

Overview

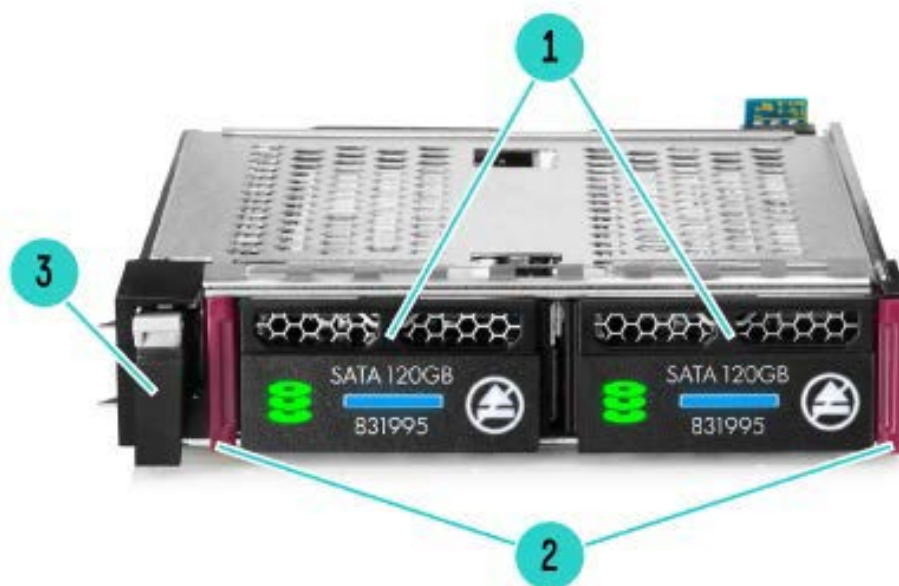
HPE Solid State Disk Drives (SSD, AICs, M.2s and M.2 EKits)

HPE Solid State Drives (SSDs), Add-In-Cards, M.2s and M.2 Enablement Kits (EKits) are based upon industry leading NAND Flash technology, which delivers exceptional performance and endurance to support a growing broad spectrum of demanding applications with varying workload performance requirements.

These storage devices offer better I/O latency & more power efficient solutions when compared with traditional rotating (HDD) media, while also fitting seamlessly into existing HPE server & storage infrastructures, and are available in a number of form factors including: Small Form Factor (SFF), Large Form Factor (LFF), M.2, and PCIe/NVME Add-In-Cards (AIC).



Overview



Item	Description
1.	uFF SATA Drive Modules (hot pluggable)
2.	uFF Drive Ejection Latches
3.	Adapter Ejection Release Latch

HPE M.2 Enablement Kits

M.2 Enablement Kit with Small Form Factor Flash Adapter with Dual uFF SSDs

The HPE M.2 Enablement Kit is a Small Form Factor (SFF) Flash Adapter that packages two 6G SATA M.2 Micro Form Factor (uFF) Sleds in a Dual Domain SFF Smart Drive bay which enables customers to install twice as many drives in an HPE server module when compared to standard SFF Smart Drive bays.

The HPE M.2 Enablement Kit with Small Form Factor Flash Adapter with Dual uFF SSDs increases flexibility, availability and serviceability for storage resources inside the server. The M.2 Enablement Kit with Small Form Factor Flash Adapter with Dual uFF SSDs option increases the composability of the server by enabling configurations that support a broader range of applications and workloads by providing up to 2 drives (2 x HPE SFF Dual uFF SSD options) within 1 drive bay, for example for higher drive performance, or when an on-line spare drive is needed. When higher application availability is required, customers can separate RAID1 mirror boot drives from the application. DATA availability is increased by being able to configure a RAID5 set, which also means more usable capacity.

Overview

What's New?

New Solid State Drives & Drive Option Kit(s):

- P21125-X21 HPE 400GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty SSD
- P21127-X21 HPE 800GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty SSD
- P21129-X21 HPE 1.6TB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty SSD
- P21131-X21 HPE 800GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD
- P21133-X21 HPE 1.6TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD
- P21135-X21 HPE 3.2TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD
- P21137-X21 HPE 6.4TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD
- P21139-X21 HPE 960GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD
- P21141-X21 HPE 1.92TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD
- P21143-X21 HPE 3.84TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD
- P21145-X21 HPE 7.68TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD
- P21147-X21 HPE 15.3TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD
- P22268-X21 HPE 1.6TB NVMe High Performance Mixed Use SFF (2.5in) SCN 3yr Wty Universal Connect SSD
- P22270-X21 HPE 3.2TB NVMe High Performance Mixed Use SFF (2.5in) SCN 3yr Wty Universal Connect SSD
- P22272-X21 HPE 6.4TB NVMe High Performance Mixed Use SFF (2.5in) SCN 3yr Wty Universal Connect SSD
- P22274-X21 HPE 12.8TB NVMe High Performance Mixed Use SFF (2.5in) SCN 3yr Wty Universal Connect SSD
- P22276-X21 HPE 1.92TB NVMe High Performance Read Intensive SFF (2.5in) SCN 3yr Wty Universal Connect SSD
- P22278-X21 HPE 3.84TB NVMe High Performance Read Intensive SFF (2.5in) SCN 3yr Wty Universal Connect SSD
- P22280-X21 HPE 7.68TB NVMe High Performance Read Intensive SFF (2.5in) SCN 3yr Wty Universal Connect SSD
- P22282-X21 HPE 15.36TB NVMe High Performance Read Intensive SFF (2.5in) SCN 3yr Wty Universal Connect SSD
- P22329-X21 HPE 800GB NVMe High Performance Mixed Use SFF (2.5in) SCN 3yr Wty Universal Connect SSD
- P22331-X21 HPE 960GB NVMe High Performance Read Intensive SFF (2.5in) SCN 3yr Wty Universal Connect SSD
- P26104-X21 HPE 7.68TB NVMe High Performance Read Intensive SFF (2.5in) SC 3yr Wty Universal Connect SSD
- P26109-X21 HPE 15.36TB NVMe High Performance Read Intensive SFF (2.5in) SC 3yr Wty Universal Connect SSD
- P26124-X21 HPE 6.4TB NVMe High Performance Mixed Use SFF (2.5in) SC 3yr Wty Universal Connect SSD
- P26129-X21 HPE 12.8TB NVMe High Performance Mixed Use SFF (2.5in) SC 3yr Wty Universal Connect SSD
- P26538-X21 HPE 960GB NVMe High Performance Read Intensive SFF (2.5in) SC 3yr Wty Universal Connect SSD
- P26543-X21 HPE 800GB NVMe High Performance Mixed Use SFF (2.5in) SC 3yr Wty Universal Connect SSD

HPE Solid State Drive Selector Tool – a web-based tool that dramatically reduces the time and complexity of selecting the right SSD for your demanding workloads. <http://ssd.hpe.com>.

Dramatically reduces the time to select the right SSD for your HPE Server

- Recommends the most appropriate SSDs for specific customer workloads
- Reduces selection time and eliminates complexity; sort by server model, price, & performance
- Ideal for customers, HPE Sales, and HPE channel partners
- Simple, web-based tool; user-friendly interface

Firmware Updates:

HPE Digitally Signed Firmware Prevents unauthorized access to your data by providing the security and assurance that drive firmware comes from a trusted source and protects against malicious attacks. Digitally Signed Firmware is indicated by “DS” in the SKU description of older SKUs. All SSDs in the HPE main portfolio of SKU have digitally signed firmware unless otherwise noted, particularly in newer released SKU (even if DS does not appear in the description). Digitally Signed Firmware can be confirmed in the capacity/workload tables by SKU number.

For advanced data protection and encryption, customers should consider HPE Smart Array Controllers with HPE Smart Array Secure SR Encryption. It is a controller-based data encryption solution for HPE servers that protects data-at-rest on all SAS and SATA drives connected directly to the controller. This solution meets stringent compliance regulations such as HIPAA, FIPS, and Sarbanes-Oxley.



Overview

Minimally Supported Operating Systems for all SATA and SAS SSDs:

- Windows Server 2019
 - Microsoft Windows Server 2008 (x86 and x64) SP2 and R2 w/SP1
 - Standard Edition
 - Datacenter
 - Enterprise Edition
 - Web Server
 - Embedded
 - Microsoft Windows 2012 Server (x64) R2
 - Microsoft Windows 2016 (RTM)
 - Red Hat Enterprise Linux 6 (EM64T/AMD64)
 - Red Hat Enterprise Linux 7 (EM64T/AMD64)
 - SLES 11 (EM64T/AMD64) (includes XEN)
 - SLES 12 (EM64T/AMD64) (includes XEN)
 - VMware ESXi 5.5
 - VMware ESXi 6.0
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Overview

Our Solid State product categories include Solid State Drives, or SSDs.

We define enterprise-class as products that include full data path error detection and surprise power loss protection. In addition, our SSDs have HPE SmartSSD Wear Gauge support, which provides diagnostic information and reports on the health of any given drive.

HPE Enterprise SSDs are available in three categories based on the customer's application and workload level: Read Intensive (RI), Mixed Use (MU), and Write Intensive (WI). These categories indicate the number of drive writes per day (DWPD) that you can expect from the drive. (DWPD is the maximum number of 4K host writes to the entire drive capacity of the SSD per day over a five-year period).

Workloads such as Read caching, Web Servers, Social Media, and Boot are more Read Performance driven. Workloads such as Business Intelligence, Big Data Analytics, Virtualization tend to be more Write Performance driven.

Our Read Intensive SSDs are typically focused on Read Performance with an Endurance less than or equal to 1 full drive write per day. Our Write Intensive SSDs are focused on Write Performance with an Endurance of ≥ 10 full drive writes per day (DWPD). As an example, if we have an 800GB Write Intensive SSD with an endurance of 10 Drive Writes per Day, it means that customers can write to the entire 800GB capacity of that SSD 10 times per day, and the drive will last for 5 years. Positioned in-between RI and WI, we have products with Balanced Read and Write Performance that we call Mixed Use (MU), with an Endurance of typically ~ 3 DWPD.

HPE SATA SSDs deliver enterprise features at an affordable price in HPE servers. Entry-level pricing is fueling the rapid adoption of SSDs for read-intensive workloads, with the cost per IOPS comparing favorably to HDDs.

For best access to SATA SSDs, HPE has enhanced its extensive SSD portfolio with a multi-vendor offering that allows for shorter lead times to immediately available supply and extended SKU lifecycles on preferably priced HPE certified SATA SSDs, ensuring the SSDs included in the multi-vendor options deliver the minimum performance published or better. HPE's multi-vendor SSD offering helps customers simplify their purchasing decisions by providing immediate availability, preferable pricing and SKU longevity on HPE certified SSDs.

HPE multi-vendor portfolio utilizes specific vendor SSDs which are HPE qualified and released as single sourced SATA SSD SKUs and are bundled into a multi-sourced SKU per capacity. Identified by Multi Vendor (MV) in the SKU description, these multi-vendor SKUs provide the shortest lead time of SATA SSDs, preferable pricing to single sourced SKUs and are assured to meet or exceed the minimum performance specifications and power requirements published in this HPE QuickSpecs document per capacity SKU number. For customers looking to step up from SATA SSDs, HPE single-port Value SAS SSDs offer a significant performance boost over SATA SSDs with roughly twice the IOPS, and are typically lower in cost than traditional SAS SSD drives.

HPE full-performance SAS SSDs allow greater I/O bandwidth for superior performance over Value SAS SSDs, providing high write performance and endurance. They are best suited for mission-critical enterprise environments with workloads high in read and writes.

For customers looking for even more performance, High Performance Low Latency NVMe SSDs are a category of drives that offers a combination of high throughput, low latency, and ultra-high endurance. The first HPE SSDs using 3D XPoint technology*, these SSDs are optimized to break through data access bottlenecks by providing a new data storage tier. High Performance Low Latency NVMe SSDs accelerate applications for fast caching and fast storage to increase scale per server and reduce transaction costs for latency sensitive workloads.

Using the above information along with our **HPE SSD Selector Tool** at <http://ssd.hpe.com> you can quickly determine what SSD solution might best meet your needs. You can also compare specific capacity, performance attributes, and server compatibility.

Overview

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	SPECIALIZED COMPUTE	STORAGE
HPE Cloudline CL2100/CL2200/CL2800/CL3100/CL4100/CL5200/CL5800 Servers HPE Composable Cloud for ProLiant DL HPE Converged System 700/750 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 DX170r/DX190r/DX200/DX560/DX4200 Servers HPE ProLiant MicroServer HPE ProLiant for Microsoft Azure Stack HPE ProLiant ML30/ML110/ML350 Servers HPE Synergy 480/660 Systems HPE Synergy D3940 Storage Module	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 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 Systems for BlueData Software	HPE Apollo 4200 Gen9/Gen10 Servers HPE Apollo 4200 Gen10 LFF Server for BlueData Software HPE Apollo 4510 Gen10 System HPE D3000/D6020/D8000 Disk Enclosures HPE D2220sb/D2500sb Storage Blade 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

What is SSD?

An enduring data storage device utilizing NAND (negative-AND) semiconductor technology to store and access data which is volatile without the aid of an auxiliary power source.

SSD Quality

Today's businesses are seeing larger, more complex applications, coupled with an increasing amount of mission-critical and transaction processing data demand. In this environment, storage has become a critical component, significantly defining requirements for both systems reliability and performance. This is why HPE drives undergo a rigorous qualification process to ensure functionality and eliminate firmware and O/S incompatibilities.

Integration

Many issues customers have with third party drives are "simple" integration issues. When buying from another supplier, there is no guarantee that a drive has been correctly set for proper operation with ProLiant servers and storage systems. These incompatibilities can create problems in configuration, can rob your system of performance, or at their worst, can cause you to lose data. HPE drives are specifically designed and tested for flawless operation in your HPE equipment. The integration of solid state drives in HPE systems means that associated components are right for your ProLiant server.

Support Matrix

Please see the following URL for the latest list of supported servers and enclosures:

<https://www.hpe.com/us/en/servers.html>

Notes: Non-hot plug devices are 15mm Z-height, which restricts them to those servers that can accept a 15mm device.

Product Category

HPE Enterprise SSDs are available in three categories based on workload level: Read Intensive (RI), Mixed Use (MU), and Write Intensive (WI). The categories indicate the number of drive writes per day (DWPD1) that you can expect from the drive. (DWPD is the maximum number of 4K host writes to the entire drive capacity of the SSD per day over a five-year period).

Maximum Usage Limitations

NAND Flash devices use semiconductor technology that has a finite number of data that can be written to the device, defined as the Maximum Usage Limit, commonly called "Write Endurance". Write Endurance - is measured while running 100% random 4KiB writes across the entire SSD.

Drive Writes Per Day (DWPD) - Workload environment is based on 100% random 4KiB writes for five (5) years, which is the maximum amount of data that can be written to the device before reaching the device's write endurance limit.

HPE Solid State Drives (SSDs) are equipped with tools that can report the amount of lifetime remaining. Introducing HPE SMARTSSD Wear Gauge™. To take advantage of SMARTSSD Wear Gauge™, Smart Array Firmware version 5.0 or greater is required and HPE Array Configuration Utility (ACU) or HPE Diagnostic Utility (ADU) must be running.

Simple Network Management Protocol (SNMP) Storage Agents for both Microsoft® Windows® and Linux provide status and condition updates through traps, OS event logs and the HPE System **Management**

Homepage: <https://www.hpe.com/us/en/product-catalog/detail/pip.hp-system-management-homepage-software.344313.html>

The HPE SMARTSSD Wear Gauge™ requires a Smart Array or Smart HBA controller listed below.

Standard Features

- HPE Smart Array PX1X Controller Series or newer
- HPE Smart HBA PX4X Controller Series
- HPE Dynamic Smart Array BX2Xi Controller Series or newer
- HPE Dynamic Smart Array B320i Controller

Notes: HPE Direct Connect to the HPE Smart Array B110i SATA RAID Controller is not currently supported by the above noted tool.



Standard Features

Data Retention

Data Retention is the period of time for retaining the data in the NAND once the maximum rated endurance level has occurred. These SSD's are rated for 3 months if no power is applied once the SSD has reached maximum rated write endurance.

Warranty

SSD & AIC Standard 3/0/0 warranty; Customer Self Repair (CSR) subject to maximum usage limitations. Maximum usage limit: This is the maximum amount of data that can be written to the drive. Drives that have reached this limit will not be eligible for warranty coverage.

Notes: In cases where an M.2 SSD is used in conjunction with a Server Cartridge the Warranty includes 3-Year Parts, 3-Year Labor, 3-Year (3/3/3) Onsite support for that option only.

HPE SATA Very Read Optimized Solid State Drives Endurance

"Very Read Optimized" is an HPE term used to differentiate new QLC NAND based SSDs that will have variable endurance levels or DDPD (Drive Writes Per Day) depending on how a customer writes data to them. Using QLC NAND requires that the workload write percentage and block size be understood as the endurance can be very different than other SSDs in the market. HPE VRO SSDs are designed for targeted workloads that drive a typical mix of >80% random reads and <20% sequential large block writes. Today it is standard for all SSDs to use a 100% 4K random write workload to generate the specified endurance (DDPD) that is listed in the technical specifications. However, as VRO SSDs are not targeted at that 100% 4K random write workload, it's important to consider the actual targeted workload.

The VRO targeted workloads would typically have all write operations that are sequential and in 128K blocks which would allow all VRO capacities to support 0.8 DDPD endurance. However, if the VRO SSD is used differently than targeted, the DDPD will vary based upon how the drive is written to. If used incorrectly, such as the industry standard 4K random write workload the DDPD endurance drops to: 0.2 on the 1.92TB; 0.09 on the 3.84TB and 0.05 on the 7.68TB VRO SSDs.

Table 1. Endurance by workload

Capacity	Drive Writes Per Day (DDPD)			Total Bytes Written (TBW)		
	1.92TB	3.84TB	7.68TB	1.92TB	3.84TB	7.68TB
100% 128K sequential writes	0.8	0.8	0.8	2800 TB	5600 TB	11210 TB
90% 128K sequential writes*	0.72	0.62	0.56	2505 TB	4370 TB	7880 TB
10% 4K random writes						
80% 128K sequential writes*	0.66	0.56	0.39	2295 TB	3900 TB	5510 TB
20% 4K random writes						
70% 128K sequential writes*	0.56	0.41	0.27	1970 TB	2870 TB	3800 TB
30% 4K random writes						
50% 128K sequential writes*	0.44	0.25	0.16	1530 TB	1760 TB	2175 TB
50% 4K random writes						
100% 16K random writes	0.2	0.2	0.2	700 TB	1366 TB	2733 TB
100% 8K random writes	0.2	0.18	0.1	700 TB	1260 TB	1400 TB
100% 4K random writes	0.2	0.09	0.05	700 TB	630 TB	700 TB

Notes: *Based on 100% 4K random writes; Larger block sizes and sequential writes provide greater endurance, as listed in the table in the Endurance section



Service and Support

HPE Technology Services for Industry Standard Servers

HPE Technology Services delivers confidence, reduces risk and helps customers realize agility and stability powered by a rich portfolio of consulting and support services designed to add value to our core products and solutions 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 Support Services

HPE support services offer complete care and support expertise with committed response choices that are designed to meet your IT and business needs.

Notes: HPE Solid State Drives are supported as a part of the HPE Server Infrastructure. No separate Support Services are needed to be purchased.

Connect your devices to HPE

Unlock all of the benefits of your technology investment by connecting your products to Hewlett Packard Enterprise. Achieve up to 77%¹ reduction in down time, near 100%² diagnostic accuracy and a single consolidated view of your environment. By connecting, you will receive 24x7 monitoring, pre-failure alerts, automatic call logging, and automatic parts dispatch. HPE Proactive Care Service and HPE Datacenter Care Service customers will also benefit from proactive activities to help prevent issues and increase optimization.

All of these benefits are already available to you with your server storage and networking products, securely connected to HPE support.

Notes:

- [1.-IDC Whitepaper](#)
- [2.-HPE CSC Reports 2014-2015](#)

HPE Support Center

Personalized online support portal with access to information, tools and experts to support HPE business products. Submit support cases online, chat with Hewlett Packard Enterprise experts, access support resources or collaborate with peers. Learn more [HPE Support Center](#)

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 Support Services or HPE contractual support agreement.

Notes: HPE Support Center Mobile App above 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.



Service and Support

Warranty / Service Coverage

For ProLiant servers and storage systems, the service on the main product covers HPE-branded hardware options not designated by Hewlett Packard Enterprise as requiring separate coverage, that are qualified for the server, purchased at the same time or afterward and internal to the enclosure. These items will be covered at the same service level and for the same coverage period as the server unless the maximum supported lifetime and/or the maximum usage limitation has been reached.

The defective media retention service feature option applies only to Disk or eligible SSD/Flash Drives replaced by Hewlett Packard Enterprise due to malfunction. It does not apply to Disk or SSD/Flash Drives that have not failed. SSD/Flash Drives that are specified by Hewlett Packard Enterprise as consumable parts and/or that have reached maximum supported lifetime and/or the maximum usage limits as set forth in the manufacturer's operating manual, the product QuickSpecs, or the technical data sheet are not eligible for the defective media retention service feature option.

Subject to: Maximum supported lifetime: This is a period in years set to equal the warranty for the specific drive. After this period no further service coverage will be available for the drive. Maximum usage limit: This is the maximum amount of data that can be written to the drive. Drives that have reached this limit will not be eligible for services coverage.

Additional Notes Regarding Usage and Wear:

- DWPD (Drive-Writes-Per Day) -> Full drive writes per day for 5 years. Based on 100% Random Writes (KiB).
- HPE Enterprise SSDs deliver: Full data path error detection, surprise power loss protection and Smart SSD Wear Gauge support.

For more information

To learn more on services for HPE ESSN Options, please contact your Hewlett Packard Enterprise sales representative or Hewlett Packard Enterprise Authorized Channel Partner. Or visit:

- <https://www.hpe.com/us/en/product-catalog/servers/proliant-servers.html> or
- <https://www.hpe.com/us/en/integrated-systems/bladesystem.html>

Supporting Helpful Links

- <http://www.hpe.com/info/rackandpower>
- <http://www.hpe.com/info/poweradvisor>
- <https://www.hpe.com/us/en/storage/entry-level.html>

Also:

Take control of your data - A guide to understanding storage technologies.

- <http://www.hpe.com/h20195/V2/getpdf.aspx/4AA4-7667ENW.pdf?ver=1.0>
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Technical Specifications

SATA Capacity, Workload and Carrier Specifications

SATA Interface– (Capacity, Workload, Carrier...)

HPE Option Kit SKU	Long Description	Capacity	Workload Type	Interface Type	Form Factor	Plug Type	Carrier Type	Digitally Signed Firmware (DS)	Flash Type	Port	Server Gen Supported (Select Platforms)
875490-X21	HPE 480GB SATA 6G Mixed Use M.2 2280 3yr Wty Digitally Signed Firmware SSD	480	MU	SATA	M.2	N/A	N/A	Yes	TLC	Single	Gen9,10
P05976-X21	HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	480	MU	SATA	SFF	Hot Plug	SC	Yes	TLC	Single	Gen10
P05980-X21	HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	960	MU	SATA	SFF	Hot Plug	SC	Yes	TLC	Single	Gen10
P05986-X21	HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	1,920	MU	SATA	SFF	Hot Plug	SC	Yes	TLC	Single	Gen10
P05994-X21	HPE 3.84TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	3,840	MU	SATA	SFF	Hot Plug	SC	Yes	TLC	Single	Gen10
P09712-X21	HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	480	MU	SATA	SFF	Hot Plug	SC	Yes	MLC	Single	Gen9,10
P09716-X21	HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	960	MU	SATA	SFF	Hot Plug	SC	Yes	MLC	Single	Gen9,10
P09718-X21	HPE 960GB SATA 6G Mixed Use LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	960	MU	SATA	LFF	Hot Plug	SCC	Yes	MLC	Single	Gen9,10
P09722-X21	HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	1,920	MU	SATA	SFF	Hot Plug	SC	Yes	MLC	Single	Gen9,10
P09724-X21	HPE 1.92TB SATA 6G Mixed Use LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	1,920	MU	SATA	LFF	Hot Plug	SCC	Yes	MLC	Single	Gen9,10
P09726-X21	HPE 1.92TB SATA 6G Mixed Use LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD	1,960	MU	SATA	LFF	Hot Plug	LPC	Yes	MLC	Single	Gen9,10
P13658-X21	HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	480	MU	SATA	SFF	Hot Plug	SC	Yes	TLC	Single	Gen9,10
P13660-X21	HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	960	MU	SATA	SFF	Hot Plug	SC	Yes	TLC	Single	Gen9,10
P13662-X21	HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	1,920	MU	SATA	SFF	Hot Plug	SC	Yes	TLC	Single	Gen9,10

Technical Specifications

SATA Interface– (Capacity, Workload, Carrier...)

HPE Option Kit SKU	Long Description	Capacity	Workload Type	Interface Type	Form Factor	Plug Type	Carrier Type	Digitally Signed Firmware (DS)	Flash Type	Port	Server Gen Supported (Select Platforms)
P13664-X21	HPE 3.84TB SATA 6G Mixed Use SFF (2.5in) RW 3yr Wty Digitally Signed Firmware SSD	3,840	MU	SATA	SFF	Hot Plug	SC	Yes	TLC	Single	Gen9,10
P18432-X21	HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Multi Vendor SSD	480	MU	SATA	SFF	Hot Plug	SC	Yes	MLC	Single	Gen9, 10
P18434-X21	HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Multi Vendor SSD	960	MU	SATA	SFF	Hot Plug	SC	Yes	MLC	Single	Gen9, 10
P18436-X21	HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Multi Vendor SSD	1,920	MU	SATA	SFF	Hot Plug	SC	Yes	MLC	Single	Gen9, 10
P18438-X21	HPE 3.84TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Multi Vendor SSD	3,840	MU	SATA	SFF	Hot Plug	SC	Yes	MLC	Single	Gen9, 10
P19947-X21	HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty SSD	480	MU	SATA	SFF	Hot Plug	SC	Yes	TLC	Single	Gen10, 10.5
P19949-X21	HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty SSD	960	MU	SATA	SFF	Hot Plug	SC	Yes	TLC	Single	Gen10, 10.5
P19951-X21	HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty SSD	1,920	MU	SATA	SFF	Hot Plug	SC	Yes	TLC	Single	Gen10, 10.5
P19953-X21	HPE 3.84TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty SSD	3,840	MU	SATA	SFF	Hot Plug	SC	Yes	TLC	Single	Gen10, 10.5
P19978-X21	HPE 480GB SATA 6G Mixed Use LFF (3.5in) SCC 3yr Wty SSD	480	MU	SATA	LFF	Hot Plug	SCC	Yes	TLC	Single	Gen10, 10.5
P19980-X21	HPE 960GB SATA 6G Mixed Use LFF (3.5in) LPC 3yr Wty SSD	960	MU	SATA	LFF	Hot Plug	LPC	Yes	TLC	Single	Gen10, 10.5
P19982-X21	HPE 1.92TB SATA 6G Mixed Use LFF (3.5in) SCC 3yr Wty SSD	1,920	MU	SATA	LFF	Hot Plug	SCC	Yes	TLC	Single	Gen10, 10.5
P19984-X21	HPE 1.92TB SATA 6G Mixed Use LFF (3.5in) LPC 3yr Wty SSD	1,920	MU	SATA	LFF	Hot Plug	LPC	Yes	TLC	Single	Gen10, 10.5
P19986-X21	HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) RW 3yr Wty SSD	1,920	MU	SATA	SFF	Hot Plug	RW	Yes	TLC	Single	Gen10, 10.5
P21517-X21	HPE 3.84TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty SSD	1,920	MU	SATA	SFF	Hot Plug	SC	Yes	MLC	Single	Gen 10
875498-X21	HPE 480GB SATA 6G Read Intensive M.2 2280 3yr Wty Digitally Signed Firmware SSD	480	RI	SATA	M.2	N/A	N/A	Yes	TLC	Single	Gen9 & 10



Technical Specifications

SATA Interface– (Capacity, Workload, Carrier...)

