, and platform deployment to consolidation, migration, project management, and onsite technical forums.
- HPE Service Credits: Access to prepaid services for flexibility to choose from a variety of specialized service activities, including assessments, performance maintenance reviews, firmware management, professional services, and operational best practices.

Notes: To review the list of Lifecycle Services available for your product go to:
https://www.hpe.com/services/lifecycle

For a list of the most frequently purchased services using service credits, see the **HPE Service Credits Menu**

Other Related Services from HPE Services:

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https://www.hpe.com/services/training

Defective Media Retention

An option available with HPE Complete Care Service and HPE Tech Care Service and applies only to Disk or eligible SSD/Flash Drives replaced by HPE due to malfunction.

Consult your HPE Sales Representative or Authorized Channel Partner of choice for any additional questions and services options.

Parts and Materials

HPE 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.

How to Purchase Services

Services are sold by Hewlett Packard Enterprise and Hewlett Packard Enterprise Authorized Service Partners:

- Services for customers purchasing from HPE or an enterprise reseller are quoted using HPE order configuration tools.
- Customers purchasing from a commercial reseller can find services at **https://ssc.hpe.com/portal/site/ssc/**

Service and Support

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Sign into the HPE Support Center experience, featuring streamlined self-serve case creation and management capabilities with inline knowledge recommendations. You will also find personalized task alerts and powerful troubleshooting support through an intelligent virtual agent with seamless transition when needed to a live support agent.
https://support.hpe.com/hpesc/public/home/signin

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- Scale quickly, meet unpredictable demand
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https://www.hpe.com/us/en/contact-hpe.html

For more information
http://www.hpe.com/services

Related Options

HPE Smart Array SR 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.

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.

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.

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

HPE Smart Array SR Secure Encryption

HPE Smart Array SR Secure Encryption (Data at Rest Encryption/per Server Entitlement) E-LTU Q2F26AAE

Notes: HPE Smart Array SR Secure Encryption licensing is based on the number of servers requiring encryption for direct attached storage.
Notes: 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**.

HPE 96W Smart Storage Lithium-ion Battery with 145mm Cable Kit P01366-B21

HPE 96W Smart Storage Lithium-ion Battery with 260mm Cable Kit P01367-B21

Notes: Smart Array Gen10 controllers are supported by the HPE Smart Storage Battery. This battery supports multiple devices and is sold separately.
Notes: See server QuickSpecs for compatibility.

HPE Smart Storage Hybrid Capacitor

HPE Smart Storage Hybrid Capacitor with 145mm Cable Kit P02377-B21

HPE Smart Storage Hybrid Capacitor with 260mm Cable Kit P02381-B21

Notes: The HPE Smart Storage Hybrid Capacitor is only supported on Gen10 servers or later.
Before installing the HPE Smart Storage Hybrid Capacitor, verify that the system BIOS meets the minimum firmware requirements to support the hybrid capacitor module.

Summary of Changes

Date	Version History	Action	Description of Change
01-Apr-2024	Version 9	Changed	Related Options & Compatibility Sections were updated
04-Dec-2023	Version 8	Changed	Service and Support Section was updated
11-Sep-2023	Version 7	Changed	Related Options & Compatibility Sections were updated
15-Nov-2021	Version 6	Changed	Service and Support Section was updated
07-Oct-2019	Version 5	Changed	Standard Features Section was updated
15-Jul-2019	Version 4	Added	Standard Features section was updated
02-Apr-2019	Version 3	Changed	Related Options & Compatibility Sections were updated
01-Oct-2018	Version 2	Changed	Overview were revised.
04-Sep-2018	Version 1	New	New QuickSpecs

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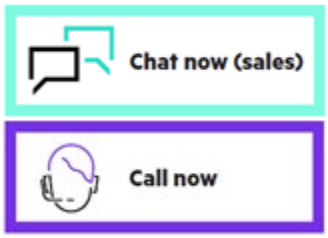

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a00047736enw - 16273 - Worldwide - V9 - 01-April-2024