HPE Option Kit SKU	Long Description	Capacity	Workload Type	Interface Type	Form Factor	Plug Type	Carrier Type	Digitally Signed Firmware (DS)	Flash Type	Port	Server Gen Supported (Select Platforms)
875500-X21	HPE 960GB SATA 6G Read Intensive M.2 2280 3yr Wty Digitally Signed Firmware SSD	960	RI	SATA	M.2	N/A	N/A	Yes	TLC	Single	Gen9 & 10
P04476-X21	HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	960	RI	SATA	SFF	Hot Plug	SC	Yes	TLC	Single	Gen9 & 10
P04478-X21	HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	1,920	RI	SATA	SFF	Hot Plug	SC	Yes	TLC	Single	Gen9 & 10
P04480-X21	HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	3,840	RI	SATA	SFF	Hot Plug	SC	Yes	TLC	Single	Gen9 & 10
P04501-X21	HPE 1.92TB SATA 6G Read Intensive LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD	1,920	RI	SATA	LFF	Hot Plug	LPC	Yes	TLC	Single	Gen9 & 10
P04556-X21	HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	240	RI	SATA	SFF	Hot Plug	SC	Yes	MLC	Single	Gen10
P04560-X21	HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	480	RI	SATA	SFF	Hot Plug	SC	Yes	MLC	Single	Gen10
P04564-X21	HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	960	RI	SATA	SFF	Hot Plug	SC	Yes	MLC	Single	Gen10
P04566-X21	HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	1,920	RI	SATA	SFF	Hot Plug	SC	Yes	MLC	Single	Gen10
P04570-X21	HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	3,840	RI	SATA	SFF	Hot Plug	SC	Yes	MLC	Single	Gen10
P05924-X21	HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	240	RI	SATA	SFF	Hot Plug	SC	Yes	TLC	Single	Gen10



Technical Specifications

SATA Interface– (Capacity, Workload, Carrier...)

HPE Option Kit SKU	Long Description	Capacity	Workload Type	Interface Type	Form Factor	Plug Type	Carrier Type	Digitally Signed Firmware (DS)	Flash Type	Port	Server Gen Supported (Select Platforms)
P05928-X21	HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	480	RI	SATA	SFF	Hot Plug	SC	Yes	TLC	Single	Gen10
P05932-X21	HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	960	RI	SATA	SFF	Hot Plug	SC	Yes	TLC	Single	Gen10
P05938-X21	HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	1,920	RI	SATA	SFF	Hot Plug	SC	Yes	TLC	Single	Gen10
P05946-X21	HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	3,840	RI	SATA	SFF	Hot Plug	SC	Yes	TLC	Single	Gen10
P06194-X21	HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	480	RI	SATA	SFF	Hot Plug	SC	Yes	TLC	Single	Gen9 & 10
P06196-X21	HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	960	RI	SATA	SFF	Hot Plug	SC	Yes	TLC	Single	Gen9 & 10
P06198-X21	HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	1,920	RI	SATA	SFF	Hot Plug	SC	Yes	TLC	Single	Gen9 & 10
P06200-X21	HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	3,840	RI	SATA	SFF	Hot Plug	SC	Yes	TLC	Single	Gen9 & 10
P06609-X21	HPE Dual 480GB SATA 6G Read Intensive M.2 - UFF to SFF SCM 3yr Wty Digitally Signed Firmware SSD	480	RI	SATA	SFF	Hot Plug	SCM	Yes	MLC	Single	Gen9 & 10
P09685-X21	HPE 240GB SATA 6G Read Intensive SFF (2.5in) RW 3yr Wty Digitally Signed Firmware SSD	240	RI	SATA	SFF	Non-Hot Plug	RW	Yes	MLC	Single	Gen9, 10
P09687-X21	HPE 480GB SATA 6G Read Intensive LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	480	RI	SATA	LFF	Hot Plug	SCC	Yes	MLC	Single	Gen9, 10



Technical Specifications

SATA Interface– (Capacity, Workload, Carrier...)

HPE Option Kit SKU	Long Description	Capacity	Workload Type	Interface Type	Form Factor	Plug Type	Carrier Type	Digitally Signed Firmware (DS)	Flash Type	Port	Server Gen Supported (Select Platforms)
P09689-X21	HPE 960GB SATA 6G Read Intensive LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	960	RI	SATA	LFF	Hot Plug	SCC	Yes	MLC	Single	Gen9, 10
P09691-X21	HPE 960GB SATA 6G Read Intensive LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD	960	RI	SATA	LFF	Hot Plug	LPC	Yes	MLC	Single	Gen9, 10
P09693-X21	HPE 1.92TB SATA 6G Read Intensive LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	1,920	RI	SATA	LFF	Hot Plug	SCC	Yes	MLC	Single	Gen9, 10
P09697-X21	HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) RW 3yr Wty Digitally Signed Firmware SSD	3,840	RI	SATA	SFF	Non-Hot Plug	RW	Yes	MLC	Single	Gen9, 10
P18420-X21	HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	240	RI	SATA	SFF	Hot Plug	SC	Yes	MLC	Single	Gen9, 10
P18422-X21	HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	480	RI	SATA	SFF	Hot Plug	SC	Yes	MLC	Single	Gen9, 10
P18424-X21	HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	960	RI	SATA	SFF	Hot Plug	SC	Yes	TLC	Single	Gen9, 10
P18426-X21	HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	1,920	RI	SATA	SFF	Hot Plug	SC	Yes	TLC	Single	Gen9, 10
P18428-X21	HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	3,840	RI	SATA	SFF	Hot Plug	SC	Yes	TLC	Single	Gen9, 10
P18430-X21	HPE 7.68TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	7,680	RI	SATA	SFF	Hot Plug	SC	Yes	TLC	Single	Gen9, 10
P19888-X21	HPE 240GB SATA 6G Read Intensive M.2 2280 3yr Wty SSD	240	RI	SATA	M.2	Non Hot Plug	N/A	Yes	TLC	Single	Gen10, 10.5
P19890-X21	HPE 480GB SATA 6G Read Intensive M.2 2280 3yr Wty SSD	480	RI	SATA	M.2	Non Hot Plug	N/A	Yes	TLC	Single	Gen10, 10.5
P19892-X21	HPE 960GB SATA 6G Read Intensive M.2 2280 3yr Wty SSD	960	RI	SATA	M.2	Non Hot Plug	N/A	Yes	TLC	Single	Gen10, 10.5



Technical Specifications

SATA Interface– (Capacity, Workload, Carrier...)

HPE Option Kit SKU	Long Description	Capacity	Workload Type	Interface Type	Form Factor	Plug Type	Carrier Type	Digitally Signed Firmware (DS)	Flash Type	Port	Server Gen Supported (Select Platforms)
P19894-X21	HPE Dual 240GB SATA 6G Read Intensive M.2 - UFF to SFF SCM 3yr Wty SSD	240	RI	SATA	SFF	Hot Plug	SCM	Yes	TLC	Single	Gen10, 10.5
P19896-X21	HPE Dual 480GB SATA 6G Read Intensive M.2 - UFF to SFF SCM 3yr Wty SSD	480	RI	SATA	SFF	Hot Plug	SCM	Yes	TLC	Single	Gen10, 10.5
P19935-X21	HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD	240	RI	SATA	SFF	Hot Plug	SC	Yes	TLC	Single	Gen10, 10.5
P19937-X21	HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD	480	RI	SATA	SFF	Hot Plug	SC	Yes	TLC	Single	Gen10, 10.5
P19939-X21	HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD	960	RI	SATA	SFF	Hot Plug	SC	Yes	TLC	Single	Gen10, 10.5
P19941-X21	HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD	1,920	RI	SATA	SFF	Hot Plug	SC	Yes	TLC	Single	Gen10, 10.5
P19943-X21	HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD	3,840	RI	SATA	SFF	Hot Plug	SC	Yes	TLC	Single	Gen10, 10.5
P19945-X21	HPE 7.68TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD	7,680	RI	SATA	SFF	Hot Plug	SC	Yes	TLC	Single	Gen10, 10.5
P19974-X21	HPE 480GB SATA 6G Read Intensive LFF (3.5in) LPC 3yr Wty SSD	480	RI	SATA	LFF	Hot Plug	LPC	Yes	TLC	Single	Gen10, 10.5
P19976-X21	HPE 1.92TB SATA 6G Read Intensive LFF (3.5in) LPC 3yr Wty SSD	1,920	RI	SATA	LFF	Hot Plug	LPC	Yes	TLC	Single	Gen10, 10.5
P23487-X21	HPE 1.92TB SATA 6G Very Read Optimized SFF (2.5in) SC 3yr Wty SSD	1,920	VRO	SATA	SFF	Hot Plug	SC	Yes	QLC	Single	Gen10, 10.5
P23489-X21	HPE 3.84TB SATA 6G Very Read Optimized SFF (2.5in) SC 3yr Wty SSD	3,840	VRO	SATA	SFF	Hot Plug	SC	Yes	QLC	Single	Gen10, 10.5
P23491-X21	HPE 3.84TB SATA 6G Very Read Optimized LFF (3.5in) LPC 3yr Wty SSD	3,840	VRO	SATA	LFF	Hot Plug	LPC	Yes	QLC	Single	Gen10, 10.5
P23493-X21	HPE 7.68TB SATA 6G Very Read Optimized SFF (2.5in) SC 3yr Wty SSD	7,680	VRO	SATA	SFF	Hot Plug	SC	Yes	QLC	Single	Gen10, 10.5



Technical Specifications

SATA Interface– (Capacity, Workload, Carrier...)

HPE Option Kit SKU	Long Description	Capacity	Workload Type	Interface Type	Form Factor	Plug Type	Carrier Type	Digitally Signed Firmware (DS)	Flash Type	Port	Server Gen Supported (Select Platforms)
P23495-X21	HPE 7.68TB SATA 6G Very Read Optimized LFF (3.5in) LPC 3yr Wty SSD	7,680	VRO	SATA	LFF	Hot Plug	LPC	Yes	QLC	Single	Gen10, 10.5
P24190-X21	HPE 960GB SATA 6G Very Read Optimized SFF (2.5in) SC 3yr Wty SSD	960	VRO	SATA	SFF	Hot Plug	SC	Yes	QLC	Single	Gen10, 10.5

Universal SATA M.2 Enablement Kit

878783-X21	HPE Universal SATA HHHL 3yr Wty M.2 Kit	N/A	N/A	SATA	M.2e	Non-Hot Plug	AIC	Yes	N/A		Gen9, Gen10
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Notes: Please use HPE Selector Tool <http://ssd.hpe.com/> to determine server compatibility.



Technical Specifications

SATA Speeds and Feeds Specifications

SATA Interface – (Speeds & Feeds)							
HPE Option Kit SKU	Long Description	Lifetime Writes (TB)	Endurance DWPD	MAX Seq Reads / Max Seq Writes Throughput (MiB/s)	Random Read Avg. / Random Write Avg. Latency uSec (4KiB,Q1)	Random Read / Random Writes IOPS (4KiB, Q=16)	MAX Random Read / MAX Random Write IOPS (4KiB)
875490-X21	HPE 480GB SATA 6G Mixed Use M.2 2280 3yr Wty Digitally Signed Firmware SSD	1,300	1.5	500 / 400	130 / 40	60,000 / 34,000	68,000@Q32 / 34,000@Q4
P05976-X21	HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	3,000	3.5	530 / 480	110 / 52	68,000 / 40,000	76,000@Q32 / 42,000@Q32
P05980-X21	HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	6,000	3.4	530 / 480	110 / 50	68,000 / 41,000	76,000@Q32 / 43,000@Q32
P05986-X21	HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	10,000	3.1	525 / 480	110 / 52	69,000 / 38,000	76,000@Q32 / 41,000@Q32
P05994-X21	HPE 3.84TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	22,000	3.1	525 / 480	110 / 55	69,000 / 36,000	76,000@Q32 / 38,000@Q32
P09712-X21	HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	3,000	3.5	535 / 495	91 / 36	70,000 / 29,000	80,000@Q32 / 29,000@Q4
P09716-X21	HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	6,000	3.5	535 / 495	91 / 36	70,000 / 31,000	80,000@Q32 / 31,000@Q4
P09718-X21	HPE 960GB SATA 6G Mixed Use LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	6,000	4	535 / 495	91 / 36	70,000 / 31,000	80,000@Q32 / 31,000@Q4
P09722-X21	HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	12,100	4	535 / 495	91 / 36	70,000 / 31,000	80,000@Q32 / 31,000@Q4
P09724-X21	HPE 1.92TB SATA 6G Mixed Use LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	12,100	4	535 / 495	91 / 36	70,000 / 31,000	80,000@Q32 / 31,000@Q4
P09726-X21	HPE 1.92TB SATA 6G Mixed Use LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD	12,100	4	535 / 495	91 / 36	70,000 / 31,000	80,000@Q32 / 31,000@Q4
P13658-X21	HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	6,480	7	510 / 430	120 / 38	62,000 / 50,000	72,000@Q32 / 50,000@Q4
P13660-X21	HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	7,000	4	530 / 500	120 / 38	61,000 / 53,000	72,000@Q32 / 53,000@Q4
P13662-X21	HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	10,600	3	530 / 500	125 / 38	59,000 / 53,000	71,000@Q32 / 53,000@Q4

Technical Specifications

SATA Interface – (Speeds & Feeds)

HPE Option Kit SKU	Long Description	Lifetime Writes (TB)	Endurance DWPD	MAX Seq Reads / Max Seq Writes Throughput (MiB/s)	Random Read Avg. / Random Write Avg. Latency uSec (4KiB,Q1)	Random Read / Random Writes IOPS (4KiB, Q=16)	MAX Random Read / MAX Random Write IOPS (4KiB)
P13664-X21	HPE 3.84TB SATA 6G Mixed Use SFF (2.5in) RW 3yr Wty Digitally Signed Firmware SSD	29,000	4	530 / 500	125 / 38	59,000 / 53,000	70,000@Q32 / 53,000@Q4
P18432-X21	HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Multi Vendor SSD	3000	4	510 / 430	125 / 52	62,000 / 40,000	72,000@Q32 / 29,000@Q4
P18434-X21	HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Multi Vendor SSD	6000	3	520 / 480	125 / 50	63,000 / 31,000	64,500@Q32 / 31,000@Q4
P18436-X21	HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Multi Vendor SSD	10000	3	520 / 480	125 / 52	59,000 / 31,000	62,000@Q32 / 31,000@Q4
P18438-X21	HPE 3.84TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Multi Vendor SSD	17600	3	510 / 480	125 / 55	56,000 / 28,000	60,000@Q32 / 28,000@Q4
P19947-X21	HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty SSD	4,380	5	520 / 450	125 / 37	67,000 / 52,000	76,000@Q64 / 53,000@Q4
P19949-X21	HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty SSD	8,760	5	520 / 490	125 / 37	67,000 / 52,000	76,000@Q256 / 52,000@Q4
P19951-X21	HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty SSD	17,520	5	520 / 490	125 / 37	67,000 / 52,000	75,000@Q256 / 52,000@Q4
P19953-X21	HPE 3.84TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty SSD	24,531	4	510 / 490	125 / 39	67,000 / 34,000	77,000@Q32 / 35,000@Q4
P19978-X21	HPE 480GB SATA 6G Mixed Use LFF (3.5in) SCC 3yr Wty SSD	4,380	5	520 / 450	125 / 37	67,000 / 52,000	76,000@Q64 / 53,000@Q4
P19980-X21	HPE 960GB SATA 6G Mixed Use LFF (3.5in) LPC 3yr Wty SSD	8,760	5	520 / 490	125 / 37	67,000 / 52,000	76,000@Q256 / 52,000@Q4
P19982-X21	HPE 1.92TB SATA 6G Mixed Use LFF (3.5in) SCC 3yr Wty SSD	17,520	5	520 / 490	125 / 37	67,000 / 52,000	75,000@Q256 / 52,000@Q4
P19984-X21	HPE 1.92TB SATA 6G Mixed Use LFF (3.5in) LPC 3yr Wty SSD	17,520	5	520 / 490	125 / 37	67,000 / 52,000	75,000@Q256 / 52,000@Q4
P19986-X21	HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) RW 3yr Wty SSD	17,520	5	520 / 490	125 / 37	67,000 / 52,000	75,000@Q256 / 52,000@Q4
P21517-X21	HPE 3.84TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty SSD	24,200	3	525 / 480	140 / 76	61,000 / 32,000	69,000@Q32 / 32,500@Q32
875498-X21	HPE 480GB SATA 6G Read Intensive M.2 2280 3yr Wty Digitally Signed Firmware SSD	450	0.5	500 / 425	130 / 40	61,000 / 46,000	67,000@Q32 / 46,000@Q64

Technical Specifications

SATA Interface – (Speeds & Feeds)

HPE Option Kit SKU	Long Description	Lifetime Writes (TB)	Endurance DWPD	MAX Seq Reads / Max Seq Writes Throughput (MiB/s)	Random Read Avg. / Random Write Avg. Latency uSec (4KiB,Q1)	Random Read / Random Writes IOPS (4KiB, Q=16)	MAX Random Read / MAX Random Write IOPS (4KiB)
875500-X21	HPE 960GB SATA 6G Read Intensive M.2 2280 3yr Wty Digitally Signed Firmware SSD	900	0.5	500 / 465	130 / 40	61,000 / 41,000	67,000@Q32 / 41,000@Q4
P04476-X21	HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	1,750	1.0	520 / 490	125 / 40	65,000 / 29,000	69,000@Q32 / 32,000@Q32
P04478-X21	HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	3,500	1.0	520 / 495	125 / 41	60,000 / 24,000	62,000@@Q32 / 25,000@Q32
P04480-X21	HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	7,700	1.1	520 / 495	125 / 45	55,000 / 21,000	58,000@Q32 / 22,000@Q4
P04501-X21	HPE 1.92TB SATA 6G Read Intensive LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD	3,500	1.0	520 / 495	125 / 41	60,000 / 24,000	62,000@Q32 / 25,000@Q32
P04556-X21	HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	350	0.8	535 / 315	105 / 70	70,000 / 14,000	79,000@Q32 / 14,000@Q1
P04560-X21	HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	700	0.8	535 / 495	105 / 40	68,000 / 25,000	77,000@Q32 / 25,000@Q1
P04564-X21	HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	1,400	0.8	535 / 495	105 / 36	65,000 / 29,000	76,000@Q32 / 29,000@Q4
P04566-X21	HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	2,800	0.8	535 / 495	120 / 36	64,000 / 30,000	73,000@Q32 / 30,000@Q4
P04570-X21	HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	5,600	0.8	535 / 495	120 / 36	63,000 / 30,000	72,000@Q32 / 30,000@Q4
P05924-X21	HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	900	1.9	530 / 255	110 / 65	66,000 / 16,000	76,000@Q32 / 16,500@Q4
P05928-X21	HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	1,200	1.3	530 / 465	110 / 75	68,000 / 17,500	76,000@Q32 / 19,000@Q4
P05932-X21	HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	3,400	1.9	525 / 480	110 / 60	68,000 / 33,000	76,000@Q32 / 35,000@Q32
P05938-X21	HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	7,100	2.0	530 / 480	110 / 60	69,000 / 33,000	76,000@Q32 / 34,000@Q32



Technical Specifications

SATA Interface – (Speeds & Feeds)							
HPE Option Kit SKU	Long Description	Lifetime Writes (TB)	Endurance DWPD	MAX Seq Reads / Max Seq Writes Throughput (MiB/s)	Random Read Avg. / Random Write Avg. Latency uSec (4KiB,Q1)	Random Read / Random Writes IOPS (4KiB, Q=16)	MAX Random Read / MAX Random Write IOPS (4KiB)
P05946-X21	HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	13,100	1.9	525 / 480	110 / 65	69,000 / 28,000	76,000@Q32 / 30,500@Q32
P06194-X21	HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	430	0.5	530 / 300	120 / 65	65,000 / 15,000	65,500@Q32 / 15,400@Q1
P06196-X21	HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	1,710	1.0	530 / 480	120 / 42	58,500 / 36,500	58,500@Q32 / 38,200@Q16
P06198-X21	HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	3,100	0.9	530 / 470	120 / 42	55,500 / 31,000	56,000@Q32 / 32,500@Q4
P06200-X21	HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	3,400	0.5	530 / 480	120 / 42	54,000 / 26,000	56,000@Q32 / 25,000@Q4
P06609-X21	HPE Dual 480GB SATA 6G Read Intensive M.2 - UFF to SFF SCM 3yr Wty Digitally Signed Firmware SSD	N/A	N/A	N/A / N/A	N/A / N/A	N/A / N/A	N/A / N/A
P09685-X21	HPE 240GB SATA 6G Read Intensive SFF (2.5in) RW 3yr Wty Digitally Signed Firmware SSD	250	0.8	535 / 315	105 / 70	70,000 / 14,000	79,000@Q32 / 14,000@Q1
P09687-X21	HPE 480GB SATA 6G Read Intensive LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	700	0.8	535 / 495	105 / 40	68,000 / 25,000	77,000@Q32 / 25,000@Q1
P09689-X21	HPE 960GB SATA 6G Read Intensive LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	1,400	0.8	535 / 495	105 / 36	65,000 / 29,000	76,000@Q32 / 29,000@Q4
P09691-X21	HPE 960GB SATA 6G Read Intensive LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD	1,400	0.8	535 / 495	105 / 36	65,000 / 29,000	76,000@Q32 / 29,000@Q4
P09693-X21	HPE 1.92TB SATA 6G Read Intensive LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	2,400	0.8	535 / 495	120 / 36	64,000 / 30,000	73,000@Q32 / 30,000@Q4
P09697-X21	HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) RW 3yr Wty Digitally Signed Firmware SSD	5,600	0.8	535 / 495	120 / 36	63,000 / 30,000	72,000@Q32 / 30,000@Q4

Technical Specifications

SATA Interface – (Speeds & Feeds)

HPE Option Kit SKU	Long Description	Lifetime Writes (TB)	Endurance DWPD	MAX Seq Reads / Max Seq Writes Throughput (MiB/s)	Random Read Avg. / Random Write Avg. Latency uSec (4KiB,Q1)	Random Read / Random Writes IOPS (4KiB, Q=16)	MAX Random Read / MAX Random Write IOPS (4KiB)
P18420-X21	HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	350	1	505 / 255	203 / 121	57,000 / 14,000	65,000@Q32 / 10,500@Q1
P18422-X21	HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	430	1	510 / 300	125 / 65	65,000 / 15,000	65,500@Q32 / 15,400@Q1
P18424-X21	HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	1400	1	515 / 480	125 / 60	58,500 / 29,000	58,500@Q32 / 29,000@Q4
P18426-X21	HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	2800	1	520 / 470	125 / 60	55,500 / 24,000	56,000@Q32 / 25,000@Q32
P18428-X21	HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	3400	1	510 / 480	125 / 65	54,000 / 21,000	56,000@Q32 / 22,000@Q4
P18430-X21	HPE 7.68TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	8400	1	505 / 480	126 / 100	54,000 / 10,000	57,000@Q32 / 10,000@Q1
P19888-X21	HPE 240GB SATA 6G Read Intensive M.2 2280 3yr Wty SSD	438	1.00	520 / 210	125 / 85	48,000 / 11,500	50,500@Q128 / 11,800@Q16
P19890-X21	HPE 480GB SATA 6G Read Intensive M.2 2280 3yr Wty SSD	1,324	1.50	510 / 400	125 / 37	65,000 / 38,000	76,000@Q64 / 39,500@Q256
P19892-X21	HPE 960GB SATA 6G Read Intensive M.2 2280 3yr Wty SSD	2,628	1.50	510 / 490	125 / 38	67,000 / 37,000	76,000@Q32 / 38,000@Q4
P19894-X21	HPE Dual 240GB SATA 6G Read Intensive M.2 - UFF to SFF SCM 3yr Wty SSD	N/A	N/A	520 / 210	125 / 85	48,000 / 11,500	50,500@Q128 / 11,800@Q16
P19896-X21	HPE Dual 480GB SATA 6G Read Intensive M.2 - UFF to SFF SCM 3yr Wty SSD	N/A	N/A	510 / 400	125 / 37	65,000 / 38,000	76,000@Q64 / 39,500@Q256
P19935-X21	HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD	657	1.50	520 / 300	203 / 121	57,000 / 43,000	65,000@Q64 / 44,000@Q32
P19937-X21	HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD	1,324	1.50	510 / 395	125 / 38	65,000 / 38,500	75,000@Q256 / 4,000@Q4
P19939-X21	HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD	2,628	1.50	515 / 495	125 / 38	66,000 / 36,000	76,000@Q64 / 37,000@Q4

Technical Specifications

SATA Interface – (Speeds & Feeds)

HPE Option Kit SKU	Long Description	Lifetime Writes (TB)	Endurance DWPD	MAX Seq Reads / Max Seq Writes Throughput (MiB/s)	Random Read Avg. / Random Write Avg. Latency uSec (4KiB,Q1)	Random Read / Random Writes IOPS (4KiB, Q=16)	MAX Random Read / MAX Random Write IOPS (4KiB)
P19941-X21	HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD	5,256	1.50	520 / 495	125 / 38	67,000 / 31,000	76,000@Q32 / 33,000@Q32
P19943-X21	HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD	8,410	1.20	510 / 490	125 / 43	67,000 / 22,500	76,000@Q256 / 23,000@Q1
P19945-X21	HPE 7.68TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD	9,111	0.65	505 / 495	126 / 87	67,000 / 11,500	76,000@Q32 / 11,800@Q64
P19974-X21	HPE 480GB SATA 6G Read Intensive LFF (3.5in) LPC 3yr Wty SSD	1,324	1.50	510 / 395	125 / 38	65,000 / 38,500	75,000@Q256 / 40,000@Q4
P19976-X21	HPE 1.92TB SATA 6G Read Intensive LFF (3.5in) LPC 3yr Wty SSD	5,256	1.50	520 / 495	125 / 38	67,000 / 31,000	76,000@Q32 / 33,000@Q32
P23487-X21	HPE 1.92TB SATA 6G Very Read Optimized SFF (2.5in) SC 3yr Wty SSD	700	0.20	490 / 250	170 / 76	51,000 / 12,600	63,000@Q64 / 13,000@Q1
P23489-X21	HPE 3.84TB SATA 6G Very Read Optimized SFF (2.5in) SC 3yr Wty SSD	630	0.09	490 / 330	175 / 141	53,000 / 7,000	65,000@Q32 / 7,100@Q1
P23491-X21	HPE 3.84TB SATA 6G Very Read Optimized LFF (3.5in) LPC 3yr Wty SSD	630	0.09	490 / 330	175 / 141	53,000 / 7,000	65,000@Q32 / 7,100@Q1
P23493-X21	HPE 7.68TB SATA 6G Very Read Optimized SFF (2.5in) SC 3yr Wty SSD	700	0.05	500 / 340	175 / 225	54,000 / 4,500	62,000@Q64 / 4,500@Q128
P23495-X21	HPE 7.68TB SATA 6G Very Read Optimized LFF (3.5in) LPC 3yr Wty SSD	700	0.05	500 / 340	175 / 225	54,000 / 4,500	62,000@Q64 / 4,500@Q128
P24190-X21	HPE 960GB SATA 6G Very Read Optimized SFF (2.5in) SC 3yr Wty SSD	350	0.20	500 / 135	170 / 505	43,000 / 1,950	49,000@Q128 / 1,950@Q4

Universal SATA M.2 Enablement Kit

878783-X21	HPE Universal SATA HHHL 3yr Wty M.2 Kit	N/A	N/A	N/A	N/A	N/A	N/A
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Notes: Please use HPE Selector Tool <http://ssd.hpe.com/> to determine server compatibility.

Technical Specifications

SATA Power and Height Specifications

SATA Interface – (Power & Height)									
HPE Option Kit SKU	Long Description	Power Idle Time (Watts)	Power Random Read (Watts)	Power Random Write (Watts)	Power Sequential Read (Watts)	Power Sequential Write (Watts)	Power Random R/W (Watts)	Power MAX (Watts)	z- Height
875490-X21	HPE 480GB SATA 6G Mixed Use M.2 2280 3yr Wty Digitally Signed Firmware SSD	1.07	3.02	3.02	3.42	4.03	3.00	5.00	2280 M.2
P05976-X21	HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	1.31	2.94	2.94	2.32	3.33	2.94	4.00	7mm
P05980-X21	HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	1.37	2.79	2.79	2.36	3.23	2.79	4.00	7mm
P05986-X21	HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	1.37	3.04	3.04	2.32	3.30	3.04	4.00	7mm
P05994-X21	HPE 3.84TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	1.36	3.11	3.11	2.36	3.74	3.11	4.00	7mm
P09712-X21	HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	1.12	2.55	2.55	1.86	2.16	2.55	2.16	7mm
P09716-X21	HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	1.12	2.57	2.57	1.86	2.18	2.57	2.18	7mm
P09718-X21	HPE 960GB SATA 6G Mixed Use LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	1.12	2.57	2.57	1.86	2.18	2.57	2.18	7mm
P09722-X21	HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	1.12	2.60	2.60	1.89	2.22	2.60	1.89	7mm
P09724-X21	HPE 1.92TB SATA 6G Mixed Use LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	1.12	2.60	2.60	1.89	2.22	2.60	1.89	7mm
P09726-X21	HPE 1.92TB SATA 6G Mixed Use LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD	1.12	2.60	2.60	1.89	2.22	2.60	1.89	7mm
P13658-X21	HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	1.14	2.34	2.34	3.56	3.44	2.34	3.56	7mm
P13660-X21	HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	1.15	2.81	2.81	3.09	3.93	2.81	3.93	7mm
P13662-X21	HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	1.20	2.91	2.91	3.20	4.10	2.91	4.10	7mm



Technical Specifications

SATA Interface – (Power & Height)									
HPE Option Kit SKU	Long Description	Power Idle Time (Watts)	Power Random Read (Watts)	Power Random Write (Watts)	Power Sequential Read (Watts)	Power Sequential Write (Watts)	Power Random R/W (Watts)	Power MAX (Watts)	z-Height
P13664-X21	HPE 3.84TB SATA 6G Mixed Use SFF (2.5in) RW 3yr Wty Digitally Signed Firmware SSD	1.26	3.17	3.17	3.66	4.39	3.17	4.39	7mm
P18432-X21	HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Multi Vendor SSD	1.31	2.94	2.94	2.32	3.33	2.94	3.33	7mm
P18434-X21	HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Multi Vendor SSD	1.37	2.81	2.81	3.09	3.93	2.81	3.93	7mm
P18436-X21	HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Multi Vendor SSD	1.37	3.04	3.04	2.32	3.30	3.04	3.30	7mm
P18438-X21	HPE 3.84TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Multi Vendor SSD	1.36	3.11	3.11	2.45	3.92	3.11	3.92	7mm
P19947-X21	HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty SSD	1.18	1.44	1.44	2.05	2.76	1.44	2.76	7mm
P19949-X21	HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty SSD	1.17	1.47	1.47	2.29	2.97	1.47	2.97	7mm
P19951-X21	HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty SSD	1.20	1.39	1.39	2.24	3.23	1.39	3.23	7mm
P19953-X21	HPE 3.84TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty SSD	1.21	1.59	1.59	2.45	2.98	1.59	2.98	7mm
P19978-X21	HPE 480GB SATA 6G Mixed Use LFF (3.5in) SCC 3yr Wty SSD	1.18	1.44	1.44	2.05	2.76	1.44	2.76	7mm
P19980-X21	HPE 960GB SATA 6G Mixed Use LFF (3.5in) LPC 3yr Wty SSD	1.17	1.47	1.47	2.29	2.97	1.47	2.97	7mm
P19982-X21	HPE 1.92TB SATA 6G Mixed Use LFF (3.5in) SCC 3yr Wty SSD	1.20	1.39	1.39	2.24	3.23	1.39	3.23	7mm
P19984-X21	HPE 1.92TB SATA 6G Mixed Use LFF (3.5in) LPC 3yr Wty SSD	1.20	1.39	1.39	2.24	3.23	1.39	3.23	7mm
P19986-X21	HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) RW 3yr Wty SSD	1.20	1.39	1.39	2.24	3.23	1.39	3.23	7mm
P21517-X21	HPE 3.84TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty SSD	1.11	2.44	2.44	1.85	2.14	2.44	2.44	7mm
875498-X21	HPE 480GB SATA 6G Read Intensive M.2 2280 3yr Wty Digitally Signed Firmware SSD	1.07	3.02	3.02	3.42	4.03	3.00	5.00	2280 M.2



Technical Specifications

SATA Interface – (Power & Height)

HPE Option Kit SKU	Long Description	Power Idle Time (Watts)	Power Random Read (Watts)	Power Random Write (Watts)	Power Sequential Read (Watts)	Power Sequential Write (Watts)	Power Random R/W (Watts)	Power MAX (Watts)	z-Height
875500-X21	HPE 960GB SATA 6G Read Intensive M.2 2280 3yr Wty Digitally Signed Firmware SSD	1.07	3.17	3.17	3.82	5.62	3.10	6.00	2280 M.2
P04476-X21	HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	1.50	2.00	2.00	4.00	6.00	2.00	6.00	7mm
P04478-X21	HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	1.50	2.30	2.30	4.20	6.30	2.30	6.30	7mm
P04480-X21	HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	1.50	2.30	2.30	4.20	6.30	2.30	6.30	7mm
P04501-X21	HPE 1.92TB SATA 6G Read Intensive LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD	1.50	3.10	3.10	5.40	6.80	3.10	6.80	7mm
P04556-X21	HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	1.12	2.11	2.11	1.84	1.84	2.11	3.00	7mm
P04560-X21	HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	1.12	2.29	2.29	1.89	2.50	2.29	3.00	7mm
P04564-X21	HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	1.12	2.33	2.33	1.93	2.63	2.33	3.00	7mm
P04566-X21	HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	1.12	2.35	2.35	1.78	2.65	2.35	3.00	7mm
P04570-X21	HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	1.12	2.21	2.21	1.78	2.65	2.21	3.00	7mm
P05924-X21	HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	1.23	2.48	2.48	2.21	2.44	2.48	3.00	7mm
P05928-X21	HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	1.27	2.92	2.92	2.26	3.15	2.92	4.00	7mm
P05932-X21	HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	1.35	3.02	3.02	2.30	3.18	3.02	4.00	7mm
P05938-X21	HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	1.35	3.15	3.15	2.36	3.31	3.15	4.00	7mm



Technical Specifications

SATA Interface – (Power & Height)									
HPE Option Kit SKU	Long Description	Power Idle Time (Watts)	Power Random Read (Watts)	Power Random Write (Watts)	Power Sequential Read (Watts)	Power Sequential Write (Watts)	Power Random R/W (Watts)	Power MAX (Watts)	z-Height
P05946-X21	HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	1.11	3.46	3.46	2.47	3.88	3.46	4.00	7mm
P06194-X21	HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	0.78	1.61	1.61	1.68	1.90	1.61	2.00	7mm
P06196-X21	HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	0.78	1.61	1.61	1.69	2.35	1.61	3.00	7mm
P06198-X21	HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	0.81	1.67	1.67	1.77	2.41	1.67	3.00	7mm
P06200-X21	HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	0.90	1.87	1.87	2.08	2.68	1.87	3.00	7mm
P06609-X21	HPE Dual 480GB SATA 6G Read Intensive M.2 - UFF to SFF SCM 3yr Wty Digitally Signed Firmware SSD	2.00	2.84	2.84	3.90	5.74	2.84	6.00	7mm
P09685-X21	HPE 240GB SATA 6G Read Intensive SFF (2.5in) RW 3yr Wty Digitally Signed Firmware SSD	1.23	2.11	2.11	1.84	2.23	2.11	2.23	7mm
P09687-X21	HPE 480GB SATA 6G Read Intensive LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	1.23	2.29	2.29	1.89	2.50	2.29	2.50	7mm
P09689-X21	HPE 960GB SATA 6G Read Intensive LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	1.23	2.33	2.33	1.93	2.63	2.33	2.63	7mm
P09691-X21	HPE 960GB SATA 6G Read Intensive LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD	1.23	2.33	2.33	1.93	2.63	2.33	2.63	7mm
P09693-X21	HPE 1.92TB SATA 6G Read Intensive LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	1.23	2.22	2.22	1.78	2.65	2.22	2.65	7mm
P09697-X21	HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) RW 3yr Wty Digitally Signed Firmware SSD	1.23	2.21	2.21	1.78	2.65	2.21	2.65	7mm



Technical Specifications

SATA Interface – (Power & Height)

HPE Option Kit SKU	Long Description	Power Idle Time (Watts)	Power Random Read (Watts)	Power Random Write (Watts)	Power Sequential Read (Watts)	Power Sequential Write (Watts)	Power Random R/W (Watts)	Power MAX (Watts)	z-Height
P18420-X21	HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	1.23	2.48	2.48	2.21	2.44	2.48	2.48	7mm
P18422-X21	HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	1.40	2.29	2.29	2.45	2.72	2.29	2.72	7mm
P18424-X21	HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	1.42	3.02	3.02	2.30	3.37	3.02	3.37	7mm
P18426-X21	HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	1.45	3.15	3.15	2.36	3.31	3.15	3.31	7mm
P18428-X21	HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	0.90	3.46	3.46	2.47	3.88	3.46	3.88	7mm
P18430-X21	HPE 7.68TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	1.38	3.46	3.46	2.63	3.88	3.46	3.88	7mm
P19888-X21	HPE 240GB SATA 6G Read Intensive M.2 2280 3yr Wty SSD	1.03	1.26	1.26	1.89	2.22	1.26	2.22	2280 M.2
P19890-X21	HPE 480GB SATA 6G Read Intensive M.2 2280 3yr Wty SSD	1.03	1.23	1.23	1.89	2.50	1.23	2.50	2280 M.2
P19892-X21	HPE 960GB SATA 6G Read Intensive M.2 2280 3yr Wty SSD	1.04	1.27	1.27	2.10	2.80	1.27	2.80	2280 M.2
P19894-X21	HPE Dual 240GB SATA 6G Read Intensive M.2 - UFF to SFF SCM 3yr Wty SSD	1.03	1.26	1.26	1.89	2.22	1.26	2.22	7mm
P19896-X21	HPE Dual 480GB SATA 6G Read Intensive M.2 - UFF to SFF SCM 3yr Wty SSD	1.03	1.23	1.23	1.89	2.50	1.23	2.50	7mm
P19935-X21	HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD	1.16	1.41	1.41	2.00	2.43	1.41	2.43	7mm
P19937-X21	HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD	1.16	1.45	1.45	1.91	2.61	1.45	2.61	7mm
P19939-X21	HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD	1.17	1.48	1.48	1.91	2.85	1.48	2.85	7mm
P19941-X21	HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD	1.21	1.51	1.51	2.20	2.88	1.51	2.88	7mm



Technical Specifications

SATA Interface – (Power & Height)

HPE Option Kit SKU	Long Description	Power Idle Time (Watts)	Power Random Read (Watts)	Power Random Write (Watts)	Power Sequential Read (Watts)	Power Sequential Write (Watts)	Power Random R/W (Watts)	Power MAX (Watts)	z- Height
P19943-X21	HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD	1.23	1.80	1.80	2.19	2.89	1.80	2.89	7mm
P19945-X21	HPE 7.68TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD	1.25	2.01	2.01	2.26	2.76	2.01	2.76	7mm
P19974-X21	HPE 480GB SATA 6G Read Intensive LFF (3.5in) LPC 3yr Wty SSD	1.16	1.45	1.45	1.91	2.61	1.45	2.61	7mm
P19976-X21	HPE 1.92TB SATA 6G Read Intensive LFF (3.5in) LPC 3yr Wty SSD	1.21	1.51	1.51	2.20	2.88	1.51	2.88	7mm
P23487-X21	HPE 1.92TB SATA 6G Very Read Optimized SFF (2.5in) SC 3yr Wty SSD	1.71	2.18	2.18	3.14	4.36	2.18	4.36	7mm
P23489-X21	HPE 3.84TB SATA 6G Very Read Optimized SFF (2.5in) SC 3yr Wty SSD	1.70	2.20	2.20	3.29	5.30	2.20	5.30	7mm
P23491-X21	HPE 3.84TB SATA 6G Very Read Optimized LFF (3.5in) LPC 3yr Wty SSD	1.70	2.20	2.20	3.29	5.30	2.20	5.30	7mm
P23493-X21	HPE 7.68TB SATA 6G Very Read Optimized SFF (2.5in) SC 3yr Wty SSD	1.78	2.43	2.43	3.36	5.52	2.43	5.52	7mm
P23495-X21	HPE 7.68TB SATA 6G Very Read Optimized LFF (3.5in) LPC 3yr Wty SSD	1.78	2.43	2.43	3.36	5.52	2.43	5.52	7mm
P24190-X21	HPE 960GB SATA 6G Very Read Optimized SFF (2.5in) SC 3yr Wty SSD	1.71	2.18	2.18	3.14	4.36	2.18	4.36	7mm

Universal SATA M.2 Enablement Kit

878783-X21	HPE Universal SATA HHHL 3yr Wty M.2 Kit	N/A	N/A	N/A	N/A	N/A	N/A	0.00	Half Height/ Half Length
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Notes: Please use HPE Selector Tool <http://ssd.hpe.com/> to determine server compatibility



Technical Specifications

SATA Certifications

SATA Interface – (Certifications)

HPE Option Kit SKU	Long Description	VMWare / vSAN HCL Certification (Watts)	Microsoft Windows Server 2016 Certification	Software Defined Data Center (SDDC) Premium AQ Certification	Microsoft Windows Server 2019 Certification	WS 2019 Software Defined Data Center (SDDC)
875490-X21	HPE 480GB SATA 6G Mixed Use M.2 2280 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P05976-X21	HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P05980-X21	HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P05986-X21	HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P05994-X21	HPE 3.84TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P09712-X21	HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P09716-X21	HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P09718-X21	HPE 960GB SATA 6G Mixed Use LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P09722-X21	HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P09724-X21	HPE 1.92TB SATA 6G Mixed Use LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P09726-X21	HPE 1.92TB SATA 6G Mixed Use LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P13658-X21	HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	N/A	Certified	Certified	Certified	Certified
P13660-X21	HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	N/A	Certified	Certified	Certified	Certified



Technical Specifications

SATA Interface – (Certifications)

HPE Option Kit SKU	Long Description	VMWare / vSAN HCL Certification (Watts)	Microsoft Windows Server 2016 Certification	Software Defined Data Center (SDDC) Premium AQ Certification	Microsoft Windows Server 2019 Certification	WS 2019 Software Defined Data Center (SDDC)
P13662-X21	HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	N/A	Certified	Certified	Certified	Certified
P13664-X21	HPE 3.84TB SATA 6G Mixed Use SFF (2.5in) RW 3yr Wty Digitally Signed Firmware SSD	N/A	Certified	Certified	Certified	Certified
P18432-X21	HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Multi Vendor SSD	N/A	Certified	Certified	Certified	Certified
P18434-X21	HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Multi Vendor SSD	N/A	Certified	Certified	Certified	Certified
P18436-X21	HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Multi Vendor SSD	N/A	Certified	Certified	Certified	Certified
P18438-X21	HPE 3.84TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Multi Vendor SSD	N/A	Certified	Certified	Certified	Certified
P19947-X21	HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
P19949-X21	HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
P19951-X21	HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
P19953-X21	HPE 3.84TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
P19978-X21	HPE 480GB SATA 6G Mixed Use LFF (3.5in) SCC 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
P19980-X21	HPE 960GB SATA 6G Mixed Use LFF (3.5in) LPC 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
P19982-X21	HPE 1.92TB SATA 6G Mixed Use LFF (3.5in) SCC 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
P19984-X21	HPE 1.92TB SATA 6G Mixed Use LFF (3.5in) LPC 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
P19986-X21	HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) RW 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified



Technical Specifications

SATA Interface – (Certifications)

HPE Option Kit SKU	Long Description	VMware / vSAN HCL Certification (Watts)	Microsoft Windows Server 2016 Certification	Software Defined Data Center (SDDC) Premium AQ Certification	Microsoft Windows Server 2019 Certification	WS 2019 Software Defined Data Center (SDDC)
P21517-X21	HPE 3.84TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
875498-X21	HPE 480GB SATA 6G Read Intensive M.2 2280 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
875500-X21	HPE 960GB SATA 6G Read Intensive M.2 2280 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P04476-X21	HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P04478-X21	HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P04480-X21	HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P04501-X21	HPE 1.92TB SATA 6G Read Intensive LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD	Certified	certified	Certified	N/A	N/A
P04556-X21	HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	N/A	Certified	Certified	Certified	Certified
P04560-X21	HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P04564-X21	HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P04566-X21	HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P04570-X21	HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P05924-X21	HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P05928-X21	HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified



Technical Specifications

SATA Interface – (Certifications)

HPE Option Kit SKU	Long Description	VMware / vSAN HCL Certification (Watts)	Microsoft Windows Server 2016 Certification	Software Defined Data Center (SDDC) Premium AQ Certification	Microsoft Windows Server 2019 Certification	WS 2019 Software Defined Data Center (SDDC)
P05932-X21	HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P05938-X21	HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P05946-X21	HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P06194-X21	HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P06196-X21	HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P06198-X21	HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P06200-X21	HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P06609-X21	HPE Dual 480GB SATA 6G Read Intensive M.2 - UFF to SFF SCM 3yr Wty Digitally Signed Firmware SSD	N/A	Certified	Certified	Certified	Certified
P09685-X21	HPE 240GB SATA 6G Read Intensive SFF (2.5in) RW 3yr Wty Digitally Signed Firmware SSD	N/A	Certified	Certified	Certified	Certified
P09687-X21	HPE 480GB SATA 6G Read Intensive LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P09689-X21	HPE 960GB SATA 6G Read Intensive LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P09691-X21	HPE 960GB SATA 6G Read Intensive LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD	Certified	certified	Certified	Certified	Certified



Technical Specifications

SATA Interface – (Certifications)

HPE Option Kit SKU	Long Description	VMware / vSAN HCL Certification (Watts)	Microsoft Windows Server 2016 Certification	Software Defined Data Center (SDDC) Premium AQ Certification	Microsoft Windows Server 2019 Certification	WS 2019 Software Defined Data Center (SDDC)
P09693-X21	HPE 1.92TB SATA 6G Read Intensive LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P09697-X21	HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) RW 3yr Wty Digitally Signed Firmware SSD	N/A	N/A	N/A	N/A	N/A
P18420-X21	HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	N/A	Certified	Certified	Certified	Certified
P18422-X21	HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	N/A	Certified	Certified	Certified	Certified
P18424-X21	HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	N/A	Certified	Certified	Certified	Certified
P18426-X21	HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	N/A	Certified	Certified	Certified	Certified
P18428-X21	HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	N/A	Certified	Certified	Certified	Certified
P18430-X21	HPE 7.68TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	N/A	Certified	Certified	Certified	Certified
P19888-X21	HPE 240GB SATA 6G Read Intensive M.2 2280 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
P19890-X21	HPE 480GB SATA 6G Read Intensive M.2 2280 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
P19892-X21	HPE 960GB SATA 6G Read Intensive M.2 2280 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
P19894-X21	HPE Dual 240GB SATA 6G Read Intensive M.2 - UFF to SFF SCM 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
P19896-X21	HPE Dual 480GB SATA 6G Read Intensive M.2 - UFF to SFF SCM 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified



Technical Specifications

SATA Interface – (Certifications)

HPE Option Kit SKU	Long Description	VMWare / vSAN HCL Certification (Watts)	Microsoft Windows Server 2016 Certification	Software Defined Data Center (SDDC) Premium AQ Certification	Microsoft Windows Server 2019 Certification	WS 2019 Software Defined Data Center (SDDC)
P19935-X21	HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
P19937-X21	HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
P19939-X21	HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
P19941-X21	HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
P19943-X21	HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
P19945-X21	HPE 7.68TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
P19974-X21	HPE 480GB SATA 6G Read Intensive LFF (3.5in) LPC 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
P19976-X21	HPE 1.92TB SATA 6G Read Intensive LFF (3.5in) LPC 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
P23487-X21	HPE 1.92TB SATA 6G Very Read Optimized SFF (2.5in) SC 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
P23489-X21	HPE 3.84TB SATA 6G Very Read Optimized SFF (2.5in) SC 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
P23491-X21	HPE 3.84TB SATA 6G Very Read Optimized LFF (3.5in) LPC 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
P23493-X21	HPE 7.68TB SATA 6G Very Read Optimized SFF (2.5in) SC 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
P23495-X21	HPE 7.68TB SATA 6G Very Read Optimized LFF (3.5in) LPC 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
P24190-X21	HPE 960GB SATA 6G Very Read Optimized SFF (2.5in) SC 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified



Technical Specifications

Universal SATA M.2 Enablement Kit

878783-X21	HPE Universal SATA HHHL 3yr Wty M.2 Kit	N/A	N/A	N/A	N/A	N/A
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Notes: Please use HPE Selector Tool <http://ssd.hpe.com/> to determine server compatibility.

SATA Capacity, Workload, Carrier Specifications MULTI VENDOR

SATA Interface– (Capacity, Workload, Carrier...) MULTI VENDOR

HPE Option Kit SKU	Long Description	Capacity	Workload Type	Interface Type	Form Factor	Plug Type	Carrier Type	Digitally Signed Firmware (DS)	Flash Type	Port	Server Gen Supported (Select Platforms)
*Mixed Use Multi Vendor SATA Drives											
P18432-X21	HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Multi Vendor SSD	480	MU	SATA	SFF	Hot Plug	SC	Yes	MLC	Single	Gen9, 10
P18434-X21	HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Multi Vendor SSD	960	MU	SATA	SFF	Hot Plug	SC	Yes	MLC	Single	Gen9, 10
P18436-X21	HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Multi Vendor SSD	1,920	MU	SATA	SFF	Hot Plug	SC	Yes	MLC	Single	Gen9, 10
P18438-X21	HPE 3.84TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Multi Vendor SSD	3,840	MU	SATA	SFF	Hot Plug	SC	Yes	MLC	Single	Gen9, 10
*Read Intensive Multi Vendor SATA Drives											
P18420-X21	HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	240	RI	SATA	SFF	Hot Plug	SC	Yes	MLC	Single	Gen9, 10
P18422-X21	HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	480	RI	SATA	SFF	Hot Plug	SC	Yes	MLC	Single	Gen9, 10
P18424-X21	HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	960	RI	SATA	SFF	Hot Plug	SC	Yes	TLC	Single	Gen9, 10
P18426-X21	HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	1,920	RI	SATA	SFF	Hot Plug	SC	Yes	TLC	Single	Gen9, 10
P18428-X21	HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	3,840	RI	SATA	SFF	Hot Plug	SC	Yes	TLC	Single	Gen9, 10
P18430-X21	HPE 7.68TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	7,680	RI	SATA	SFF	Hot Plug	SC	Yes	TLC	Single	Gen9, 10



Technical Specifications

SATA Speeds and Feeds Specifications MULTI VENDOR

SATA Interface – (Speeds & Feeds) MULTI VENDOR

HPE Option Kit SKU	Long Description	Lifetime Writes (TB)	Endurance DWPD	MAX Seq Reads / Max Seq Writes Throughput (MiB/s)	Random Read Avg. / Random Write Avg. Latency uSec (4KiB,Q1)	Random Read / Random Writes IOPS (4KiB, Q=16)	MAX Random Read / MAX Random Write IOPS (4KiB)
*Mixed Use Multi Vendor SATA Drives							
P18432-X21	HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Multi Vendor SSD	3,000	4	510 / 430	125 / 52	62,000 / 40,000	72,000@Q32 / 29,000@Q4
P18434-X21	HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Multi Vendor SSD	6,000	3	520 / 480	125 / 50	63,000 / 31,000	64,500@Q32 / 31,000@Q4
P18436-X21	HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Multi Vendor SSD	10,000	3	520 / 480	125 / 52	59,000 / 31,000	62,000@Q32 / 31,000@Q4
P18438-X21	HPE 3.84TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Multi Vendor SSD	17,600	3	510 / 480	125 / 55	56,000 / 28,000	60,000@Q32 / 28,000@Q4
*Read Intensive Multi Vendor SATA Drives							
P18420-X21	HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	350	1	505 / 255	203 / 121	57,000 / 14,000	65,000@Q32 / 10,500@Q1
P18422-X21	HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	430	1	510 / 300	125 / 65	65,000 / 15,000	65,500@Q32 / 15,400@Q1
P18424-X21	HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	1,400	1	515 / 480	125 / 60	58,500 / 29,000	58,500@Q32 / 29,000@Q4
P18426-X21	HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	2,800	1	520 / 470	125 / 60	55,500 / 24,000	56,000@Q32 / 25,000@Q32
P18428-X21	HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	3,400	1	510 / 480	125 / 65	54,000 / 21,000	56,000@Q32 / 22,000@Q4
P18430-X21	HPE 7.68TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	8,400	1	505 / 480	126 / 100	54,000 / 10,000	57,000@Q32 / 10,000@Q1

Notes: * Multi-vendor SKUs are composed of numerous vendor manufactured SSDs within a given SATA capacity SKU. When ordering a particular SKU-B21 number the customer will receive a homogenous set of vendor manufactured SSDs in that capacity that has met or exceeds the HPE qualification standards published above.



Technical Specifications

SATA Power and Height Specifications MULTI VENDOR

SATA Interface – (Power & Height) MULTI VENDOR

HPE Option Kit SKU	Long Description	Power Idle Time (Watts)	Power Random Read (Watts)	Power Random Write (Watts)	Power Sequential Read (Watts)	Power Sequential Write (Watts)	Power Random R/W (Watts)	Power MAX (Watts)	z- Height
*Mixed Use Multi Vendor SATA Drives									
P18432-X21	HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Multi Vendor SSD	1.31	2.94	2.94	2.32	3.33	2.94	3.33	7mm
P18434-X21	HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Multi Vendor SSD	1.37	2.81	2.81	3.09	3.93	2.81	3.93	7mm
P18436-X21	HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Multi Vendor SSD	1.37	3.04	3.04	2.32	3.30	3.04	3.30	7mm
P18438-X21	HPE 3.84TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Multi Vendor SSD	1.36	3.11	3.11	2.45	3.92	3.11	3.92	7mm
*Read Intensive Multi Vendor SATA Drives									
P18420-X21	HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	1.23	2.48	2.48	2.21	2.44	2.48	2.48	7mm
P18422-X21	HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	1.40	2.29	2.29	2.45	2.72	2.29	2.72	7mm
P18424-X21	HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	1.42	3.02	3.02	2.30	3.37	3.02	3.37	7mm
P18426-X21	HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	1.45	3.15	3.15	2.36	3.31	3.15	3.31	7mm
P18428-X21	HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	0.90	3.46	3.46	2.47	3.88	3.46	3.88	7mm
P18430-X21	HPE 7.68TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	1.38	3.46	3.46	2.63	3.88	3.46	3.88	7mm

Notes: *Multi-vendor SKUs are composed of numerous vendor manufactured SSDs within a given SATA capacity SKU. When ordering a particular SKU-X21 number the customer will receive a homogenous set of vendor manufactured SSDs in that capacity that has met or exceeds the HPE qualification standards published above.



Technical Specifications

SATA Certifications MULTI VENDOR

SATA Interface – (Certifications) MULTI VENDOR

HPE Option Kit SKU	Long Description	VMWare / vSAN HCL Certification (Watts)	Microsoft Windows Server 2016 Certification	Software Defined Data Center (SDDC) Premium AQ Certification	Microsoft Windows Server 2019 Certification	WS 2019 Software Defined Data Center (SDDC)
*Mixed Use Multi Vendor SATA Drives						
P18432-X21	HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Multi Vendor SSD	N/A	Certified	Certified	Certified	Certified
P18434-X21	HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Multi Vendor SSD	N/A	Certified	Certified	Certified	Certified
P18436-X21	HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Multi Vendor SSD	N/A	Certified	Certified	Certified	Certified
P18438-X21	HPE 3.84TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Multi Vendor SSD	N/A	Certified	Certified	Certified	Certified
*Read Intensive Multi Vendor SATA Drives						
P18420-X21	HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	N/A	Certified	Certified	Certified	Certified
P18422-X21	HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	N/A	Certified	Certified	Certified	Certified
P18424-X21	HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	N/A	Certified	Certified	Certified	Certified
P18426-X21	HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	N/A	Certified	Certified	Certified	Certified
P18428-X21	HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	N/A	Certified	Certified	Certified	Certified
P18430-X21	HPE 7.68TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	N/A	Certified	Certified	Certified	Certified

Notes: *Multi-vendor SKUs are composed of numerous vendor manufactured SSDs within a given SATA capacity SKU. When ordering a particular SKU-X21 number the customer will receive a homogenous set of vendor manufactured SSDs in that capacity that has met or exceeds the HPE qualification standards published above.



Technical Specifications

SAS Capacity, Workload, Carrier Specifications

SAS Interface – (Capacity, Workload, Carrier...)

HPE Option Kit SKU	Long Description	Capacity	Workload Type	Interface Type	Form Factor	Plug Type	Carrier Type	Digitally Signed Firmware (DS)	Flash Type	Port	Server Gen Supported (Select Platforms)
P04541-X21	HPE 400GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	400	WI	SAS	SFF	Hot Plug	SC	Yes	MLC	Dual	Gen9, 10
P04543-X21	HPE 800GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	800	WI	SAS	SFF	Hot Plug	SC	Yes	MLC	Dual	Gen9, 10
P04545-X21	HPE 1.6TB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	1,600	WI	SAS	SFF	Hot Plug	SC	Yes	MLC	Dual	Gen9, 10
P04547-X21	HPE 3.2TB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	3,200	WI	SAS	SFF	Hot Plug	SC	Yes	MLC	Dual	Gen9, 10
P04558-X21	HPE 400GB SAS 12G Write Intensive SFF (2.5in) ST 3yr Wty Digitally Signed Firmware SSD	400	WI	SAS	SFF	Hot Plug	ST	Yes	MLC	Dual	Gen9, 10
P04562-X21	HPE 800GB SAS 12G Write Intensive SFF (2.5in) ST 3yr Wty Digitally Signed Firmware SSD	800	WI	SAS	SFF	Hot Plug	ST	Yes	MLC	Dual	Gen9, 10
P09098-X21	HPE 400GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	400	WI	SAS	SFF	Hot Plug	SC	Yes	MLC	Dual	Gen9, 10
P09100-X21	HPE 800GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	800	WI	SAS	SFF	Hot Plug	SC	Yes	MLC	Dual	Gen9, 10
P09102-X21	HPE 1.6TB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	1,600	WI	SAS	SFF	Hot Plug	SC	Yes	MLC	Dual	Gen9, 10
P21125-X21	HPE 400GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty SSD	400	WI	SAS	SFF	Hot Plug	SC	Yes	TLC	Dual	Gen10, 10.5
P21127-X21	HPE 800GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty SSD	800	WI	SAS	SFF	Hot Plug	SC	Yes	TLC	Dual	Gen10, 10.5
P21129-X21	HPE 1.6TB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty SSD	1,600	WI	SAS	SFF	Hot Plug	SC	Yes	TLC	Dual	Gen10, 10.5
P04525-X21	HPE 400GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	400	MU	SAS	SFF	Hot Plug	SC	Yes	MLC	Dual	Gen9, 10



Technical Specifications

SAS Interface – (Capacity, Workload, Carrier...)

HPE Option Kit SKU	Long Description	Capacity	Workload Type	Interface Type	Form Factor	Plug Type	Carrier Type	Digitally Signed Firmware (DS)	Flash Type	Port	Server Gen Supported (Select Platforms)
P04525-X21	HPE 400GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	400	MU	SAS	SFF	Hot Plug	SC	Yes	MLC	Dual	Gen9, 10
P04527-X21	HPE 800GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	800	MU	SAS	SFF	Hot Plug	SC	Yes	MLC	Dual	Gen9, 10
P04529-X21	HPE 800GB SAS 12G Mixed Use LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	800	MU	SAS	LFF	Hot Plug	SCC	Yes	MLC	Dual	Gen9, 10
P04531-X21	HPE 800GB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD	800	MU	SAS	LFF	Hot Plug	LPC	Yes	MLC	Dual	Gen9, 10
P04533-X21	HPE 1.6TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	1,600	MU	SAS	SFF	Hot Plug	SC	Yes	MLC	Dual	Gen9, 10
P04535-X21	HPE 1.6TB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD	1,600	MU	SAS	LFF	Hot Plug	LPC	Yes	MLC	Dual	Gen9, 10
P04537-X21	HPE 3.2TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	3,200	MU	SAS	SFF	Hot Plug	SC	Yes	MLC	Dual	Gen9, 10
P04539-X21	HPE 6.4TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	6,400	MU	SAS	SFF	Hot Plug	SC	Yes	MLC	Dual	Gen9, 10
P09088-X21	HPE 400GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	400	MU	SAS	SFF	Hot Plug	SC	Yes	MLC	Dual	Gen9, 10
P09090-X21	HPE 800GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	800	MU	SAS	SFF	Hot Plug	SC	Yes	MLC	Dual	Gen9, 10
P09092-X21	HPE 1.6TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	1,600	MU	SAS	SFF	Hot Plug	SC	Yes	MLC	Dual	Gen9, 10
P09094-X21	HPE 3.2TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	3,200	MU	SAS	SFF	Hot Plug	SC	Yes	MLC	Dual	Gen9, 10
P09096-X21	HPE 6.4TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	6,400	MU	SAS	SFF	Hot Plug	SC	Yes	MLC	Dual	Gen9, 10
P10448-X21	HPE 960GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	960	MU	SAS	SFF	Hot Plug	SC	Yes	TLC	Single	Gen9, 10

Technical Specifications

SAS Interface – (Capacity, Workload, Carrier...)

HPE Option Kit SKU	Long Description	Capacity	Workload Type	Interface Type	Form Factor	Plug Type	Carrier Type	Digitally Signed Firmware (DS)	Flash Type	Port	Server Gen Supported (Select Platforms)
P10450-X21	HPE 960GB SAS 12G Mixed Use LFF (3.5in) SCC 3yr Wty Value SAS Digitally Signed Firmware SSD	960	MU	SAS	LFF	Hot Plug	SCC	Yes	TLC	Single	Gen9, 10
P10452-X21	HPE 960GB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Value SAS Digitally Signed Firmware SSD	960	MU	SAS	LFF	Hot Plug	LPC	Yes	TLC	Single	Gen9, 10
P10454-X21	HPE 1.92TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	1,920	MU	SAS	SFF	Hot Plug	SC	Yes	TLC	Single	Gen9, 10
P10456-X21	HPE 1.92TB SAS 12G Mixed Use LFF (3.5in) SCC 3yr Wty Value SAS Digitally Signed Firmware SSD	1,920	MU	SAS	LFF	Hot Plug	SCC	Yes	TLC	Single	Gen9, 10
P10458-X21	HPE 1.92TB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Value SAS Digitally Signed Firmware SSD	1,920	MU	SAS	LFF	Hot Plug	LPC	Yes	TLC	Single	Gen9, 10
P10460-X21	HPE 3.84TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	3,840	MU	SAS	SFF	Hot Plug	SC	Yes	TLC	Single	Gen9, 10
P10462-X21	HPE 3.84TB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Value SAS Digitally Signed Firmware SSD	3,840	MU	SAS	LFF	Hot Plug	LPC	Yes	TLC	Single	Gen9, 10
P19913-X21	HPE 800GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD	800	MU	SAS	SFF	Hot Plug	SC	Yes	MLC	Dual	Gen10, 10.5
P19915-X21	HPE 1.6TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD	1,600	MU	SAS	SFF	Hot Plug	SC	Yes	MLC	Dual	Gen10, 10.5
P19917-X21	HPE 3.2TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD	3,200	MU	SAS	SFF	Hot Plug	SC	Yes	MLC	Dual	Gen10, 10.5
P19919-X21	HPE 6.4TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD	6,400	MU	SAS	SFF	Hot Plug	SC	Yes	MLC	Dual	Gen10, 10.5
P21131-X21	HPE 800GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD	800	MU	SAS	SFF	Hot Plug	SC	Yes	TLC	Dual	Gen10, 10.5
P21133-X21	HPE 1.6TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD	1,600	MU	SAS	SFF	Hot Plug	SC	Yes	TLC	Dual	Gen10, 10.5

Technical Specifications

SAS Interface – (Capacity, Workload, Carrier...)

HPE Option Kit SKU	Long Description	Capacity	Workload Type	Interface Type	Form Factor	Plug Type	Carrier Type	Digitally Signed Firmware (DS)	Flash Type	Port	Server Gen Supported (Select Platforms)
P21135-X21	HPE 3.2TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD	3,200	MU	SAS	SFF	Hot Plug	SC	Yes	TLC	Dual	Gen10, 10.5
P21137-X21	HPE 6.4TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD	6,400	MU	SAS	SFF	Hot Plug	SC	Yes	TLC	Dual	Gen10, 10.5
P04517-X21	HPE 960GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	960	RI	SAS	SFF	Hot Plug	SC	Yes	MLC	Dual	Gen9, 10
P04519-X21	HPE 1.92TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	1,920	RI	SAS	SFF	Hot Plug	SC	Yes	MLC	Dual	Gen9, 10
P04521-X21	HPE 3.84TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	3,840	RI	SAS	SFF	Hot Plug	SC	Yes	MLC	Dual	Gen9, 10
P04523-X21	HPE 7.68TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	7,680	RI	SAS	SFF	Hot Plug	SC	Yes	MLC	Dual	Gen9, 10
P06584-X21	HPE 960GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	960	RI	SAS	SFF	Hot Plug	SC	Yes	TLC	Dual	Gen9 & 10
P06586-X21	HPE 1.92TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	1,920	RI	SAS	SFF	Hot Plug	SC	Yes	TLC	Dual	Gen9 & 10
P06588-X21	HPE 3.84TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	3,840	RI	SAS	SFF	Hot Plug	SC	Yes	TLC	Dual	Gen9 & 10
P06590-X21	HPE 7.68TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	7,680	RI	SAS	SFF	Hot Plug	SC	Yes	TLC	Dual	Gen9 & 10
P06592-X21	HPE 15.3TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	15,300	RI	SAS	SFF	Hot Plug	SC	Yes	TLC	Dual	Gen9 & 10
P10440-X21	HPE 960GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	960	RI	SAS	SFF	Hot Plug	SC	Yes	TLC	Single	Gen9, 10
P10442-X21	HPE 1.92TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	1,920	RI	SAS	SFF	Hot Plug	SC	Yes	TLC	Single	Gen9, 10

Technical Specifications

SAS Interface – (Capacity, Workload, Carrier...)

HPE Option Kit SKU	Long Description	Capacity	Workload Type	Interface Type	Form Factor	Plug Type	Carrier Type	Digitally Signed Firmware (DS)	Flash Type	Port	Server Gen Supported (Select Platforms)
P10444-X21	HPE 3.84TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	3,840	RI	SAS	SFF	Hot Plug	SC	Yes	TLC	Single	Gen9, 10
P10446-X21	HPE 7.68TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	7,680	RI	SAS	SFF	Hot Plug	SC	Yes	TLC	Single	Gen9, 10
P19903-X21	HPE 960GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	960	RI	SAS	SFF	Hot Plug	SC	Yes	MLC	Dual	Gen10, 10.5
P19905-X21	HPE 1.92TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	1,920	RI	SAS	SFF	Hot Plug	SC	Yes	MLC	Dual	Gen10, 10.5
P19907-X21	HPE 3.84TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	3,840	RI	SAS	SFF	Hot Plug	SC	Yes	MLC	Dual	Gen10, 10.5
P19909-X21	HPE 7.68TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	7,680	RI	SAS	SFF	Hot Plug	SC	Yes	MLC	Dual	Gen10, 10.5
P19911-X21	HPE 15.36TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	15,300	RI	SAS	SFF	Hot Plug	SC	Yes	MLC	Dual	Gen10, 10.5
P21139-X21	HPE 960GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	960	RI	SAS	SFF	Hot Plug	SC	Yes	TLC	Dual	Gen10, 10.5
P21141-X21	HPE 1.92TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	1,920	RI	SAS	SFF	Hot Plug	SC	Yes	TLC	Dual	Gen10, 10.5
P21143-X21	HPE 3.84TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	3,840	RI	SAS	SFF	Hot Plug	SC	Yes	TLC	Dual	Gen10, 10.5
P21145-X21	HPE 7.68TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	7,680	RI	SAS	SFF	Hot Plug	SC	Yes	TLC	Dual	Gen10, 10.5
P21147-X21	HPE 15.3TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	15,360	RI	SAS	SFF	Hot Plug	SC	Yes	TLC	Dual	Gen10, 10.5



Technical Specifications

SAS Speeds and Feeds Specifications

SAS Interface – (Speeds & Feeds)

HPE Option Kit SKU	Long Description	Lifetime Writes (TB)	Endurance DWPD	MAX Seq Reads / Max Seq Writes	Throughput (MiB/s)	Random Read Avg. / Random Write Avg.	Latency µSec (4KiB Q=1)	Random Read / Random Writes IOPS (4KiB, Q=16)	MAX Random Read / MAX Random Write IOPS (4KiB)
P04541-X21	HPE 400GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	7,300	10	1,075 / 1,030	135 / 35			104,000 / 115,000	165,000@Q32 / 115,000@Q16
P04543-X21	HPE 800GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	14,600	10	1,075 / 1,030	135 / 35			109,000 / 120,000	165,000@Q32 / 120,000@Q16
P04545-X21	HPE 1.6TB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	29,200	10	1,075 / 1,030	135 / 35			110,000 / 120,000	165,000@Q32 / 120,000@Q16
P04547-X21	HPE 3.2TB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	58,400	10	1,075 / 1,030	135 / 35			110,000 / 120,000	165,000@Q32 / 120,000@Q16
P04558-X21	HPE 400GB SAS 12G Write Intensive SFF (2.5in) ST 3yr Wty Digitally Signed Firmware SSD	7,300	10	1,075 / 1,030	135 / 35			104,000 / 115,000	165,000@Q32 / 115,000@Q16
P04562-X21	HPE 800GB SAS 12G Write Intensive SFF (2.5in) ST 3yr Wty Digitally Signed Firmware SSD	14,600	10	1,075 / 1,030	135 / 35			109,000 / 120,000	165,000@Q32 / 120,000@Q16
P09098-X21	HPE 400GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	7,000	10	1,095 / 1,015	100 / 33			140,000 / 120,000	210,000@Q32 / 120,000@Q16
P09100-X21	HPE 800GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	15,000	10	1,095 / 1,045	100 / 33			130,000 / 120,000	210,000@Q32 / 120,000@Q16
P09102-X21	HPE 1.6TB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	29,000	10	1,095 / 1,045	100 / 33			130,000 / 120,000	210,000@Q32 / 125,000@Q16
P21125-X21	HPE 400GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty SSD	7,134	10	1,095 / 1,000	155 / 90			113,000 / 120,000	205,000@Q256 / 124,000@Q16
P21127-X21	HPE 800GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty SSD	14,268	10	1,095 / 1,040	98 / 32			130,000 / 120,000	210,000@Q256 / 124,000@Q64
P21129-X21	HPE 1.6TB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty SSD	28,535	10	1,095 / 1,040	98 / 32			135,000 / 120,000	210,000@Q64 / 124,000@Q64
P04525-X21	HPE 400GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	2,190	3	1,070 / 670	135 / 35			95,000 / 70,000	165,000@Q64 / 70,000@Q4

Technical Specifications

SAS Interface – (Speeds & Feeds)

HPE Option Kit SKU	Long Description	Lifetime Writes (TB)	Endurance DWPD	MAX Seq Reads / Max Seq Writes	Throughput (MiB / s)	Random Read Avg. / Random Write Avg. Latency uSec (4KiB Q=1)	Random Read / Random Writes IOPS (4KiB, Q=16)	MAX Random Read / MAX Random Write IOPS (4KiB)
P04527-X21	HPE 800GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	4,380	3	1,075 / 1,030	135 / 35	104,000 / 85,000	165,000@Q32 / 85,000@Q16	
P04529-X21	HPE 800GB SAS 12G Mixed Use LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	4,380	3	1,075 / 1,030	135 / 35	104,000 / 85,000	165,000@Q32 / 85,000@Q16	
P04531-X21	HPE 800GB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD	4,380	3	1,075 / 1,030	135 / 35	104,000 / 85,000	165,000@Q32 / 85,000@Q16	
P04533-X21	HPE 1.6TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	8,760	3	1,075 / 1,030	135 / 35	109,000 / 105,000	165,000@Q32 / 105,000@Q16	
P04535-X21	HPE 1.6TB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD	8,760	3	1,075 / 1,030	135 / 35	109,000 / 105,000	165,000@Q32 / 105,000@Q16	
P04537-X21	HPE 3.2TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	17,520	3	1,075 / 1,030	135 / 35	110,000 / 110,000	165,000@Q32 / 110,000@Q16	
P04539-X21	HPE 6.4TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	35,040	3	1,075 / 1,030	135 / 35	113,000 / 105,000	165,000@Q32 / 108,000@Q16	
P09088-X21	HPE 400GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	2,000	3	1,095 / 620	100 / 33	125,000 / 100,000	210,000@Q64 / 104,000@Q16	
P09090-X21	HPE 800GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	4,500	3	1,095 / 1,010	100 / 34	130,000 / 123,000	210,000@Q32 / 124,000@Q16	
P09092-X21	HPE 1.6TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	8,500	3	1,095 / 1,045	100 / 33	130,000 / 123,000	210,000@Q32 / 124,000@Q16	
P09094-X21	HPE 3.2TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	17,500	3	1,095 / 1,045	100 / 34	140,000 / 123,000	210,000@Q32 / 124,000@Q16	
P09096-X21	HPE 6.4TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	35,000	3	1,095 / 1,045	100 / 34	140,000 / 123,000	210,000@Q32 / 124,000@Q16	
P10448-X21	HPE 960GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	5,250	3	790 / 635	130 / 35	108,000 / 47,000	155,000@Q32 / 48,000@Q4	

Technical Specifications

SAS Interface – (Speeds & Feeds)

HPE Option Kit SKU	Long Description	Lifetime Writes (TB)	Endurance DWPD	MAX Seq Reads / Max Seq Writes Throughput (MiB / s)	Random Read Avg. / Random Write Avg. Latency uSec (4KiB Q1)	Random Read / Random Writes IOPS (4KiB, Q=16)	MAX Random Read / MAX Random Write IOPS (4KiB)
P10450-X21	HPE 960GB SAS 12G Mixed Use LFF (3.5in) SCC 3yr Wty Value SAS Digitally Signed Firmware SSD	5,250	3	790 / 635	130 / 35	108,000 / 47,000	155,000@Q32 / 48,000@Q4
P10452-X21	HPE 960GB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Value SAS Digitally Signed Firmware SSD	5,250	3	790 / 635	130 / 35	108,000 / 47,000	155,000@Q32 / 48,000@Q4
P10454-X21	HPE 1.92TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	10,500	3	810 / 635	140 / 35	98,000 / 52,000	155,000@Q32 / 52,000@Q4
P10456-X21	HPE 1.92TB SAS 12G Mixed Use LFF (3.5in) SCC 3yr Wty Value SAS Digitally Signed Firmware SSD	10,500	3	810 / 635	140 / 35	98,000 / 52,000	155,000@Q32 / 52,000@Q4
P10458-X21	HPE 1.92TB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Value SAS Digitally Signed Firmware SSD	10,500	3	810 / 635	140 / 35	98,000 / 52,000	155,000@Q32 / 52,000@Q4
P10460-X21	HPE 3.84TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	21,000	3	810 / 635	140 / 35	103,000 / 52,000	155,000@Q32 / 52,000@Q4
P10462-X21	HPE 3.84TB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Value SAS Digitally Signed Firmware SSD	21,000	3	810 / 635	140 / 35	103,000 / 52,000	155,000@Q32 / 52,000@Q4
P19913-X21	HPE 800GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD	4,280	3.00	1,080 / 1,030	165 / 95	115,000 / 100,000	175,000@Q256 / 100,000@Q16
P19915-X21	HPE 1.6TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD	8,560	3.00	1,080 / 1,030	185 / 95	115,000 / 125,000	175,000@Q256 / 125,000@Q32
P19917-X21	HPE 3.2TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD	17,121	3.00	1,080 / 1,030	165 / 95	110,000 / 125,000	175,000@Q256 / 125,000@Q32
P19919-X21	HPE 6.4TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD	34,241	3.00	1,080 / 1,030	195 / 95	105,000 / 125,000	175,000@Q256 / 125,000@Q32
P21131-X21	HPE 800GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD	4,280	3.00	1,095 / 1,000	155 / 90	113,000 / 120,000	205,000@Q256 / 124,000@Q16
P21133-X21	HPE 1.6TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD	8,561	3.00	1,095 / 1,040	98 / 32	130,000 / 120,000	210,000@Q64 / 124,000@Q64

Technical Specifications

SAS Interface – (Speeds & Feeds)

HPE Option Kit SKU	Long Description	Lifetime Writes (TB)	Endurance DWPD	MAX Seq Reads / Max Seq Writes	Throughput (MiB / s)	Random Read Avg. / Random Write Avg. Latency uSec (4KiB Q1)	Random Read / Random Writes IOPS (4KiB, Q=16)	MAX Random Read / MAX Random Write IOPS (4KiB)
P21135-X21	HPE 3.2TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD	17,121	3.00	1,095 / 1,040	98 / 32	135,000 / 120,000	210,000@Q256 / 124,000@Q64	
P21137-X21	HPE 6.4TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD	34,242	3.00	1,095 / 1,040	98 / 32	140,000 / 120,000	210,000@Q256 / 124,000@Q64	
P04517-X21	HPE 960GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	1,752	1	1,075 / 1,030	135 / 35	104,000 / 47,000	165,000@Q32 / 47,000@Q4	
P04519-X21	HPE 1.92TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	3,504	1	1,075 / 1,030	135 / 35	109,000 / 54,000	165,000@Q32 / 54,000@Q4	
P04521-X21	HPE 3.84TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	7,008	1	1,075 / 1,030	135 / 35	110,000 / 54,000	165,000@Q32 / 54,000@Q4	
P04523-X21	HPE 7.68TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	14,016	1	1,075 / 1,030	135 / 35	110,000 / 48,000	165,000@Q32 / 48,000@Q4	
P06584-X21	HPE 960GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	1,752	1	1,080 / 1,030	105 / 34	120,000 / 32,000	180,000@Q64 / 32,000@Q4	
P06586-X21	HPE 1.92TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	3,504	1	1,080 / 1,030	105 / 34	120,000 / 48,000	180,000@Q64 / 48,000@Q4	
P06588-X21	HPE 3.84TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	7,008	1	1,080 / 1,030	105 / 34	115,000 / 55,000	180,000@Q64 / 55,000@Q4	
P06590-X21	HPE 7.68TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	14,016	1	1,080 / 1,030	120 / 34	113,000 / 67,000	180,000@Q64 / 67,000@Q4	
P06592-X21	HPE 15.3TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	28,032	1	1,080 / 1,030	120 / 35	110,000 / 58,000	178,000@Q64 / 58,000@Q16	
P10440-X21	HPE 960GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	1,750	1	810 / 635	130 / 35	108,000 / 32,000	155,000@Q32 / 32,000@Q4	
P10442-X21	HPE 1.92TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	3,500	1	810 / 635	140 / 35	97,000 / 36,000	155,000@Q32 / 36,000@Q4	

Technical Specifications

SAS Interface – (Speeds & Feeds)

HPE Option Kit SKU	Long Description	Lifetime Writes (TB)	Endurance DWPD	MAX Seq Reads / Max Seq Writes Throughput (MiB / s)	Random Read Avg. / Random Write Avg. Latency uSec (4KiB Q1)	Random Read / Random Writes IOPS (4KiB, Q=16)	MAX Random Read / MAX Random Write IOPS (4KiB)
P10444-X21	HPE 3.84TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	7,000	1	810 / 635	140 / 35	102,000 / 37,000	155,000@Q32 / 37,000@Q4
P10446-X21	HPE 7.68TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	14,000	1	810 / 635	140 / 35	105,000 / 36,000	155,000@Q32 / 37,000@Q4
P19903-X21	HPE 960GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	1,712	1	1,080 / 1,030	180 / 96	115,000 / 46,000	175,000@Q128 / 46,000@Q4
P19905-X21	HPE 1.92TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	3,424	1	1,080 / 1,030	190 / 95	115,000 / 70,000	175,000@Q128 / 70,000@Q32
P19907-X21	HPE 3.84TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	6,848	1	1,080 / 1,030	175 / 95	110,000 / 92,000	175,000@Q128 / 92,000@Q16
P19909-X21	HPE 7.68TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	13,697	1	1,080 / 1,030	190 / 95	105,000 / 94,000	175,000@Q128 / 92,000@Q16
P19911-X21	HPE 15.36TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	27,393	1	1,080 / 1,030	185 / 95	100,000 / 67,000	175,000@Q128 / 67,000@Q32
P21139-X21	HPE 960GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	1,712	1	1,050 / 1,000	98 / 34	119,000 / 90,000	205,000@Q256 / 90,000@Q128
P21141-X21	HPE 1.92TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	3,424	1	1,050 / 1,040	98 / 35	130,000 / 80,000	210,000@Q256 / 80,000@Q64
P21143-X21	HPE 3.84TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	6,848	1	1,090 / 1,040	98 / 35	140,000 / 95,000	210,000@Q128 / 100,000@Q64
P21145-X21	HPE 7.68TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	13,697	1	1,090 / 1,040	98 / 35	140,000 / 105,000	210,000@Q256 / 115,000@Q64
P21147-X21	HPE 15.3TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	27,394	1	1,090 / 1,040	99 / 35	140,000 / 105,000	210,000@Q256 / 115,000@Q64

Technical Specifications

SAS Power and Height Specifications

SAS Interface – (Power & Height)										
HPE Option Kit SKU	Long Description	Power Idle Time (Watts)	Power Random Read (Watts)	Power Random Write (Watts)	Power Sequential Read (Watts)	Power Sequential Write (Watts)	Power Random R/W (Watts)	Power MAX (Watts)	z- Height	
P04541-X21	HPE 400GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	4.20	4.82	4.82	6.21	5.75	4.82	6.21	15mm	
P04543-X21	HPE 800GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	4.26	4.97	4.97	6.71	6.95	4.97	6.71	15mm	
P04545-X21	HPE 1.6TB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	5.00	6.00	6.00	6.98	6.98	5.43	8.98	15mm	
P04547-X21	HPE 3.2TB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	5.00	6.17	6.17	8.56	8.56	5.90	8.56	15mm	
P04558-X21	HPE 400GB SAS 12G Write Intensive SFF (2.5in) ST 3yr Wty Digitally Signed Firmware SSD	4.20	4.82	4.82	6.21	5.75	4.82	6.21	15mm	
P04562-X21	HPE 800GB SAS 12G Write Intensive SFF (2.5in) ST 3yr Wty Digitally Signed Firmware SSD	4.26	4.97	4.97	6.71	6.95	4.97	6.71	15mm	
P09098-X21	HPE 400GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	3.00	5.22	5.22	4.07	5.74	5.22	5.74	15mm	
P09100-X21	HPE 800GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	3.00	5.55	5.55	4.52	6.92	5.55	6.92	15mm	
P09102-X21	HPE 1.6TB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	3.00	5.77	5.77	5.37	8.88	5.77	8.88	15mm	
P21125-X21	HPE 400GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty SSD	3.63	5.82	5.82	5.98	6.47	5.82	6.47	15mm	
P21127-X21	HPE 800GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty SSD	3.68	6.49	6.49	5.90	9.06	6.49	9.06	15mm	
P21129-X21	HPE 1.6TB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty SSD	3.69	6.75	6.75	6.31	10.02	6.75	10.02	15mm	
P04525-X21	HPE 400GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	4.20	4.82	4.82	6.21	5.75	4.82	6.21	15mm	



Technical Specifications

SAS Interface – (Power & Height)

HPE Option Kit SKU	Long Description	Power Idle Time (Watts)	Power Random Read (Watts)	Power Random Write (Watts)	Power Sequential Read (Watts)	Power Sequential Write (Watts)	Power Random R/W (Watts)	Power MAX (Watts)	z-Height
P04527-X21	HPE 800GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	4.26	4.97	4.97	6.71	6.95	4.97	6.71	15mm
P04529-X21	HPE 800GB SAS 12G Mixed Use LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	4.26	4.97	4.97	6.71	6.95	4.97	6.71	15mm
P04531-X21	HPE 800GB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD	4.26	4.97	4.97	6.71	6.95	4.97	6.71	15mm
P04533-X21	HPE 1.6TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	5.00	6.00	6.00	6.98	6.98	5.43	8.98	15mm
P04535-X21	HPE 1.6TB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD	5.00	6.00	6.00	6.98	6.98	5.43	8.98	15mm
P04537-X21	HPE 3.2TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	5.00	6.17	6.17	8.56	8.56	5.90	8.56	15mm
P04539-X21	HPE 6.4TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	5.00	6.20	6.20	8.56	8.56	5.90	8.56	15mm
P09088-X21	HPE 400GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	3.00	5.46	5.46	4.59	7.19	5.46	7.19	15mm
P09090-X21	HPE 800GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	3.00	5.78	5.78	5.26	8.76	5.78	8.76	15mm
P09092-X21	HPE 1.6TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	3.00	6.30	6.30	5.39	9.24	6.30	9.24	15mm
P09094-X21	HPE 3.2TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	3.20	6.11	6.11	5.45	9.31	6.11	9.31	15mm
P09096-X21	HPE 6.4TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	3.50	6.69	6.69	6.07	9.68	6.69	9.68	15mm
P10448-X21	HPE 960GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	4.26	4.97	4.97	6.71	6.95	6.95	9.65	15mm
P10450-X21	HPE 960GB SAS 12G Mixed Use LFF (3.5in) SCC 3yr Wty Value SAS Digitally Signed Firmware SSD	4.26	4.97	4.97	6.71	6.95	6.95	9.65	15mm

Technical Specifications

SAS Interface – (Power & Height)

HPE Option Kit SKU	Long Description	Power Idle Time (Watts)	Power Random Read (Watts)	Power Random Write (Watts)	Power Sequential Read (Watts)	Power Sequential Write (Watts)	Power Random R/W (Watts)	Power MAX (Watts)	z- Height
P10452-X21	HPE 960GB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Value SAS Digitally Signed Firmware SSD	4.26	4.97	4.97	6.71	6.95	6.95	9.65	15mm
P10454-X21	HPE 1.92TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	4.34	5.05	5.05	6.98	7.26	7.26	7.26	15mm
P10456-X21	HPE 1.92TB SAS 12G Mixed Use LFF (3.5in) SCC 3yr Wty Value SAS Digitally Signed Firmware SSD	4.34	5.05	5.05	6.98	7.26	7.26	7.26	15mm
P10458-X21	HPE 1.92TB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Value SAS Digitally Signed Firmware SSD	4.34	5.05	5.05	6.98	7.26	7.26	7.26	15mm
P10460-X21	HPE 3.84TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	4.47	5.40	5.40	7.93	7.56	7.96	7.96	15mm
P10462-X21	HPE 3.84TB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Value SAS Digitally Signed Firmware SSD	4.47	5.40	5.40	7.93	7.56	7.96	7.96	15mm
P19913-X21	HPE 800GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD	3.47	5.09	5.09	5.79	6.66	5.09	6.66	15mm
P19915-X21	HPE 1.6TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD	3.47	5.47	5.47	6.31	9.03	5.47	9.03	15mm
P19917-X21	HPE 3.2TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD	3.42	5.56	5.56	6.44	9.19	5.56	9.19	15mm
P19919-X21	HPE 6.4TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD	3.66	5.74	5.74	6.84	8.86	5.74	8.86	15mm
P21131-X21	HPE 800GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD	3.89	5.83	5.83	6.01	6.40	5.83	6.40	15mm
P21133-X21	HPE 1.6TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD	3.83	6.59	6.59	6.00	9.12	6.59	9.12	15mm
P21135-X21	HPE 3.2TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD	3.74	6.95	6.95	6.42	10.16	6.95	10.16	15mm
P21137-X21	HPE 6.4TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD	3.69	7.10	7.10	6.50	9.82	7.10	9.82	15mm



Technical Specifications

SAS Interface – (Power & Height)

HPE Option Kit SKU	Long Description	Power Idle Time (Watts)	Power Random Read (Watts)	Power Random Write (Watts)	Power Sequential Read (Watts)	Power Sequential Write (Watts)	Power Random R/W (Watts)	Power MAX (Watts)	z-Height
P04517-X21	HPE 960GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	5.00	6.00	6.00	6.98	6.98	5.43	8.98	15mm
P04519-X21	HPE 1.92TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	5.00	6.00	6.00	6.98	6.98	5.43	8.98	15mm
P04521-X21	HPE 3.84TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	5.00	6.17	6.17	8.56	8.56	5.90	8.56	15mm
P04523-X21	HPE 7.68TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	5.00	6.20	6.20	8.56	8.56	5.90	8.56	15mm
P06584-X21	HPE 960GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	1.50	3.10	3.10	5.40	6.80	3.10	6.80	7mm
P06586-X21	HPE 1.92TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	3.50	8.62	8.62	7.39	10.17	8.62	10.17	15mm
P06588-X21	HPE 3.84TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	3.50	9.42	9.42	7.76	10.62	9.42	10.62	15mm
P06590-X21	HPE 7.68TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	3.64	9.97	9.97	7.27	10.49	9.97	10.49	15mm
P06592-X21	HPE 15.3TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	4.14	10.05	10.05	7.91	10.48	10.05	10.48	15mm
P10440-X21	HPE 960GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	4.26	4.97	4.97	6.71	6.95	6.95	9.65	15mm
P10442-X21	HPE 1.92TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	4.34	5.05	5.05	6.98	7.26	7.26	7.26	15mm
P10444-X21	HPE 3.84TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	4.47	5.40	5.40	7.93	7.56	7.96	7.96	15mm
P10446-X21	HPE 7.68TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	4.80	5.90	5.90	8.56	8.18	8.56	8.56	15mm



Technical Specifications

SAS Interface – (Power & Height)										
HPE Option Kit SKU	Long Description	Power Idle Time (Watts)	Power Random Read (Watts)	Power Random Write (Watts)	Power Sequential Read (Watts)	Power Sequential Write (Watts)	Power Random R/W (Watts)	Power MAX (Watts)	z-Height	
P19903-X21	HPE 960GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	3.47	5.09	5.09	5.79	6.66	5.09	6.66	15mm	
P19905-X21	HPE 1.92TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	3.47	5.47	5.47	6.31	9.03	5.47	9.03	15mm	
P19907-X21	HPE 3.84TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	3.42	5.56	5.56	6.44	9.19	5.56	9.19	15mm	
P19909-X21	HPE 7.68TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	3.66	5.74	5.74	6.84	8.86	5.74	8.86	15mm	
P19911-X21	HPE 15.36TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	4.18	6.28	6.28	7.97	9.59	6.28	9.59	15mm	
P21139-X21	HPE 960GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	3.67	5.81	5.81	6.13	6.58	5.81	6.58	15mm	
P21141-X21	HPE 1.92TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	3.69	6.47	6.47	6.13	8.52	6.47	8.52	15mm	
P21143-X21	HPE 3.84TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	3.89	6.75	6.75	6.64	10.14	6.75	10.14	15mm	
P21145-X21	HPE 7.68TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	4.04	7.18	7.18	6.96	10.26	7.18	10.26	15mm	
P21147-X21	HPE 15.3TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	4.07	7.52	7.52	7.22	10.32	7.52	10.32	15mm	



Technical Specifications

SAS Certifications

SAS Interface – (Certifications)

HPE Option Kit SKU	Long Description	VMware / vSAN HCL Certification (Watts)	Microsoft Windows Server 2016 Certification	Software Defined Data Center (SDDC) Premium AQ Certification	Microsoft Windows Server 2019 Certification	WS 2019 Software Defined Data Center (SDDC)
P04541-X21	HPE 400GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P04543-X21	HPE 800GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P04545-X21	HPE 1.6TB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P04547-X21	HPE 3.2TB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P04558-X21	HPE 400GB SAS 12G Write Intensive SFF (2.5in) ST 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P04562-X21	HPE 800GB SAS 12G Write Intensive SFF (2.5in) ST 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P09098-X21	HPE 400GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P09100-X21	HPE 800GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P09102-X21	HPE 1.6TB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P21125-X21	HPE 400GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
P21127-X21	HPE 800GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
P21129-X21	HPE 1.6TB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
P04525-X21	HPE 400GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified



Technical Specifications

SAS Interface – (Certifications)

HPE Option Kit SKU	Long Description	VMware / vSAN HCL Certification (Watts)	Microsoft Windows Server 2016 Certification	Software Defined Data Center (SDDC) Premium AQ Certification	Microsoft Windows Server 2019 Certification	WS 2019 Software Defined Data Center (SDDC)
P04527-X21	HPE 800GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P04529-X21	HPE 800GB SAS 12G Mixed Use LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P04531-X21	HPE 800GB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P04533-X21	HPE 1.6TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P04535-X21	HPE 1.6TB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P04537-X21	HPE 3.2TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P04539-X21	HPE 6.4TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P09088-X21	HPE 400GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P09090-X21	HPE 800GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P09092-X21	HPE 1.6TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P09094-X21	HPE 3.2TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P09096-X21	HPE 6.4TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P10448-X21	HPE 960GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified



Technical Specifications

SAS Interface – (Certifications)

HPE Option Kit SKU	Long Description	VMWare / vSAN HCL Certification (Watts)	Microsoft Windows Server 2016 Certification	Software Defined Data Center (SDDC) Premium AQ Certification	Microsoft Windows Server 2019 Certification	WS 2019 Software Defined Data Center (SDDC)
P10450-X21	HPE 960GB SAS 12G Mixed Use LFF (3.5in) SCC 3yr Wty Value SAS Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P10452-X21	HPE 960GB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Value SAS Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P10454-X21	HPE 1.92TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P10456-X21	HPE 1.92TB SAS 12G Mixed Use LFF (3.5in) SCC 3yr Wty Value SAS Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P10458-X21	HPE 1.92TB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Value SAS Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P10460-X21	HPE 3.84TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P10462-X21	HPE 3.84TB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Value SAS Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P19913-X21	HPE 800GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
P19915-X21	HPE 1.6TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
P19917-X21	HPE 3.2TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
P19919-X21	HPE 6.4TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
P21131-X21	HPE 800GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
P21133-X21	HPE 1.6TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified



Technical Specifications

SAS Interface – (Certifications)

HPE Option Kit SKU	Long Description	VMware / vSAN HCL Certification (Watts)	Microsoft Windows Server 2016 Certification	Software Defined Data Center (SDDC) Premium AQ Certification	Microsoft Windows Server 2019 Certification	WS 2019 Software Defined Data Center (SDDC)
P21135-X21	HPE 3.2TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
P21137-X21	HPE 6.4TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
P04517-X21	HPE 960GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P04519-X21	HPE 1.92TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P04521-X21	HPE 3.84TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P04523-X21	HPE 7.68TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P06584-X21	HPE 960GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P06586-X21	HPE 1.92TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P06588-X21	HPE 3.84TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P06590-X21	HPE 7.68TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P06592-X21	HPE 15.3TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P10440-X21	HPE 960GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P10442-X21	HPE 1.92TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified



Technical Specifications

SAS Interface – (Certifications)

HPE Option Kit SKU	Long Description	VMWare / vSAN HCL Certification (Watts)	Microsoft Windows Server 2016 Certification	Software Defined Data Center (SDDC) Premium AQ Certification	Microsoft Windows Server 2019 Certification	WS 2019 Software Defined Data Center (SDDC)
P10444-X21	HPE 3.84TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P10446-X21	HPE 7.68TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P19903-X21	HPE 960GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
P19905-X21	HPE 1.92TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
P19907-X21	HPE 3.84TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
P19909-X21	HPE 7.68TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
P19911-X21	HPE 15.36TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
P21139-X21	HPE 960GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
P21141-X21	HPE 1.92TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
P21143-X21	HPE 3.84TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
P21145-X21	HPE 7.68TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified
P21147-X21	HPE 15.3TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	N/A	Certified	Certified	Certified	Certified



Technical Specifications

Value SAS Capacity, Workload, Carrier Specifications

Value SAS Interface – (Capacity, Workload, Carrier...)

HPE Option Kit SKU	Long Description	Capacity	Workload Type	Interface Type	Form Factor	Plug Type	Carrier Type	Digitally Signed Firmware (DS)	Flash Type	Port	Server Gen Supported (Select Platforms)
Mixed Use Value SAS Drives											
P10448-X21	HPE 960GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	960	MU	SAS	SFF	Hot Plug	SC	Yes	TLC	Single	Gen9, 10
P10450-X21	HPE 960GB SAS 12G Mixed Use LFF (3.5in) SCC 3yr Wty Value SAS Digitally Signed Firmware SSD	960	MU	SAS	LFF	Hot Plug	SCC	Yes	TLC	Single	Gen9, 10
P10452-X21	HPE 960GB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Value SAS Digitally Signed Firmware SSD	960	MU	SAS	LFF	Hot Plug	LPC	Yes	TLC	Single	Gen9, 10
P10454-X21	HPE 1.92TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	1,920	MU	SAS	SFF	Hot Plug	SC	Yes	TLC	Single	Gen9, 10
P10456-X21	HPE 1.92TB SAS 12G Mixed Use LFF (3.5in) SCC 3yr Wty Value SAS Digitally Signed Firmware SSD	1,920	MU	SAS	LFF	Hot Plug	SCC	Yes	TLC	Single	Gen9, 10
P10458-X21	HPE 1.92TB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Value SAS Digitally Signed Firmware SSD	1,920	MU	SAS	LFF	Hot Plug	LPC	Yes	TLC	Single	Gen9, 10
P10460-X21	HPE 3.84TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	3,840	MU	SAS	SFF	Hot Plug	SC	Yes	TLC	Single	Gen9, 10
P10462-X21	HPE 3.84TB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Value SAS Digitally Signed Firmware SSD	3,840	MU	SAS	LFF	Hot Plug	LPC	Yes	TLC	Single	Gen9, 10
P10450-X21	HPE 960GB SAS 12G Mixed Use LFF (3.5in) SCC 3yr Wty Value SAS Digitally Signed Firmware SSD	960	MU	SAS	LFF	Hot Plug	SCC	Yes	TLC	Single	Gen9, 10



Technical Specifications

Value SAS Interface – (Capacity, Workload, Carrier...)

HPE Option Kit SKU	Long Description	Capacity	Workload Type	Interface Type	Form Factor	Plug Type	Carrier Type	Digitally Signed Firmware (DS)	Flash Type	Port	Server Gen Supported (Select Platforms)
P10452-X21	HPE 960GB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Value SAS Digitally Signed Firmware SSD	960	MU	SAS	LFF	Hot Plug	LPC	Yes	TLC	Single	Gen9, 10
P10454-X21	HPE 1.92TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	1,920	MU	SAS	SFF	Hot Plug	SC	Yes	TLC	Single	Gen9, 10
P10456-X21	HPE 1.92TB SAS 12G Mixed Use LFF (3.5in) SCC 3yr Wty Value SAS Digitally Signed Firmware SSD	1,920	MU	SAS	LFF	Hot Plug	SCC	Yes	TLC	Single	Gen9, 10
P10458-X21	HPE 1.92TB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Value SAS Digitally Signed Firmware SSD	1,920	MU	SAS	LFF	Hot Plug	LPC	Yes	TLC	Single	Gen9, 10
P10460-X21	HPE 3.84TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	3,840	MU	SAS	SFF	Hot Plug	SC	Yes	TLC	Single	Gen9, 10
P10462-X21	HPE 3.84TB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Value SAS Digitally Signed Firmware SSD	3,840	MU	SAS	LFF	Hot Plug	LPC	Yes	TLC	Single	Gen9, 10
P10440-X21	HPE 960GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	960	RI	SAS	SFF	Hot Plug	SC	Yes	TLC	Single	Gen9, 10
P10442-X21	HPE 1.92TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	1,920	RI	SAS	SFF	Hot Plug	SC	Yes	TLC	Single	Gen9, 10
P10444-X21	HPE 3.84TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	3,840	RI	SAS	SFF	Hot Plug	SC	Yes	TLC	Single	Gen9, 10
P10446-X21	HPE 7.68TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	7,680	RI	SAS	SFF	Hot Plug	SC	Yes	TLC	Single	Gen9, 10



Technical Specifications

Value SAS Interface – (Capacity, Workload, Carrier...)

HPE Option Kit SKU	Long Description	Capacity	Workload Type	Interface Type	Form Factor	Plug Type	Carrier Type	Digitally Signed Firmware (DS)	Flash Type	Port	Server Gen Supported (Select Platforms)
P10440-X21	HPE 960GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	960	RI	SAS	SFF	Hot Plug	SC	Yes	TLC	Single	Gen9, 10

Notes:

- Value SAS Drives are single-port SAS SSDs. They offer a significant performance boost over SATA SSDs with roughly twice the IOPS, and are typically lower in cost than traditional SAS SSD drives.
- Please use HPE Selector Tool <http://ssd.hpe.com/> to determine server compatibility.



Technical Specifications

Value SAS Speeds and Feeds Specifications

Value SAS Interface – (Speeds & Feeds)

HPE Option Kit SKU	Long Description	Lifetime Writes (TB)	Endurance DWPD	MAX Seq Reads / Max Seq Writes Throughput (MiB/s)	Random Read Avg. / Random Write Avg. Latency uSec (4KiB,Q1)	Random Read / Random Writes IOPS (4KiB, Q=16)	MAX Random Read / MAX Random Write IOPS (4KiB)
Mixed Use Value SAS Drives							
P10448-X21	HPE 960GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	5,250	3	790 / 635	130 / 35	108,000 / 47,000	155,000@Q32 / 48,000@Q4
P10450-X21	HPE 960GB SAS 12G Mixed Use LFF (3.5in) SCC 3yr Wty Value SAS Digitally Signed Firmware SSD	5,250	3	790 / 635	130 / 35	108,000 / 47,000	155,000@Q32 / 48,000@Q4
P10452-X21	HPE 960GB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Value SAS Digitally Signed Firmware SSD	5,250	3	790 / 635	130 / 35	108,000 / 47,000	155,000@Q32 / 48,000@Q4
P10454-X21	HPE 1.92TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	10,500	3	810 / 635	140 / 35	98,000 / 52,000	155,000@Q32 / 52,000@Q4
P10456-X21	HPE 1.92TB SAS 12G Mixed Use LFF (3.5in) SCC 3yr Wty Value SAS Digitally Signed Firmware SSD	10,500	3	810 / 635	140 / 35	98,000 / 52,000	155,000@Q32 / 52,000@Q4
P10458-X21	HPE 1.92TB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Value SAS Digitally Signed Firmware SSD	10,500	3	810 / 635	140 / 35	98,000 / 52,000	155,000@Q32 / 52,000@Q4
P10460-X21	HPE 3.84TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	21,000	3	810 / 635	140 / 35	103,000 / 52,000	155,000@Q32 / 52,000@Q4
P10462-X21	HPE 3.84TB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Value SAS Digitally Signed Firmware SSD	21,000	3	810 / 635	140 / 35	103,000 / 52,000	155,000@Q32 / 52,000@Q4



Technical Specifications

Value SAS Interface – (Speeds & Feeds)

HPE Option Kit SKU	Long Description	Lifetime Writes (TB)	Endurance DWPD	MAX Seq Reads / Max Seq Writes Throughput (MiB/s)	Random Read Avg. / Random Write Avg. Latency uSec (4KiB,Q1)	Random Read / Random Writes IOPS (4KiB, Q=16)	MAX Random Read / MAX Random Write IOPS (4KiB)
Read Intensive Value SAS Drives							
P10440-X21	HPE 960GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	1,750	1	810 / 635	130 / 35	108,000 / 32,000	155,000@Q32 / 32,000@Q4
P10442-X21	HPE 1.92TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	3,500	1	810 / 635	140 / 35	97,000 / 36,000	155,000@Q32 / 36,000@Q4
P10444-X21	HPE 3.84TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	7,000	1	810 / 635	140 / 35	102,000 / 37,000	155,000@Q32 / 37,000@Q4
P10446-X21	HPE 7.68TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	14,000	1	810 / 635	140 / 35	105,000 / 36,000	155,000@Q32 / 37,000@Q4

Value SAS Power and Height Specifications

Value SAS Interface – (Power & Height)

HPE Option Kit SKU	Long Description	Power Idle Time (Watts)	Power Random Read (Watts)	Power Random Write (Watts)	Power Sequential Read (Watts)	Power Sequential Write (Watts)	Power Random R/W (Watts)	Power MAX (Watts)	z- Height
Mixed Use Value SAS Drives									
P10448-X21	HPE 960GB SAS 12G Mixed Use SC 3yr Wty Value SAS Digitally Signed Firmware SSD	4.26	4.97	4.97	6.71	6.95	6.95	9.65	15mm
P10450-X21	HPE 960GB SAS 12G Mixed Use LFF (3.5in) SCC 3yr Wty Value SAS Digitally Signed Firmware SSD	4.26	4.97	4.97	6.71	6.95	6.95	9.65	15mm
P10452-X21	HPE 960GB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Value SAS Digitally Signed Firmware SSD	4.26	4.97	4.97	6.71	6.95	6.95	9.65	15mm



Technical Specifications

Value SAS Interface – (Power & Height)

HPE Option Kit SKU	Long Description	Power Idle Time (Watts)	Power Random Read (Watts)	Power Random Write (Watts)	Power Sequential Read (Watts)	Power Sequential Write (Watts)	Power Random R/W (Watts)	Power MAX (Watts)	z- Height
P10454-X21	HPE 1.92TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	4.34	5.05	5.05	6.98	7.26	7.26	7.26	15mm
P10456-X21	HPE 1.92TB SAS 12G Mixed Use LFF (3.5in) SCC 3yr Wty Value SAS Digitally Signed Firmware SSD	4.34	5.05	5.05	6.98	7.26	7.26	7.26	15mm
P10458-X21	HPE 1.92TB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Value SAS Digitally Signed Firmware SSD	4.34	5.05	5.05	6.98	7.26	7.26	7.26	15mm
P10460-X21	HPE 3.84TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	4.47	5.40	5.40	7.93	7.56	7.96	7.96	15mm
P10462-X21	HPE 3.84TB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Value SAS Digitally Signed Firmware SSD	4.47	5.40	5.40	7.93	7.56	7.96	7.96	15mm

Read Intensive Value SAS Drives

P10440-X21	HPE 960GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	4.26	4.97	4.97	6.71	6.95	6.95	9.65	15mm
P10442-X21	HPE 1.92TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	4.34	5.05	5.05	6.98	7.26	7.26	7.26	15mm
P10444-X21	HPE 3.84TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	4.47	5.40	5.40	7.93	7.56	7.96	7.96	15mm
P10446-X21	HPE 7.68TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	4.80	5.90	5.90	8.56	8.18	8.56	8.56	15mm

Notes: Please use HPE Selector Tool <http://ssd.hpe.com/> to determine server compatibility.



Technical Specifications

Value SAS Certifications

Value SAS Interface – (Certifications)

HPE Option Kit SKU	Long Description	VMware / vSAN HCL Certification (Watts)	Microsoft Windows Server 2016 Certification	Software Defined Data Center (SDDC) Premium AQ Certification	Microsoft Windows Server 2019 Certification	WS 2019 Software Defined Data Center (SDDC)
Mixed Use Value SAS Drives						
P10448-X21	HPE 960GB SAS 12G Mixed Use SC 3yr Wty Value SAS Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P10450-X21	HPE 960GB SAS 12G Mixed Use LFF (3.5in) SCC 3yr Wty Value SAS Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P10452-X21	HPE 960GB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Value SAS Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P10454-X21	HPE 1.92TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P10456-X21	HPE 1.92TB SAS 12G Mixed Use LFF (3.5in) SCC 3yr Wty Value SAS Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P10458-X21	HPE 1.92TB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Value SAS Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P10460-X21	HPE 3.84TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P10462-X21	HPE 3.84TB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Value SAS Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified



Technical Specifications

Read Intensive Value SAS Drives

P10440-X21	HPE 960GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P10442-X21	HPE 1.92TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P10444-X21	HPE 3.84TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P10446-X21	HPE 7.68TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified

Notes: Please use HPE Selector Tool <http://ssd.hpe.com/> to determine server compatibility



Technical Specifications

PCIe/NVMe Capacity, Workload, Carrier Specifications

PCIe/NVMe Interface – SKUs (Capacity, Workload, Carrier...)

HPE Option Kit SKU	Long Description	Capacity	Workload Type	Interface Type	Form Factor	Plug Type	Carrier Type	Digitally Signed Firmware (DS)	Flash Type	Port	Server Gen Supported (Select Platforms)
NVMe High Performance Low Latency SSDs Write Intensive SSDs											
878014-X21	HPE 375GB NVMe x4 Lanes Write Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	375	WI	NVMe	SFF	Hot Plug	SCN	Yes	SLC	Single	Gen9, Gen10
878038-X21	HPE 750GB PCIe x4 Lanes Write Intensive HHHHL 3yr Wty Digitally Signed Firmware Card	750	WI	NVMe	AIC	Non-Hot Plug	AIC	Yes	SLC	Single	Gen9, Gen10
P06952-X21	HPE 750GB NVMe x4 Lanes Write Intensive SFF (2.5in) SCN 3yr Wty	750	WI	NVMe	SFF	Hot Plug	SCN	Yes	SLC	Single	Gen9, Gen10
NVMe High Performance and Mainstream Mixed Use Drives											
P07179-X21	HPE 800GB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	800	MU	NVMe	SFF	Hot Plug	SCN	Yes	TLC	Single	Gen10
P07181-X21	HPE 1.6TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	1,600	MU	NVMe	SFF	Hot Plug	SCN	Yes	TLC	Single	Gen10
P07183-X21	HPE 3.2TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	3,200	MU	NVMe	SFF	Hot Plug	SCN	Yes	TLC	Single	Gen10
P07185-X21	HPE 6.4TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	6,400	MU	NVMe	SFF	Hot Plug	SCN	Yes	TLC	Single	Gen10
P10222-X21	HPE 1.6TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	1,600	MU	NVMe	SFF	Hot Plug	SCN	Yes	MLC	Single	Gen9, 10
P10224-X21	HPE 3.2TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	3,200	MU	NVMe	SFF	Hot Plug	SCN	Yes	MLC	Single	Gen9, 10
P10226-X21	HPE 6.4TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	6,400	MU	NVMe	SFF	Hot Plug	SCN	Yes	MLC	Single	Gen9, 10
P10264-X21	HPE 1.6TB NVMe x8 Lanes Mixed Use HHHHL 3yr Wty Digitally Signed Firmware Card	1,600	MU	NVMe	AIC	Non-Hot Plug	AIC	Yes	TLC	Single	Gen 9,10



Technical Specifications

NVMe High Performance and Mainstream Mixed Use Drives											
P10266-X21	HPE 3.2TB NVMe x8 Lanes Mixed Use HHHL 3yr Wty Digitally Signed Firmware Card	3,200	MU	NVMe	AIC	Non-Hot Plug	AIC	Yes	TLC	Single	Gen 9,10
P10268-X21	HPE 6.4TB NVMe x8 Lanes Mixed Use HHHL 3yr Wty Digitally Signed Firmware Card	6,400	MU	NVMe	AIC	Non-Hot Plug	AIC	Yes	TLC	Single	Gen 9,10
P12114-X21	HPE 1.6TB NVMe x4 Lanes Mixed Use SFF (2.5in) RW 3yr Wty Digitally Signed Firmware SSD	1,600	MU	NVMe	SFF	Non-Hot Plug	RW	Yes	TLC	Single	Gen9, 10
P13668-X21	HPE 800GB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	800	MU	NVMe	SFF	Hot Plug	SCN	Yes	TLC	Single	Gen9,10
P13670-X21	HPE 1.6TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	1,600	MU	NVMe	SFF	Hot Plug	SCN	Yes	TLC	Single	Gen9,10
P13672-X21	HPE 3.2TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	3,200	MU	NVMe	SFF	Hot Plug	SCN	Yes	TLC	Single	Gen9,10
P13674-X21	HPE 6.4TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	6,400	MU	NVMe	SFF	Hot Plug	SCN	Yes	TLC	Single	Gen9,10
P13699-X21	HPE 1.6TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	1,600	MU	NVMe	SFF	Hot Plug	SCN	Yes	TLC	Single	Gen9, 10
P13701-X21	HPE 3.2TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	3,200	MU	NVMe	SFF	Hot Plug	SCN	Yes	TLC	Single	Gen9, 10
P13703-X21	HPE 6.4TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	6,400	MU	NVMe	SFF	Hot Plug	SCN	Yes	TLC	Single	Gen9, 10
P16497-X21	HPE 1.6TB NVMe High Performance Mixed Use SFF (2.5in) SC 3yr Wty Universal Connect SSD	1,600	MU	NVMe	SFF	Hot Plug	SC	Yes	MLC	Single	Gen10, 10.5
P16499-X21	HPE 3.2TB NVMe High Performance Mixed Use SFF (2.5in) SC 3yr Wty Universal Connect SSD	3,200	MU	NVMe	SFF	Hot Plug	SC	Yes	MLC	Single	Gen10, 10.5
P22268-X21	HPE 1.6TB NVMe High Performance Mixed Use SFF (2.5in) SCN 3yr Wty Universal Connect SSD	1,600	MU	NVMe	SFF	Hot Plug	SCN	Yes	TLC	Single	Gen10, 10.5
P22270-X21	HPE 3.2TB NVMe High Performance Mixed Use SFF (2.5in) SCN 3yr Wty Universal Connect SSD	3,200	MU	NVMe	SFF	Hot Plug	SCN	Yes	TLC	Single	Gen10, 10.5



Technical Specifications

NVMe High Performance and Mainstream Mixed Use Drives

P22272-X21	HPE 6.4TB NVMe High Performance Mixed Use SFF (2.5in) SCN 3yr Wty Universal Connect SSD	6,400	MU	NVMe	SFF	Hot Plug	SCN	Yes	TLC	Single	Gen10, 10.5
P22274-X21	HPE 12.8TB NVMe High Performance Mixed Use SFF (2.5in) SCN 3yr Wty Universal Connect SSD	12,800	MU	NVMe	SFF	Hot Plug	SCN	Yes	TLC	Single	Gen10, 10.5
P22329-X21	HPE 800GB NVMe High Performance Mixed Use SFF (2.5in) SCN 3yr Wty Universal Connect SSD	800	MU	NVMe	SFF	Hot Plug	SCN	Yes	TLC	Single	Gen10, 10.5
P26124-X21	HPE 6.4TB NVMe High Performance Mixed Use SFF (2.5in) SC 3yr Wty Universal Connect SSD	6,400	MU	NVMe	SFF	Hot Plug	SC	Yes	TLC	Single	Gen10, 10.5
P26129-X21	HPE 12.8TB NVMe High Performance Mixed Use SFF (2.5in) SC 3yr Wty Universal Connect SSD	12,800	MU	NVMe	SFF	Hot Plug	SC	Yes	TLC	Single	Gen10, 10.5
P26543-X21	HPE 800GB NVMe High Performance Mixed Use SFF (2.5in) SC 3yr Wty Universal Connect SSD	800	MU	NVMe	SFF	Hot Plug	SC	Yes	TLC	Single	Gen10, 10.5

NVMe High Performance Read and Mainstream Intensive Drives

P07190-X21	HPE 960GB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	960	RI	NVMe	SFF	Hot Plug	SCN	Yes	TLC	Single	Gen10
P07192-X21	HPE 1.92TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	1,920	RI	NVMe	SFF	Hot Plug	SCN	Yes	TLC	Single	Gen10
P07194-X21	HPE 3.84TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	3,840	RI	NVMe	SFF	Hot Plug	SCN	Yes	TLC	Single	Gen10
P07196-X21	HPE 7.68TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	7,680	RI	NVMe	SFF	Hot Plug	SCN	Yes	TLC	Single	Gen10
P07198-X21	HPE 15.36TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	15,360	RI	NVMe	SFF	Hot Plug	SCN	Yes	TLC	Single	Gen10
P10208-X21	HPE 960GB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	960	RI	NVMe	SFF	Hot Plug	SCN	Yes	TLC	Single	Gen9, 10
P10210-X21	HPE 1.92TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	1,920	RI	NVMe	SFF	Hot Plug	SCN	Yes	TLC	Single	Gen9, 10



Technical Specifications

NVMe High Performance and Mainstream Mixed Use Drives

P10212-X21	HPE 3.84TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	3,840	RI	NVMe	SFF	Hot Plug	SCN	Yes	TLC	Single	Gen9, 10
P10214-X21	HPE 1.92TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	1,920	RI	NVMe	SFF	Hot Plug	SCN	Yes	MLC	Single	Gen9, 10
P10216-X21	HPE 3.84TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	3,840	RI	NVMe	SFF	Hot Plug	SCN	Yes	MLC	Single	Gen9, 10
P10218-X21	HPE 7.68TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	7,680	RI	NVMe	SFF	Hot Plug	SCN	Yes	MLC	Single	Gen9, 10
P12112-X21	HPE 3.84TB NVMe x4 Lanes Read Intensive SFF (2.5in) Raw 3yr Wty Digitally Signed Firmware SSD	3,840	RI	NVMe	SFF	Hot Plug	RW	Yes	TLC	Single	Gen9, 10
P13676-X21	HPE 960GB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	960	RI	NVMe	SFF	Hot Plug	SCN	Yes	TLC	Single	Gen9,10
P13678-X21	HPE 1.92TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	1,920	RI	NVMe	SFF	Hot Plug	SCN	Yes	TLC	Single	Gen9,10
P13680-X21	HPE 3.84TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	3,840	RI	NVMe	SFF	Hot Plug	SCN	Yes	TLC	Single	Gen9,10
P13682-X21	HPE 7.68TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	7,680	RI	NVMe	SFF	Hot Plug	SCN	Yes	TLC	Single	Gen9,10
P13689-X21	HPE 960GB NVMe x4 Lanes Read Intensive M.2 22110 3yr Wty Digitally Signed Firmware SSD	960	RI	NVMe	M.2	Non Hot Plug	N/A	Yes	MLC	Single	Gen9,10
P13691-X21	HPE 1.92TB NVMe x4 Lanes Read Intensive M.2 22110 3yr Wty Digitally Signed Firmware SSD	1,920	RI	NVMe	M.2	Non Hot Plug	N/A	Yes	MLC	Single	Gen9,10
P13693-X21	HPE 3.84TB NVMe x4 Lanes Read Intensive M.2 22110 3yr Wty Digitally Signed Firmware SSD	3,840	RI	NVMe	M.2	Non Hot Plug	N/A	Yes	MLC	Single	Gen9,10
P13695-X21	HPE 2TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	2,000	RI	NVMe	SFF	Hot Plug	SCN	Yes	TLC	Single	Gen9, 10

Technical Specifications

NVMe High Performance and Mainstream Mixed Use Drives

P13697-X21	HPE 4TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	4,000	RI	NVMe SFF	Hot Plug	SCN	Yes	TLC	Single	Gen9, 10
P16501-X21	HPE 1.92TB NVMe High Performance Read Intensive SFF (2.5in) SC 3yr Wty Universal Connect SSD	1,920	RI	NVMe SFF	Hot Plug	SC	Yes	MLC	Single	Gen10, 10.5
P16503-X21	HPE 3.84TB NVMe High Performance Read Intensive SFF (2.5in) SC 3yr Wty Universal Connect SSD	3,840	RI	NVMe SFF	Hot Plug	SC	Yes	MLC	Single	Gen10, 10.5
P22276-X21	HPE 1.92TB NVMe High Performance Read Intensive SFF (2.5in) SCN 3yr Wty Universal Connect SSD	1,920	RI	NVMe SFF	Hot Plug	SCN	Yes	TLC	Single	Gen10, 10.5
P22278-X21	HPE 3.84TB NVMe High Performance Read Intensive SFF (2.5in) SCN 3yr Wty Universal Connect SSD	3,840	RI	NVMe SFF	Hot Plug	SCN	Yes	TLC	Single	Gen10, 10.5
P22280-X21	HPE 7.68TB NVMe High Performance Read Intensive SFF (2.5in) SCN 3yr Wty Universal Connect SSD	7,680	RI	NVMe SFF	Hot Plug	SCN	Yes	TLC	Single	Gen10, 10.5
P22282-X21	HPE 15.36TB NVMe High Performance Read Intensive SFF (2.5in) SCN 3yr Wty Universal Connect SSD	15,360	RI	NVMe SFF	Hot Plug	SCN	Yes	TLC	Single	Gen10, 10.5
P22331-X21	HPE 960GB NVMe High Performance Read Intensive SFF (2.5in) SCN 3yr Wty Universal Connect SSD	960	RI	NVMe SFF	Hot Plug	SCN	Yes	TLC	Single	Gen10, 10.5
P24188-X21	HPE 480GB NVMe x4 Lanes Read Intensive M.2 22110 3yr Wty Digitally Signed Firmware SSD	480	RI	NVMe M.2	Non Hot Plug	N/A	Yes	MLC	Single	Gen10, 10.5
P26104-X21	HPE 7.68TB NVMe High Performance Read Intensive SFF (2.5in) SC 3yr Wty Universal Connect SSD	7,680	RI	NVMe SFF	Hot Plug	SC	Yes	TLC	Single	Gen10, 10.5
P26109-X21	HPE 15.36TB NVMe High Performance Read Intensive SFF (2.5in) SC 3yr Wty Universal Connect SSD	15,360	RI	NVMe SFF	Hot Plug	SC	Yes	TLC	Single	Gen10, 10.5
P26538-X21	HPE 960GB NVMe High Performance Read Intensive SFF (2.5in) SC 3yr Wty Universal Connect SSD	960	RI	NVMe SFF	Hot Plug	SC	Yes	TLC	Single	Gen10, 10.5



Technical Specifications

PCIe/NVMe Speeds and Feeds Specifications

PCIe/NVMe Interface – SKUs (Speeds and Feeds)

HPE Option Kit SKU	Long Description	Lifetime Writes (TB)	Endurance DWPD	MAX Seq Reads / Max Seq Writes Throughput (MiB/s)	Random Read Avg. / Random Write Avg. Latency (4KiB,Q1)	Random Read / Random Writes IOPS (4KiB, Q=16)	MAX Random Read / MAX Random Write IOPS (4KiB)
NVMe High Performance Low Latency SSDsWrite Intensive SSDs							
878014-X21	HPE 375GB NVMe x4 Lanes Write Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	20,500	30.0	2,550 / 2,150	17 / 17	585,000 / 550,000	585,000@Q16 / 550,000@Q16
878038-X21	HPE 750GB PCIe x4 Lanes Write Intensive HHHL 3yr Wty Digitally Signed Firmware Card	41,000	30.0	2,550 / 2,300	17 / 18	575,000 / 580,000	575,000@Q16 / 580,000@Q16
P06952-X21	HPE 750GB NVMe x4 Lanes Write Intensive SFF (2.5in) SCN 3yr Wty	41,000	30.0	2,500 / 2,300	17 / 17	575,000 / 585,000	575,000@Q16 / 585,000@Q16
NVMe High Performance and Mainstream Mixed Use Drives							
P07179-X21	HPE 800GB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	4,380	3	3,150 / 1,250	125 / 21	118,000 / 110,000	370,000@Q256 / 110,000@Q16
P07181-X21	HPE 1.6TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	8,760	3	3,150 / 2,500	125 / 21	125,000 / 160,000	655,000@Q256 / 160,000@Q16
P07183-X21	HPE 3.2TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	17,520	3	3,200 / 3,050	125 / 21	129,000 / 170,000	785,000@Q256 / 170,000@Q16
P07185-X21	HPE 6.4TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	35,040	3	3,200 / 3,050	125 / 21	129,000 / 165,000	785,000@Q256 / 165,000@Q16
P10222-X21	HPE 1.6TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	14,600	5	3,400 / 1,900	86 / 24	160,000 / 135,000	720,000@Q256 / 145,000@Q16
P10224-X21	HPE 3.2TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	29,200	5	3,400 / 2,900	86 / 26	165,000 / 145,000	780,000@Q256 / 195,000@Q64
P10226-X21	HPE 6.4TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	58,400	5	3,400 / 2,800	100 / 25	149,000 / 155,000	780,000@Q256 / 200,000@Q32



Technical Specifications

PCIe/NVMe Interface – SKUs (Speeds and Feeds)

HPE Option Kit SKU	Long Description	Lifetime Writes (TB)	Endurance DWPD	MAX Seq Reads / Max Seq Writes Throughput (MiB/s)	Random Read Avg. / Random Write Avg. Latency μ Sec (4KiB,Q1)	Random Read / Random Writes IOPS (4KiB, Q=16)	MAX Random Read / MAX Random Write IOPS (4KiB)
NVMe High Performance and Mainstream Mixed Use Drives							
P10264-X21	HPE 1.6TB NVMe x8 Lanes Mixed Use HHHL 3yr Wty Digitally Signed Firmware Card	14,600	5	5,200 / 1,900	175 / 115	130,000 / 135,000	750,000@Q256 / 145,000@Q256
P10266-X21	HPE 3.2TB NVMe x8 Lanes Mixed Use HHHL 3yr Wty Digitally Signed Firmware Card	29,200	5	6,200 / 2,900	85 / 25	175,000 / 150,000	880,000@Q256 / 200,000@Q256
P10268-X21	HPE 6.4TB NVMe x8 Lanes Mixed Use HHHL 3yr Wty Digitally Signed Firmware Card	58,400	5	6,100 / 2,900	96 / 25	150,000 / 155,000	930,000@Q256 / 210,000@Q256
P12114-X21	HPE 1.6TB NVMe x4 Lanes Mixed Use SFF (2.5in) RW 3yr Wty Digitally Signed Firmware SSD	14,600	5	3,400 / 1,900	86 / 24	160,000 / 135,000	720,000@Q256 / 145,000@Q16
P13668-X21	HPE 800GB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	5,037	3.45	3,300 / 650	100 / 27	126,000 / 67,000	230,000@Q256 / 68,000@Q16
P13670-X21	HPE 1.6TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	10,162	3.48	3,300 / 1,250	100 / 25	147,000 / 125,000	425,000@Q256 / 125,000@Q16
P13672-X21	HPE 3.2TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	20,440	3.50	3,300 / 2,400	100 / 25	157,000 / 169,000	650,000@Q256 / 175,000@Q16
P13674-X21	HPE 6.4TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	40,997	3.51	3,100 / 2,550	100 / 25	155,000 / 165,000	635,000@Q256 / 170,000@Q16
P13699-X21	HPE 1.6TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	12,250	4.10	3,200 / 1,950	83 / 18	165,000 / 200,000	660,000@Q256 / 205,000@Q32
P13701-X21	HPE 3.2TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	21,850	3.70	3,200 / 2,900	83 / 18	165,000 / 215,000	660,000@Q256 / 230,000@Q32
P13703-X21	HPE 6.4TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	36,540	3.10	3,200 / 3,100	83 / 18	170,000 / 205,000	680,000@Q256 / 225,000@Q32
P16497-X21	HPE 1.6TB NVMe High Performance Mixed Use SFF (2.5in) SC 3yr Wty Universal Connect SSD	8,560	3	6,300 / 2,400	90 / 41	150,000 / 180,000	600,000@Q128 / 225,000@Q64

Technical Specifications

PCIe/NVMe Interface – SKUs (Speeds and Feeds)

HPE Option Kit SKU	Long Description	Lifetime Writes (TB)	Endurance DWPD	MAX Seq Reads / Max Seq Writes Throughput (MiB/s)	Random Read Avg. / Random Write Avg. Latency (4KiB,Q1)	Random Read / Random Writes IOPS (4KiB, Q=16)	MAX Random Read / MAX Random Write IOPS (4KiB)
P16499-X21	HPE 3.2TB NVMe High Performance Mixed Use SFF (2.5in) SC 3yr Wty Universal Connect SSD	17,121	3	6,600 / 3,700	85 / 37	165,000 / 170,000	680,000@Q128 / 290,000@Q256

NVMe High Performance and Mainstream Mixed Use Drives

P22268-X21	HPE 1.6TB NVMe High Performance Mixed Use SFF (2.5in) SCN 3yr Wty Universal Connect SSD	8,561	3	7,000 / 2,500	80 / 24	175,000 / 235,000	720,000@Q256 / 240,000@Q32
P22270-X21	HPE 3.2TB NVMe High Performance Mixed Use SFF (2.5in) SCN 3yr Wty Universal Connect SSD	17,121	3	7,000 / 4,000	80 / 23	180,000 / 270,000	720,000@Q256 / 300,000@Q32
P22272-X21	HPE 6.4TB NVMe High Performance Mixed Use SFF (2.5in) SCN 3yr Wty Universal Connect SSD	34,242	3	7,000 / 3,800	88 / 23	165,000 / 270,000	720,000@Q256 / 280,000@Q128
P22274-X21	HPE 12.8TB NVMe High Performance Mixed Use SFF (2.5in) SCN 3yr Wty Universal Connect SSD	68,484	3	7,000 / 3,700	88 / 23	165,000 / 265,000	720,000@Q256 / 280,000@Q64
P22329-X21	HPE 800GB NVMe High Performance Mixed Use SFF (2.5in) SCN 3yr Wty Universal Connect SSD	4,280	3	5,200 / 1,250	80 / 24	165,000 / 140,000	530,000@Q256 / 145,000@Q256
P26124-X21	HPE 6.4TB NVMe High Performance Mixed Use SFF (2.5in) SC 3yr Wty Universal Connect SSD	34,242	3	7,000 / 3,800	88 / 23	165,000 / 270,000	720,000@Q256 / 280,000@Q128
P26129-X21	HPE 12.8TB NVMe High Performance Mixed Use SFF (2.5in) SC 3yr Wty Universal Connect SSD	68,484	3	7,000 / 3,700	88 / 23	165,000 / 265,000	720,000@Q256 / 280,000@Q64
P26543-X21	HPE 800GB NVMe High Performance Mixed Use SFF (2.5in) SC 3yr Wty Universal Connect SSD	4,280	3	5,200 / 1,250	80 / 24	165,000 / 140,000	530,000@Q256 / 145,000@Q256



Technical Specifications

PCIe/NVMe Interface – SKUs (Speeds and Feeds)

HPE Option Kit SKU	Long Description	Lifetime Writes (TB)	Endurance DWPD	MAX Seq Reads / Max Seq Writes Throughput (MiB/s)	Random Read Avg. / Random Write Avg. Latency μ Sec (4KiB,Q1)	Random Read / Random Writes IOPS (4KiB, Q=16)	MAX Random Read / MAX Random Write IOPS (4KiB)
NVMe High Performance and Mainstream Read Intensive Drives							
P07190-X21	HPE 960GB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	1,750	1	3,150 / 1,250	125 / 21	118,000 / 59,000	370,000@Q256 / 59,000@Q16
P07192-X21	HPE 1.92TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	3,500	1	3,150 / 2,500	135 / 22	125,000 / 91,000	570,000@Q256 / 91,000@Q16
P07194-X21	HPE 3.84TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	7,000	1	3,200 / 3,050	125 / 25	129,000 / 97,000	780,000@Q256 / 97,000@Q16
P07196-X21	HPE 7.68TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	14,000	1	3,200 / 3,050	125 / 25	130,000 / 97,000	780,000@Q256 / 97,000@Q16
P07198-X21	HPE 15.36TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	28,000	1	3,200 / 2,950	165 / 27	97,000 / 43,000	480,000@Q128 / 43,000@Q4
P10208-X21	HPE 960GB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	876	0.50	3,000 / 860	125 / 46	115,000 / 21,500	340,000@Q256 / 21,500@Q1
P10210-X21	HPE 1.92TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	1,750	0.50	3,000 / 780	135 / 46	105,000 / 21,500	305,000@Q256 / 21,500@Q1
P10212-X21	HPE 3.84TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	4,480	0.60	3,000 / 1,500	130 / 25	115,000 / 41,500	560,000@Q256 / 41,500@Q1
P10214-X21	HPE 1.92TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	3,500	1	3,400 / 1,900	86 / 29	160,000 / 52,000	720,000@Q256 / 52,000@Q4
P10216-X21	HPE 3.84TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	7,000	1	3,400 / 2,900	87 / 31	165,000 / 74,000	780,000@Q256 / 75,000@Q16



Technical Specifications

PCIe/NVMe Interface – SKUs (Speeds and Feeds)

HPE Option Kit SKU	Long Description	Lifetime Writes (TB)	Endurance DWPD	MAX Seq Reads / Max Seq Writes Throughput (MiB/s)	Random Read Avg. / Random Write Avg. Latency μ Sec (4KiB,Q1)	Random Read / Random Writes IOPS (4KiB, Q=16)	MAX Random Read / MAX Random Write IOPS (4KiB)
NVMe High Performance and Mainstream Read Intensive Drives							
P10218-X21	HPE 7.68TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	14,000	1	3,400 / 2,800	100 / 30	149,000 / 94,000	780,000@Q256 / 94,000@Q16
P12112-X21	HPE 3.84TB NVMe x4 Lanes Read Intensive SFF (2.5in) Raw 3yr Wty Digitally Signed Firmware SSD	7,000	1.	3,200 / 3,050	125 / 25	129,000 / 97,000	780,000@Q256 / 97,000@Q16
P13676-X21	HPE 960GB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	2,312	1.32	3,300 / 650	100 / 32	125,000 / 30,000	230,000@Q256 / 30,000@Q4
P13678-X21	HPE 1.92TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	4,695	1.34	3,300 / 1,250	100 / 27	147,000 / 55,000	425,000@Q256 / 55,000@Q4
P13680-X21	HPE 3.84TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	9,461	1.35	3,300 / 2,350	100 / 28	155,000 / 72,000	650,000@Q256 / 72,000@Q4
P13682-X21	HPE 7.68TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	19,062	1.36	3,100 / 2,550	105 / 31	154,000 / 73,000	635,000@Q256 / 73,000@Q4
P13689-X21	HPE 960GB NVMe x4 Lanes Read Intensive M.2 22110 3yr Wty Digitally Signed Firmware SSD	981	0.56	3,300 / 1,350	91 / 29	155,000 / 47,500	480,000@Q256 / 47,500@Q4
P13691-X21	HPE 1.92TB NVMe x4 Lanes Read Intensive M.2 22110 3yr Wty Digitally Signed Firmware SSD	4,765	1.36	3,300 / 1,250	97 / 28	145,000 / 54,000	425,000@Q256 / 54,500@Q64
P13693-X21	HPE 3.84TB NVMe x4 Lanes Read Intensive M.2 22110 3yr Wty Digitally Signed Firmware SSD	9,601	1.37	3,300 / 1,300	97 / 28	155,000 / 64,500	645,000@Q256 / 64,500@Q4
P13695-X21	HPE 2TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	2,600	0.70	3,100 / 1,900	80 / 22	170,000 / 83,000	670,000@Q256 / 83,000@Q16

Technical Specifications

PCIe/NVMe Interface – SKUs (Speeds and Feeds)

HPE Option Kit SKU	Long Description	Lifetime Writes (TB)	Endurance DWPD	MAX Seq Reads / Max Seq Writes Throughput (MiB/s)	Random Read Avg. / Random Write Avg. Latency μ Sec (4KiB,Q1)	Random Read / Random Writes IOPS (4KiB, Q=16)	MAX Random Read / MAX Random Write IOPS (4KiB)
NVMe High Performance and Mainstream Read Intensive Drives							
P13697-X21	HPE 4TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	6,300	0.80	2,900 / 2,800	80 / 21	170,000 / 120,000	670,000@Q256 / 120,000@Q16
P16501-X21	HPE 1.92TB NVMe High Performance Read Intensive SFF (2.5in) SC 3yr Wty Universal Connect SSD	3,424	1	6,300 / 2,400	90 / 41	150,000 / 115,000	690,000@Q128 / 115,000@Q16
P16503-X21	HPE 3.84TB NVMe High Performance Read Intensive SFF (2.5in) SC 3yr Wty Universal Connect SSD	6,848	1	6,600 / 3,700	90 / 40	155,000 / 130,000	700,000@Q128 / 150,000@Q32
P22276-X21	HPE 1.92TB NVMe High Performance Read Intensive SFF (2.5in) SCN 3yr Wty Universal Connect SSD	3,424	1	7,000 / 2,500	85 / 30	195,000 / 115,000	900,000@Q256 / 120,000@Q16
P22278-X21	HPE 3.84TB NVMe High Performance Read Intensive SFF (2.5in) SCN 3yr Wty Universal Connect SSD	6,848	1	7,000 / 4,000	85 / 30	200,000 / 145,000	900,000@Q256 / 150,000@Q128
P22280-X21	HPE 7.68TB NVMe High Performance Read Intensive SFF (2.5in) SCN 3yr Wty Universal Connect SSD	13,697	1	7,000 / 3,800	95 / 30	180,000 / 140,000	900,000@Q256 / 145,000@Q32
P22282-X21	HPE 15.36TB NVMe High Performance Read Intensive SFF (2.5in) SCN 3yr Wty Universal Connect SSD	27,394	1	7,000 / 3,700	88 / 24	165,000 / 140,000	720,000@Q256 / 145,000@Q128
P22331-X21	HPE 960GB NVMe High Performance Read Intensive SFF (2.5in) SCN 3yr Wty Universal Connect SSD	1,712	1	5,200 / 1,250	80 / 23	165,000 / 70,000	530,000@Q256 / 70,000@Q128
P24188-X21	HPE 480GB NVMe x4 Lanes Read Intensive M.2 22110 3yr Wty Digitally Signed Firmware SSD	482	0.55	2,800 / 690	91 / 45	135,000 / 26,500	250,000@Q256 / 26,500@128
P26104-X21	HPE 7.68TB NVMe High Performance Read Intensive SFF (2.5in) SC 3yr Wty Universal Connect SSD	13,697	1	7,000 / 3,800	95 / 30	180,000 / 140,000	900,000@Q256 / 145,000@Q32



Technical Specifications

PCIe/NVMe Interface – SKUs (Speeds and Feeds)

HPE Option Kit SKU	Long Description	Lifetime Writes (TB)	Endurance DWPD	MAX Seq Reads / Max Seq Writes Throughput (MiB/s)	Random Read Avg. / Random Write Avg. Latency μ Sec (4KiB,Q1)	Random Read / Random Writes IOPS (4KiB, Q=16)	MAX Random Read / MAX Random Write IOPS (4KiB)
NVMe High Performance and Mainstream Read Intensive Drives							
P26109-X21	HPE 15.36TB NVMe High Performance Read Intensive SFF (2.5in) SC 3yr Wty Universal Connect SSD	27,394	1	7,000 / 3,700	88 / 24	165,000 / 140,000	720,000@Q256 / 145,000@Q128
P26538-X21	HPE 960GB NVMe High Performance Read Intensive SFF (2.5in) SC 3yr Wty Universal Connect SSD	1,712	1	5,200 / 1,250	80 / 23	165,000 / 70,000	530,000@Q256 / 70,000@Q128

PCIe/NVMe Power & Height Specifications

PCIe/NVMe Interface – (Power & Height)

HPE Option Kit SKU	Long Description	Power Idle Time (Watts)	Power Random Read (Watts)	Power Random Write (Watts)	Power Sequential Read (Watts)	Power Sequential Write (Watts)	Power Random R/W (Watts)	Power MAX (Watts)	z- Height
NVMe High Performance Low Latency SSDsWrite Intensive SSDs									
878014-X21	HPE 375GB NVMe x4 Lanes Write Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	4.00	5.16	5.16	8.50	12.20	5.16	13.00	15mm
878038-X21	HPE 750GB PCIe x4 Lanes Write Intensive HHHHL 3yr Wty Digitally Signed Firmware Card	4.70	9.8	9.80	9.50	13.90	9.80	14.00	Half Height/ Half Length
P06952-X21	HPE 750GB NVMe x4 Lanes Write Intensive SFF (2.5in) SCN 3yr Wty	4.50	9.74	9.74	9.74	9.12	14.04	14.04	15mm
875585-X21	HPE 800GB NVMe x4 Lanes Mixed Use M.2 22110 3yr Wty Digitally Signed Firmware SSD	2.60	4.50	5.50	6.50	7.50	5.00	8.00	22110 M.2



Technical Specifications

PCIe/NVMe Interface – (Power & Height)

HPE Option Kit SKU	Long Description	Power Idle Time (Watts)	Power Random Read (Watts)	Power Random Write (Watts)	Power Sequential Read (Watts)	Power Sequential Write (Watts)	Power Random R/W (Watts)	Power MAX (Watts)	z- Height
P07179-X21	HPE 800GB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	4.84	6.13	6.13	6.13	9.02	7.66	9.02	15mm
P07181-X21	HPE 1.6TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	4.89	6.30	6.30	6.30	9.41	10.71	10.71	15mm
P07183-X21	HPE 3.2TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	5.09	6.74	6.74	6.74	10.63	12.22	12.22	15mm
P07185-X21	HPE 6.4TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	5.48	7.24	7.24	7.24	11.48	13.13	13.13	15mm
P10222-X21	HPE 1.6TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	6.20	10.00	10.00	13.70	14.90	10.00	14.90	15mm
P10224-X21	HPE 3.2TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	7.20	10.80	10.80	14.40	18.00	10.80	18.00	15mm
P10226-X21	HPE 6.4TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	8.66	13.62	13.62	14.40	18.00	13.62	18.00	15mm
P10264-X21	HPE 1.6TB NVMe x8 Lanes Mixed Use HHHL 3yr Wty Digitally Signed Firmware Card	7.18	12.22	12.22	17.49	15.24	12.22	18.00	Half Height/Half length
P10266-X21	HPE 3.2TB NVMe x8 Lanes Mixed Use HHHL 3yr Wty Digitally Signed Firmware Card	7.30	13.24	13.24	17.97	18.85	13.24	19.00	Half Height/Half length
P10268-X21	HPE 6.4TB NVMe x8 Lanes Mixed Use HHHL 3yr Wty Digitally Signed Firmware Card	7.42	13.72	13.72	18.51	21.44	13.72	22.00	Half Height/Half length
P12114-X21	HPE 1.6TB NVMe x4 Lanes Mixed Use SFF (2.5in) RW 3yr Wty Digitally Signed Firmware SSD	6.20	10.00	10.00	13.70	14.90	10.00	15.00	15mm



Technical Specifications

PCIe/NVMe Interface – (Power & Height)

HPE Option Kit SKU	Long Description	Power Idle Time (Watts)	Power Random Read (Watts)	Power Random Write (Watts)	Power Sequential Read (Watts)	Power Sequential Write (Watts)	Power Random R/W (Watts)	Power MAX (Watts)	z- Height
P13668-X21	HPE 800GB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	3.30	5.38	5.38	7.66	5.39	5.38	7.66	15mm
P13670-X21	HPE 1.6TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	3.25	7.00	7.00	7.94	7.41	7.00	7.94	15mm
P13672-X21	HPE 3.2TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	3.35	8.64	8.64	8.18	11.41	8.64	11.41	15mm
P13674-X21	HPE 6.4TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	3.49	10.65	10.65	9.12	13.81	10.65	13.81	15mm
P13699-X21	HPE 1.6TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	4.38	10.49	10.49	10.49	8.90	11.83	11.83	15mm
P13701-X21	HPE 3.2TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	4.36	10.56	10.56	10.56	8.43	13.37	13.37	15mm
P13703-X21	HPE 6.4TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	4.97	12.13	12.13	12.13	8.84	14.48	14.48	15mm
P16497-X21	HPE 1.6TB NVMe High Performance Mixed Use SFF (2.5in) SC 3yr Wty Universal Connect SSD	7.00	8.40	8.40	11.00	14.00	8.40	14.00	15mm
P16499-X21	HPE 3.2TB NVMe High Performance Mixed Use SFF (2.5in) SC 3yr Wty Universal Connect SSD	7.00	8.40	8.40	11.00	14.00	8.40	14.00	15mm
P22268-X21	HPE 1.6TB NVMe High Performance Mixed Use SFF (2.5in) SCN 3yr Wty Universal Connect SSD	5.00	12.90	12.90	13.90	13.60	12.90	13.90	15mm
P22270-X21	HPE 3.2TB NVMe High Performance Mixed Use SFF (2.5in) SCN 3yr Wty Universal Connect SSD	5.00	15.20	15.20	14.00	17.50	15.20	17.50	15mm

Technical Specifications

PCIe/NVMe Interface – (Power & Height)

HPE Option Kit SKU	Long Description	Power Idle Time (Watts)	Power Random Read (Watts)	Power Random Write (Watts)	Power Sequential Read (Watts)	Power Sequential Write (Watts)	Power Random R/W (Watts)	Power MAX (Watts)	z- Height
P22272-X21	HPE 6.4TB NVMe High Performance Mixed Use SFF (2.5in) SCN 3yr Wty Universal Connect SSD	5.00	15.30	15.30	14.60	17.90	15.30	17.90	15mm
P22274-X21	HPE 12.8TB NVMe High Performance Mixed Use SFF (2.5in) SCN 3yr Wty Universal Connect SSD	5.20	15.80	15.80	16.30	18.50	15.80	18.50	15mm
P22329-X21	HPE 800GB NVMe High Performance Mixed Use SFF (2.5in) SCN 3yr Wty Universal Connect SSD	5.00	10.30	10.30	11.30	11.50	10.30	11.50	15mm
P26124-X21	HPE 6.4TB NVMe High Performance Mixed Use SFF (2.5in) SC 3yr Wty Universal Connect SSD	5.00	15.30	15.30	14.60	17.90	15.30	17.90	15mm
P26129-X21	HPE 12.8TB NVMe High Performance Mixed Use SFF (2.5in) SC 3yr Wty Universal Connect SSD	5.20	15.80	15.80	16.30	18.50	15.80	18.50	15mm
P26543-X21	HPE 800GB NVMe High Performance Mixed Use SFF (2.5in) SC 3yr Wty Universal Connect SSD	5.00	10.30	10.30	11.30	11.50	10.30	11.50	15mm



Technical Specifications

PCIe/NVMe Interface – (Power & Height)

HPE Option Kit SKU	Long Description	Power Idle Time (Watts)	Power Random Read (Watts)	Power Random Write (Watts)	Power Sequential Read (Watts)	Power Sequential Write (Watts)	Power Random R/W (Watts)	Power MAX (Watts)	z- Height
NVMe High Performance Read and Mainstream Intensive SSDs									
P07190-X21	HPE 960GB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	4.74	5.91	5.91	5.91	8.72	6.77	8.72	15mm
P07192-X21	HPE 1.92TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	4.84	6.26	6.26	6.26	9.47	10.65	10.65	15mm
P07194-X21	HPE 3.84TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	5.10	6.71	6.71	6.71	10.56	12.26	12.26	15mm
P07196-X21	HPE 7.68TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	5.44	7.23	7.23	7.23	11.45	13.15	13.15	15mm
P07198-X21	HPE 15.36TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	5.55	7.59	7.59	7.59	11.82	15.06	15.06	15mm
P10208-X21	HPE 960GB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	4.74	5.91	5.91	5.91	8.72	6.77	8.72	15mm
P10210-X21	HPE 1.92TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	4.83	6.19	6.19	6.19	8.97	7.20	8.97	15mm
P10212-X21	HPE 3.84TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	5.06	6.70	6.70	6.70	9.51	9.71	9.71	15mm
P10214-X21	HPE 1.92TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	6.20	10.00	10.00	13.70	14.90	10.00	14.90	15mm
P10216-X21	HPE 3.84TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	7.20	10.00	10.00	14.60	18.10	10.00	18.10	15mm



Technical Specifications

PCIe/NVMe Interface – (Power & Height)

HPE Option Kit SKU	Long Description	Power Idle Time (Watts)	Power Random Read (Watts)	Power Random Write (Watts)	Power Sequential Read (Watts)	Power Sequential Write (Watts)	Power Random R/W (Watts)	Power MAX (Watts)	z- Height
NVMe High Performance Read and Mainstream Intensive SSDs									
P10218-X21	HPE 7.68TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	8.64	10.50	10.50	14.69	18.72	10.50	18.72	15mm
P12112-X21	HPE 3.84TB NVMe x4 Lanes Read Intensive SFF (2.5in) Raw 3yr Wty Digitally Signed Firmware SSD	5.10	6.71	6.71	6.71	10.56	12.26	12.26	15mm
P13676-X21	HPE 960GB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	3.30	5.38	5.38	7.66	5.39	5.38	7.66	15mm
P13678-X21	HPE 1.92TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	3.25	7.00	7.00	7.94	7.41	7.00	7.94	15mm
P13680-X21	HPE 3.84TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	3.35	8.64	8.64	8.18	11.41	8.64	11.41	15mm
P13682-X21	HPE 7.68TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	3.49	10.65	10.65	9.12	13.81	10.65	13.81	15mm
P13689-X21	HPE 960GB NVMe x4 Lanes Read Intensive M.2 22110 3yr Wty Digitally Signed Firmware SSD	2.41	6.16	6.16	6.57	6.33	6.16	6.57	2mm
P13691-X21	HPE 1.92TB NVMe x4 Lanes Read Intensive M.2 22110 3yr Wty Digitally Signed Firmware SSD	2.42	6.27	6.27	6.80	6.55	6.27	6.80	2mm
P13693-X21	HPE 3.84TB NVMe x4 Lanes Read Intensive M.2 22110 3yr Wty Digitally Signed Firmware SSD	2.43	7.49	7.49	6.90	6.64	7.49	7.49	2mm
P13695-X21	HPE 2TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	4.53	10.71	10.71	10.71	9.47	11.76	11.76	15mm



Technical Specifications

PCIe/NVMe Interface – (Power & Height)

HPE Option Kit SKU	Long Description	Power Idle Time (Watts)	Power Random Read (Watts)	Power Random Write (Watts)	Power Sequential Read (Watts)	Power Sequential Write (Watts)	Power Random R/W (Watts)	Power MAX (Watts)	z- Height
NVMe High Performance Read and Mainstream Intensive SSDs									
P13697-X21	HPE 4TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	4.54	10.47	10.47	10.47	8.88	12.56	12.56	15mm
P16501-X21	HPE 1.92TB NVMe High Performance Read Intensive SFF (2.5in) SC 3yr Wty Universal Connect SSD	7.00	8.40	8.40	11.00	14.00	8.40	14.00	15mm
P16503-X21	HPE 3.84TB NVMe High Performance Read Intensive SFF (2.5in) SC 3yr Wty Universal Connect SSD	7.00	8.40	8.40	11.00	14.00	8.40	14.00	15mm
P22276-X21	HPE 1.92TB NVMe High Performance Read Intensive SFF (2.5in) SCN 3yr Wty Universal Connect SSD	5.00	12.90	12.90	13.60	13.70	12.90	13.70	15mm
P22278-X21	HPE 3.84TB NVMe High Performance Read Intensive SFF (2.5in) SCN 3yr Wty Universal Connect SSD	5.00	15.30	15.30	14.30	18.20	15.30	18.20	15mm
P22280-X21	HPE 7.68TB NVMe High Performance Read Intensive SFF (2.5in) SCN 3yr Wty Universal Connect SSD	5.00	15.60	15.60	14.70	17.90	15.60	17.90	15mm
P22282-X21	HPE 15.36TB NVMe High Performance Read Intensive SFF (2.5in) SCN 3yr Wty Universal Connect SSD	5.20	16.20	16.20	16.00	18.80	16.20	18.80	15mm
P22331-X21	HPE 960GB NVMe High Performance Read Intensive SFF (2.5in) SCN 3yr Wty Universal Connect SSD	5.00	10.40	10.40	11.20	11.50	10.40	11.50	15mm
P24188-X21	HPE 480GB NVMe x4 Lanes Read Intensive M.2 22110 3yr Wty Digitally Signed Firmware SSD	2.41	4.62	4.62	6.49	4.66	4.62	6.49	2mm
P26104-X21	HPE 7.68TB NVMe High Performance Read Intensive SFF (2.5in) SC 3yr Wty Universal Connect SSD	5.00	15.60	15.60	14.70	17.90	15.60	17.90	15mm



Technical Specifications

PCIe/NVMe Interface – (Power & Height)									
HPE Option Kit SKU	Long Description	Power Idle Time (Watts)	Power Random Read (Watts)	Power Random Write (Watts)	Power Sequential Read (Watts)	Power Sequential Write (Watts)	Power Random R/W (Watts)	Power MAX (Watts)	z- Height
NVMe High Performance Read and Mainstream Intensive SSDs									
P26109-X21	HPE 15.36TB NVMe High Performance Read Intensive SFF (2.5in) SC 3yr Wty Universal Connect SSD	5.20	16.20	16.20	16.00	18.80	16.20	18.80	15mm
P26538-X21	HPE 960GB NVMe High Performance Read Intensive SFF (2.5in) SC 3yr Wty Universal Connect SSD	5.00	10.40	10.40	11.20	11.50	10.40	11.50	15mm



Technical Specifications

Inbox NVMe Drivers

Inbox NVMe drivers for the minimally supported operating systems listed below have been tested on HPE NVMe SSDs and Add-in Cards. Check the specifications for the HPE server of interest to determine if it supports one of these Operating Systems.

- Windows Server 2019
- Windows Server 2016
- Windows Server 2012R2
- Red Hat Enterprise Linux Server 6.5
- Red Hat Enterprise Linux Server 7.0
- SUSE Linux Enterprise Server 12
- Ubuntu 14.04 VMWare vSphere 6.1

NVMe Certifications

NVMe Interface – (Certifications)

HPE Option Kit SKU	Long Description	VMWare / vSAN HCL Certification (Watts)	Microsoft Windows Server 2016 Certification	Software Defined Data Center (SDDC) Premium AQ Certification	Microsoft Windows Server 2019 Certification	WS 2019 Software Defined Data Center (SDDC)
NVMe High Performance Low Latency SSDs Write Intensive SSDs						
878014-X21	HPE 375GB NVMe x4 Lanes Write Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
878038-X21	HPE 750GB PCIe x4 Lanes Write Intensive HHHL 3yr Wty Digitally Signed Firmware Card	Certified	Certified	Certified	Certified	Certified
P06952-X21	HPE 750GB NVMe x4 Lanes Write Intensive SFF (2.5in) SCN 3yr Wty	Certified	Certified	Certified	Certified	Certified
NVMe High Performance and Mainstream Mixed Use Drives						
P07179-X21	HPE 800GB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P07181-X21	HPE 1.6TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P07183-X21	HPE 3.2TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P07185-X21	HPE 6.4TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified



Technical Specifications

NVMe Interface – (Certifications)

HPE Option Kit SKU	Long Description	VMware / vSAN HCL Certification (Watts)	Microsoft Windows Server 2016 Certification	Software Defined Data Center (SDDC) Premium AQ Certification	Microsoft Windows Server 2019 Certification	WS 2019 Software Defined Data Center (SDDC)
NVMe High Performance Low Latency SSDsWrite Intensive SSDs						
P10222-X21	HPE 1.6TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P10224-X21	HPE 3.2TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P10226-X21	HPE 6.4TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P10264-X21	HPE 1.6TB NVMe x8 Lanes Mixed Use HHHL 3yr Wty Digitally Signed Firmware Card	Certified	Certified	Certified	Certified	Certified
P10266-X21	HPE 3.2TB NVMe x8 Lanes Mixed Use HHHL 3yr Wty Digitally Signed Firmware Card	Certified	Certified	Certified	Certified	Certified
P10268-X21	HPE 6.4TB NVMe x8 Lanes Mixed Use HHHL 3yr Wty Digitally Signed Firmware Card	Certified	Certified	Certified	Certified	Certified
P12114-X21	HPE 1.6TB NVMe x4 Lanes Mixed Use SFF (2.5in) RW 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P13668-X21	HPE 800GB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P13670-X21	HPE 1.6TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P13672-X21	HPE 3.2TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P13674-X21	HPE 6.4TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified



Technical Specifications

NVMe Interface – (Certifications)

HPE Option Kit SKU	Long Description	VMware / vSAN HCL Certification (Watts)	Microsoft Windows Server 2016 Certification	Software Defined Data Center (SDDC) Premium AQ Certification	Microsoft Windows Server 2019 Certification	WS 2019 Software Defined Data Center (SDDC)
NVMe High Performance Low Latency SSDs						
P13699-X21	HPE 1.6TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P13701-X21	HPE 3.2TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P13703-X21	HPE 6.4TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P16497-X21	HPE 1.6TB NVMe High Performance Mixed Use SFF (2.5in) SC 3yr Wty Universal Connect SSD	Pending	Certified	Certified	Certified	Certified
P16499-X21	HPE 3.2TB NVMe High Performance Mixed Use SFF (2.5in) SC 3yr Wty Universal Connect SSD	Pending	Certified	Certified	Certified	Certified
P22268-X21	HPE 1.6TB NVMe High Performance Mixed Use SFF (2.5in) SCN 3yr Wty Universal Connect SSD	Pending	Pending	Pending	Pending	Pending
P22270-X21	HPE 3.2TB NVMe High Performance Mixed Use SFF (2.5in) SCN 3yr Wty Universal Connect SSD	Pending	Pending	Pending	Pending	Pending
P22272-X21	HPE 6.4TB NVMe High Performance Mixed Use SFF (2.5in) SCN 3yr Wty Universal Connect SSD	Pending	Pending	Pending	Pending	Pending
P22274-X21	HPE 12.8TB NVMe High Performance Mixed Use SFF (2.5in) SCN 3yr Wty Universal Connect SSD	Pending	Pending	Pending	Pending	Pending
P22329-X21	HPE 800GB NVMe High Performance Mixed Use SFF (2.5in) SCN 3yr Wty Universal Connect SSD	Pending	Pending	Pending	Pending	Pending



Technical Specifications

NVMe Interface – (Certifications)

HPE Option Kit SKU	Long Description	VMware / vSAN HCL Certification (Watts)	Microsoft Windows Server 2016 Certification	Software Defined Data Center (SDDC) Premium AQ Certification	Microsoft Windows Server 2019 Certification	WS 2019 Software Defined Data Center (SDDC)
NVMe High Performance Low Latency SSDs						
P26124-X21	HPE 6.4TB NVMe High Performance Mixed Use SFF (2.5in) SC 3yr Wty Universal Connect SSD	Pending	Pending	Pending	Pending	Pending
P26129-X21	HPE 12.8TB NVMe High Performance Mixed Use SFF (2.5in) SC 3yr Wty Universal Connect SSD	Pending	Pending	Pending	Pending	Pending
P26543-X21	HPE 800GB NVMe High Performance Mixed Use SFF (2.5in) SC 3yr Wty Universal Connect SSD	Pending	Pending	Pending	Pending	Pending
NVMe High Performance and Mainstream Read Intensive Drives						
P07190-X21	HPE 960GB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P07192-X21	HPE 1.92TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P07194-X21	HPE 3.84TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P07196-X21	HPE 7.68TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P07198-X21	HPE 15.36TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P10208-X21	HPE 960GB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Pending	Certified	Certified



Technical Specifications

NVMe Interface – (Certifications)

HPE Option Kit SKU	Long Description	VMware / vSAN HCL Certification (Watts)	Microsoft Windows Server 2016 Certification	Software Defined Data Center (SDDC) Premium AQ Certification	Microsoft Windows Server 2019 Certification	WS 2019 Software Defined Data Center (SDDC)
NVMe High Performance and Mainstream Read Intensive Drives						
P10210-X21	HPE 1.92TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Pending	Certified	Certified
P10212-X21	HPE 3.84TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Pending	Certified	Certified
P10214-X21	HPE 1.92TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P10216-X21	HPE 3.84TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P10218-X21	HPE 7.68TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P12112-X21	HPE 3.84TB NVMe x4 Lanes Read Intensive SFF (2.5in) Raw 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P13676-X21	HPE 960GB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P13678-X21	HPE 1.92TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P13680-X21	HPE 3.84TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P13682-X21	HPE 7.68TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified



Technical Specifications

NVMe Interface – (Certifications)

HPE Option Kit SKU	Long Description	VMware / vSAN HCL Certification (Watts)	Microsoft Windows Server 2016 Certification	Software Defined Data Center (SDDC) Premium AQ Certification	Microsoft Windows Server 2019 Certification	WS 2019 Software Defined Data Center (SDDC)
NVMe High Performance and Mainstream Read Intensive Drives						
P13689-X21	HPE 960GB NVMe x4 Lanes Read Intensive M.2 22110 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	N/A	Certified	N/A
P13691-X21	HPE 1.92TB NVMe x4 Lanes Read Intensive M.2 22110 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	N/A	Certified	N/A
P13693-X21	HPE 3.84TB NVMe x4 Lanes Read Intensive M.2 22110 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	N/A	Certified	N/A
P13695-X21	HPE 2TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified



Technical Specifications

NVMe Interface – (Certifications)

HPE Option Kit SKU	Long Description	VMware / vSAN HCL Certification (Watts)	Microsoft Windows Server 2016 Certification	Software Defined Data Center (SDDC) Premium AQ Certification	Microsoft Windows Server 2019 Certification	WS 2019 Software Defined Data Center (SDDC)
NVMe High Performance and Mainstream Read Intensive Drives						
P13697-X21	HPE 4TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P16501-X21	HPE 1.92TB NVMe High Performance Read Intensive SFF (2.5in) SC 3yr Wty Universal Connect SSD	Pending	Certified	Certified	Certified	Certified
P16503-X21	HPE 3.84TB NVMe High Performance Read Intensive SFF (2.5in) SC 3yr Wty Universal Connect SSD	Pending	Certified	Certified	Certified	Certified
P22276-X21	HPE 1.92TB NVMe High Performance Read Intensive SFF (2.5in) SCN 3yr Wty Universal Connect SSD	Pending	Pending	Pending	Pending	Pending
P22278-X21	HPE 3.84TB NVMe High Performance Read Intensive SFF (2.5in) SCN 3yr Wty Universal Connect SSD	Pending	Pending	Pending	Pending	Pending
P22280-X21	HPE 7.68TB NVMe High Performance Read Intensive SFF (2.5in) SCN 3yr Wty Universal Connect SSD	Pending	Pending	Pending	Pending	Pending
P22282-X21	HPE 15.36TB NVMe High Performance Read Intensive SFF (2.5in) SCN 3yr Wty Universal Connect SSD	Pending	Pending	Pending	Pending	Pending
P22331-X21	HPE 960GB NVMe High Performance Read Intensive SFF (2.5in) SCN 3yr Wty Universal Connect SSD	Pending	Pending	Pending	Pending	Pending
P24188-X21	HPE 480GB NVMe x4 Lanes Read Intensive M.2 22110 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	N/A	Certified	N/A
P26104-X21	HPE 7.68TB NVMe High Performance Read Intensive SFF (2.5in) SC 3yr Wty Universal Connect SSD	Pending	Pending	Pending	Pending	Pending



Technical Specifications

NVMe Interface – (Certifications)

HPE Option Kit SKU	Long Description	VMware / vSAN HCL Certification (Watts)	Microsoft Windows Server 2016 Certification	Software Defined Data Center (SDDC) Premium AQ Certification	Microsoft Windows Server 2019 Certification	WS 2019 Software Defined Data Center (SDDC)
NVMe High Performance and Mainstream Read Intensive Drives						
P26109-X21	HPE 15.36TB NVMe High Performance Read Intensive SFF (2.5in) SC 3yr Wty Universal Connect SSD	Pending	Pending	Pending	Pending	Pending
P26538-X21	HPE 960GB NVMe High Performance Read Intensive SFF (2.5in) SC 3yr Wty Universal Connect SSD	Pending	Pending	Pending	Pending	Pending

M.2 Enablement Kits Capacity, Workload, Carrier Specifications

M.2 Enablement Kits – (Capacity, Workload, Carrier...)

HPE Option KIT SKU	Long Description	Capacity	Workload Type	Interface Type	Form Factor	Plug Type	Carrier Type	Digitally Signed Firmware (DS)	Flash Type	Server Gen Supported (Select Platforms)
878783-X21*	HPE Universal SATA HHHL 3yr Wty M.2 Kit	N/A	N/A	SATA	M.2e	Non-Hot Plug	AIC	Yes	N/A	Gen9, Gen10
P06609-X21**	HPE Dual 480GB SATA 6G Read Intensive M.2 - UFF to SFF SCM 3yr Wty Digitally Signed Firmware SSD	480	RI	SATA	SFF	Hot Plug	SCM	Yes	MLC	Gen10
P19894-X21	HPE Dual 240GB SATA 6G Read Intensive M.2 - UFF to SFF SCM 3yr Wty SSD	240	RI	SATA	SFF	Hot Plug	SCM	Yes	TLC	Gen10, Gen10.5
P19896-X21	HPE Dual 480GB SATA 6G Read Intensive M.2 - UFF to SFF SCM 3yr Wty SSD	480	RI	SATA	SFF	Hot Plug	SCM	Yes	TLC	Gen10, Gen10.5

Notes:

- *878783-X21 enablement Kit is an Add-In-Card, for installation inside of the server, that can be configured to be either Single or Dual with choice of any SATA 2280 M.2 in the HPE M.2 portfolio. See SATA M.2s in Tables above.
- **Speeds and Feeds information should be taken from the M.2 drives used within the enablement kits. See SATA M.2s in tables above and below.

M.2 Enablement Kits – (Speeds & Feeds)

Notes: **Speeds and Feeds information should be taken from the M.2 drives used within the enablement kits. See SATA M.2s in tables above and below.



Technical Specifications

M.2 Enablement Kits Power and Height Specifications

M.2 Enablement Kits – (Power & Height)

HPE Option Kit SKU	Long Description	Power Idle Time (Watts)	Power Random Read (Watts)	Power Random Write (Watts)	Power Sequential Read (Watts)	Power Sequential Write (Watts)	Power Random R/W (Watts)	Power MAX (Watts)	z- Height
878783-X21*	HPE Universal SATA HHHL 3yr Wty M.2 Kit	N/A	N/A	N/A	N/A	NA	N/A	NA	Half Height/ Half Length
P06609-X21**	HPE Dual 480GB SATA 6G Read Intensive M.2 - UFF to SFF SCM 3yr Wty Digitally Signed Firmware SSD	2.00	2.84	2.84	3.90	5.74	2.84	6.00	7mm
P19894-X21	HPE Dual 240GB SATA 6G Read Intensive M.2 - UFF to SFF SCM 3yr Wty SSD	1.03	1.26	1.26	1.89	2.22	1.26	2.22	7mm
P19896-X21	HPE Dual 480GB SATA 6G Read Intensive M.2 - UFF to SFF SCM 3yr Wty SSD	1.03	1.23	1.23	1.89	2.50	1.23	2.50	7mm

Notes:

- Power information should be taken from the M.2 drives used within the enablement kits. See SATA M.2s in tables above and below.
- *878783-X21 enablement Kit is an Add-In-Card, for installation inside of the server, that can be configured to be either Single or Dual with choice of any SATA 2280 M.2 in the HPE M.2 portfolio. See SATA M.2s in Tables above and below.
- **Speeds and Feeds information should be taken from the M.2 drives used within the enablement kits. See SATA M.2s in tables above and below.
- Please use HPE Selector Tool <http://ssd.hpe.com/> to determine server compatibility



Technical Specifications

M.2 Enablement Kits Certifications

M.2 Enablement Kits – (Certifications)

HPE Option Kit SKU	Long Description	VMWare / vSAN HCL Certification (Watts)	Microsoft Windows Server 2016 Certification	Software Defined Data Center (SDDC) Premium AQ Certification	Microsoft Windows Server 2019 Certification	WS 2019 Software Defined Data Center (SDDC)
878783-X21*	HPE Universal SATA HHHL 3yr Wty M.2 Kit	N/A	N/A	N/A	N/A	NA
P06609-X21**	HPE Dual 480GB SATA 6G Read Intensive M.2 - UFF to SFF SCM 3yr Wty Digitally Signed Firmware SSD	N/A	Certified	Certified	Certified	Certified
P19894-X21	HPE Dual 240GB SATA 6G Read Intensive M.2 - UFF to SFF SCM 3yr Wty SSD	N/A	Pending	Pending	Pending	Pending
P19896-X21	HPE Dual 480GB SATA 6G Read Intensive M.2 - UFF to SFF SCM 3yr Wty SSD	N/A	Pending	Pending	Pending	Pending

Notes: Please use HPE Selector Tool <http://ssd.hpe.com/> to determine server compatibility.



Technical Specifications

M.2 Capacity, Workload, Carrier Specifications

M.2s– (Capacity, Workload, Carrier...)

HPE Option Kit SKU	Long Description	Capacity	Workload Type	Interface Type	Form Factor	Plug Type	Carrier Type	Digitally Signed Firmware (DS)	Flash Type	Server Gen Supported (Select Platforms)
Mixed Use SATA M.2s										
875490-X21	HPE 480GB SATA 6G Mixed Use M.2 2280 3yr Wty Digitally Signed Firmware SSD	480	MU	SATA	M.2	N/A	N/A	Yes	TLC	Gen9, Gen10
Read Intensive SATA M.2s										
875498-X21	HPE 480GB SATA 6G Read Intensive M.2 2280 3yr Wty Digitally Signed Firmware SSD	480	RI	SATA	M.2	N/A	N/A	Yes	TLC	Gen9, Gen10
875500-X21	HPE 960GB SATA 6G Read Intensive M.2 2280 3yr Wty Digitally Signed Firmware SSD	960	RI	SATA	M.2	N/A	N/A	Yes	TLC	Gen9, Gen10
P19888-X21	HPE 240GB SATA 6G Read Intensive M.2 2280 3yr Wty SSD	240	RI	SATA	M.2	Non Hot Plug	N/A	Yes	TLC	Gen10, Gen10.5
P19890-X21	HPE 480GB SATA 6G Read Intensive M.2 2280 3yr Wty SSD	480	RI	SATA	M.2	Non Hot Plug	N/A	Yes	TLC	Gen10, Gen10.5
P19892-X21	HPE 960GB SATA 6G Read Intensive M.2 2280 3yr Wty SSD	960	RI	SATA	M.2	Non Hot Plug	N/A	Yes	TLC	Gen10, Gen10.5
Read Intensive NVMe M.2s										
P13689-X21	HPE 960GB NVMe x4 Lanes Read Intensive M.2 22110 3yr Wty Digitally Signed Firmware SSD	960	RI	NVMe	M.2	Non Hot Plug	N/A	Yes	MLC	Single
P13691-X21	HPE 1.92TB NVMe x4 Lanes Read Intensive M.2 22110 3yr Wty Digitally Signed Firmware SSD	1,920	RI	NVMe	M.2	Non Hot Plug	N/A	Yes	MLC	Single
P13693-X21	HPE 3.84TB NVMe x4 Lanes Read Intensive M.2 22110 3yr Wty Digitally Signed Firmware SSD	3,840	RI	NVMe	M.2	Non Hot Plug	N/A	Yes	MLC	Single
P24188-X21	HPE 480GB NVMe x4 Lanes Read Intensive M.2 22110 3yr Wty Digitally Signed Firmware SSD	480	RI	NVMe	M.2	Non Hot Plug	N/A	Yes	MLC	Single

Notes: Please use HPE Selector Tool <http://ssd.hpe.com/> to determine server compatibility.



Technical Specifications

M.2 Speeds and Feeds Specifications

M.2s– (Speeds & Feeds)

HPE Option Kit SKU	Long Description	Lifetime Writes (TB)	Endurance DWPD	MAX Seq Reads / Max Seq Writes Throughput	Random Read Avg. / Random Write Avg. Latency uSec (4KiB,Q1)	Random Read / Random Writes IOPS (4KiB, Q=16)	MAX Random Read / MAX Random Write IOPS (4KiB)
Mixed Use SATA M.2s							
875490-X21	HPE 480GB SATA 6G Mixed Use M.2 2280 3yr Wty Digitally Signed Firmware SSD	1,300	1.5	500 / 400	130 / 40	60,000 / 34,000	68,000@Q32 / 34,000@Q4
Read Intensive SATA M.2s							
875498-X21	HPE 480GB SATA 6G Read Intensive M.2 2280 3yr Wty Digitally Signed Firmware SSD	450	0.5	500 / 425	130 / 40	61,000 / 46,000	67,000@Q32 / 46,000@Q64
875500-X21	HPE 960GB SATA 6G Read Intensive M.2 2280 3yr Wty Digitally Signed Firmware SSD	900	0.5	500 / 465	130 / 40	61,000 / 41,000	67,000@Q32 / 41,000@Q4
P19888-X21	HPE 240GB SATA 6G Read Intensive M.2 2280 3yr Wty SSD	438	1.00	520 / 210	125 / 85	48,000 / 11,500	50,500@Q128 / 11,800@Q16
P19890-X21	HPE 480GB SATA 6G Read Intensive M.2 2280 3yr Wty SSD	1,324	1.50	510 / 400	125 / 37	65,000 / 38,000	76,000@Q64 / 39,500@Q256
P19892-X21	HPE 960GB SATA 6G Read Intensive M.2 2280 3yr Wty SSD	2,628	1.50	510 / 490	125 / 38	67,000 / 37,000	76,000@Q32 / 38,000@Q4
Read Intensive NVMe M.2s							
P13689-X21	HPE 960GB NVMe x4 Lanes Read Intensive M.2 22110 3yr Wty Digitally Signed Firmware SSD	981	0.56	3,300 / 1,350	91 / 29	155,000 / 47,500	480,000@Q256 / 475,00@Q4
P13691-X21	HPE 1.92TB NVMe x4 Lanes Read Intensive M.2 22110 3yr Wty Digitally Signed Firmware SSD	4,765	1.36	3,300 / 1,250	97 / 28	145,000 / 54,000	425,000@Q256 / 545,00@Q64
P13693-X21	HPE 3.84TB NVMe x4 Lanes Read Intensive M.2 22110 3yr Wty Digitally Signed Firmware SSD	9,601	1.37	3,300 / 1,300	97 / 28	155,000 / 64,500	645,000@Q256 / 64,500@Q4
P24188-X21	HPE 480GB NVMe x4 Lanes Read Intensive M.2 22110 3yr Wty Digitally Signed Firmware SSD	482	0.55	2,800 / 690	91 / 45	135,000 / 26,500	250,000@Q256 / 26,500@128

Notes: Please use HPE Selector Tool <http://ssd.hpe.com/> to determine server compatibility.



Technical Specifications

M.2 Power and Height Specifications

M.2s– (Power & Height)									
HPE Option Kit SKU	Long Description	Power Idle Time (Watts)	Power Random Read (Watts)	Power Random Write (Watts)	Power Sequential Read (Watts)	Power Sequential Write (Watts)	Power Random R/W (Watts)	Power MAX (Watts)	z- Height
Mixed Use SATA M.2s									
875490-X21	HPE 480GB SATA 6G Mixed Use M.2 2280 3yr Wty Digitally Signed Firmware SSD	1.07	3.02	3.02	3.42	4.03	3.00	5.00	2280 M.2
Read Intensive SATA M.2s									
875498-X21	HPE 480GB SATA 6G Read Intensive M.2 2280 3yr Wty Digitally Signed Firmware SSD	1.07	3.02	3.02	3.42	4.03	3.00	5.00	2280 M.2
875500-X21	HPE 960GB SATA 6G Read Intensive M.2 2280 3yr Wty Digitally Signed Firmware SSD	1.07	3.17	3.17	3.82	5.62	3.10	6.00	2280 M.2
P19888-X21	HPE 240GB SATA 6G Read Intensive M.2 2280 3yr Wty SSD	1.03	1.26	1.26	1.89	2.22	1.26	2.22	2280 M.2
P19890-X21	HPE 480GB SATA 6G Read Intensive M.2 2280 3yr Wty SSD	1.03	1.23	1.23	1.89	2.50	1.23	2.50	2280 M.2
P19892-X21	HPE 960GB SATA 6G Read Intensive M.2 2280 3yr Wty SSD	1.04	1.27	1.27	2.10	2.80	1.27	2.80	2280 M.2
Read Intensive NVMe M.2s									
P13689-X21	HPE 960GB NVMe x4 Lanes Read Intensive M.2 22110 3yr Wty Digitally Signed Firmware SSD	2.41	6.16	6.16	6.57	6.33	6.16	6.57	2mm
P13691-X21	HPE 1.92TB NVMe x4 Lanes Read Intensive M.2 22110 3yr Wty Digitally Signed Firmware SSD	2.42	6.27	6.27	6.80	6.55	6.27	6.80	2mm
P13693-X21	HPE 3.84TB NVMe x4 Lanes Read Intensive M.2 22110 3yr Wty Digitally Signed Firmware SSD	2.43	7.49	7.49	6.90	6.64	7.49	7.49	2mm
P24188-X21	HPE 480GB NVMe x4 Lanes Read Intensive M.2 22110 3yr Wty Digitally Signed Firmware SSD	2.41	4.62	4.62	6.49	4.66	4.62	6.49	2mm



Technical Specifications

M.2 Enablement Kits Certifications

M.2 Enablement Kits – (Certifications)

HPE Option Kit SKU	Long Description	VMware / vSAN HCL Certification (Watts)	Microsoft Windows Server 2016 Certification	Software Defined Data Center (SDDC) Premium AQ Certification	Microsoft Windows Server 2019 Certification	WS 2019 Software Defined Data Center (SDDC)
Mixed Use SATA M.2s						
875490-X21	HPE 480GB SATA 6G Mixed Use M.2 2280 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
Read Intensive SATA M.2s						
875498-X21	HPE 480GB SATA 6G Read Intensive M.2 2280 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
875500-X21	HPE 960GB SATA 6G Read Intensive M.2 2280 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	Certified	Certified	Certified
P19888-X21	HPE 240GB SATA 6G Read Intensive M.2 2280 3yr Wty SSD	Pending	Pending	Pending	Pending	Pending
P19890-X21	HPE 480GB SATA 6G Read Intensive M.2 2280 3yr Wty SSD	Pending	Pending	Pending	Pending	Pending
P19892-X21	HPE 960GB SATA 6G Read Intensive M.2 2280 3yr Wty SSD	Pending	Pending	Pending	Pending	Pending
Read Intensive NVMe M.2s						
P13689-X21	HPE 960GB NVMe x4 Lanes Read Intensive M.2 22110 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	N/A	Certified	N/A
P13691-X21	HPE 1.92TB NVMe x4 Lanes Read Intensive M.2 22110 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	N/A	Certified	N/A
P13693-X21	HPE 3.84TB NVMe x4 Lanes Read Intensive M.2 22110 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	N/A	Certified	N/A
P24188-X21	HPE 480GB NVMe x4 Lanes Read Intensive M.2 22110 3yr Wty Digitally Signed Firmware SSD	Certified	Certified	N/A	Certified	N/A



Technical Specifications

Previous To Current Workload Naming Conversion

Please use the table below for comparing older SSD models to the newer workload descriptions.

Previous Workload	Current Workload Alignment
(HE) High Endurance	(WI) Write Intensive (>25 DWPD)
(ME) Mainstream Endurance	(WI) Write Intensive (>25 DWPD)
(LE) Light Endurance	(MU) Mixed Use (>1 & <10 DWPD)
(VE) Value Endurance	(RI) Read Intensive (<=1 DWPD)



Technical Specifications

Carrier Key Decoder

HPE Solid State Drives (SSDs) utilize a wide variety of carriers, which houses the SSD and also enables a specific chassis fit to support a broad range of HPE server and storage products.

The table below summarizes the various form factors, plug types, and carrier attributes.

Carriers				
Form Factor	HP/NHP	Smart/Non-Smart	Carrier Name (Abbreviation)	SFF/LFF
SFF Carrier	Hot Plug	Smart	Smart Carrier (SC)	SFF
			Smart Carrier NVMe (SCN)	SFF
			Smart Carrier M.2 (SCM)	SFF
	Non-Hot Plug	Non-Smart	Standard (ST)	SFF
			Quick Release (QR)	SFF
LFF Carrier	Hot Plug	Smart	Smart Carrier (SC)	LFF
			Smart Carrier Converter (SCC)	LFF
		Non-Smart	Low Profile (LP)	LFF
			Low Profile Converter (LPC)	LFF
	Standard (ST)		LFF	
	Quick Release (QR)		LFF	
No Carrier	Non-Hot Plug	Non-Smart	Raw SFF HDD/SSD (RW)	SFF
			Raw LFF HDD (RW)	LFF
			M.2	N/A
			PCIe AIC Card	N/A

SAS and SATA SSD SKU Decoders

The following charts are provided to assist in decoding the SSD short & long product descriptions; additional details can also be found within the Carrier Key Decoder & the Previous To Current Workload Naming Conversion tables within this document.

Brand

HPE

Storage Capacity

120-960GB
1.6-12.8TB

Interface Type/
Interface Speed

SATA/SAS
6G/12G

Workload

Write Intensive
Mixed Use
Read Intensive

Form Factor Type /
Form Factor Size

SFF (2.5IN)
LFF (3.5IN)

Carriers

SC Smart Carrier
SCN Smart Carrier NVMe
SCM Smart Carrier M.2
SCC Smart Carrier Converter
ST Standard
STC Standard Converter
LP Low Profile
LPC Low Profile Converter
QR Quick Release
RW Raw Drive

Wty

3yr Wty
1yr Wty

Special Features

Digitally Signed Firmware
SED Self Encrypting Drive
Value SAS
Special – Special SKUs

In priority order where 1st is
closest to Drive Type

Drive Type

SSD

SSD SKU Decoder Long Name



Technical Specifications

HPE 3.84TB SATA RI SFF SC DS SSD

Brand	Storage Capacity	Interface Type	Workload	Form Factor Type	Carriers	Special Features	Drive Type
HPE	120-960GB 1.6-12.8TB	SATA/SAS	WI MU RI	SFF LFF	SC Smart Carrier SCN Smart Carrier NVMe SCM Smart Carrier M.2 SCC Smart Carrier Converter ST Standard STC Standard Converter LP Low Profile LPC Low Profile Converter QR Quick Release RW Raw Drive	DS Digitally Signed Firmware SED Self Encrypting Drive VS Value SAS SPL Special SKU In priority order where 1 st is closest to drive type	SSD

SSD SKU Decoder Short Name

HPE 1TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD

Brand	Storage Capacity	Interface Type/ Interface Speed	Workload	Form Factor Type / Form Factor Size	Carriers	Wty	Special Features	Drive Type
HPE	400-960GB 1-8TB	NVMe/ x4 Lanes	Write Intensive Mixed Use Read Intensive	SFF (2.5IN) HHHL/FHHL	SCN Smart Carrier NVMe	3yr Wty 1yr Wty	Digitally Signed Firmware In priority order where 1 st is closest to Drive Type	SSD

NVMe SSDs SKU Decoder Long Name

HPE 1TB NVMe x4 RI SFF SCN DS SSD

Brand	Storage Capacity	Interface Type	Workload	Form Factor Type	Carriers	Special Features	Drive Type
HPE	120-960GB 1.6-12.8TB	NVMe x4	WI MU RI	SFF HH FH	SCN Smart Carrier NVMe	DS Digitally Signed Firmware In priority order where 1 st is closest to Drive Type	SSD

NVMe SSDs SKU Decoder Short Name

HPE 960GB NVMe x4 Lanes Read Intensive M.2 2280 3yr Wty Digitally Signed Firmware SSD

Brand	Storage Capacity	Interface Type/ Interface Speed	Workload	Form Factor Type / Form Factor Size	Wty	Special Features	Drive Type
HPE	400-960GB 1-8TB	NVMe x4 Lanes/ SATA 6Gb	Write Intensive Mixed Use Read Intensive	M.2/ 2280/22110	3yr Wty 1yr Wty	Digitally Signed Firmware	SSD

M.2 SSDs SKU Decoder Long Name



Technical Specifications

HPE 960GB NVMe x4 Lanes RI M.2 2280 DS SSD

Brand	Storage Capacity	Interface Type/ Interface Speed	Workload	Form Factor Type / Form Factor Size	Special Features	Drive Type
HPE	400-960GB 1-8TB	NVMe x4 / SATA 6Gb	WI MU RI	M.2/ 2280/22110	DS Digitally Signed Firmware	SSD

M.2 SSDs SKU Decoder Short Name

HPE 340GB SATA Read Intensive HHHL 3yr Wty Dual M.2 Kit

Brand	Storage Capacity	Interface Type/ Interface Speed	Workload	Form Factor Type / Form Factor Size	Wty	Special Features	Drive Type
HPE	150-960GB 1.92TB	SATA/ NVMe	Write Intensive Mixed Use Read Intensive	HHHL FHHL UFF	3yr Wty 1yr Wty	Dual Quad Blank=Single	M.2 Kit

M.2 eKits SKU Decoder Long Name

HPE 340GB SATA RI HH Dual M.2 Kit

Brand	Storage Capacity	Interface Type/ Interface Speed	Workload	Form Factor Type / Form Factor Size	Special Features	Drive Type
HPE	150-960GB 1.92TB	SATA/ NVMe	WI MU RI	HH FH UFF	Dual Quad Blank=Single	M.2 Kit

M.2 eKits SKU Decoder Short Name

HPE 1.6TB PCIe x4 Lanes Read Intensive HHHL 3yr Wty Digitally Signed Firmware Card

Brand	Storage Capacity	Interface Type/ Interface Speed	Workload	Form Factor Type / Form Factor Size	Wty	Special Features	Drive Type
HPE	400-960GB 1-8TB	PCIe x4 Lanes	Write Intensive Mixed Use Read Intensive	HHHL FHHL Mezz	3yr Wty 1yr Wty	Digitally Signed Firmware	Card

Add-In Card SKU Decoder Long Name

Technical Specifications

HPE 1.6TB PCIe x4 RI HH DS Card						
Brand	Storage Capacity	Interface Type/ Interface Speed	Workload	Form Factor Type / Form Factor Size	Special Features	Drive Type
HPE	400-960GB 1-8TB	PCIe x4	WI MU RI	FH/HH Mezz	DS (Digitally Signed Firmware)	Card

AIC SKU Decoder Short Name

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
13-Jul-2020	Version 34	Changed	Technical Specifications section was updated
18-May-2020	Version 33	Changed	Tables were fixed and updated
27-Apr-2020	Version 32	Changed	Technical Specifications section was updated
03-Feb-2020	Version 31	Changed	Technical Specifications section was updated
16-Dec-2019	Version 30	Changed	Format Revised
02-Dec-2019	Version 29	Changed	New drive models added. Technical Specifications revised and updated
07-Oct-2019	Version 28	Changed	New drive models added. Technical Specifications revised and updated
05-Aug-2019	Version 27	Changed	Technical Specifications section was updated
01-Jul-2019	Version 26	Changed	Technical Specifications section was updated
03-Jun-2019	Version 25	Changed	New drive models added. Technical Specifications revised and updated
02-Apr-2019	Version 24	Changed	New drive models added. Technical Specifications revised and updated
07-Jan-2019	Version 23	Changed	Technical Specifications section was updated
03-Dec-2018	Version 22	Changed	New drive models added. Technical Specifications revised and updated
15-Oct-2018	Version 21	Changed	Technical Specifications Section was updated
01-Oct-2018	Version 20	Changed	New drive models added. Technical Specifications revised and updated
06-Aug-2018	Version 19	Changed	New drive models added. Technical Specifications revised and updated
02-Jul-2018	Version 18	Changed	Overview and SKU description were updated
04-Jun-2018	Version 17	Changed	New drive models added. Technical Specifications revised and updated
02-Apr-2018	Version 16	Changed	New drive models added, Technical Specifications revised and updated
05-Mar-2018	Version 15	Changed	Technical Specifications revised and updated, images revised
05-Feb-2018	Version 14	Changed	Format Revised New drive models added
04-Dec-2017	Version 13	Changed	New drive model was added Technical Specifications were revised
02-Oct-2017	Version 12	Changed	Technical Specifications were revised
25-Sep-2017	Version 11	Changed	New drive models were added Technical Specifications were revised The title was changed to HPE Solid State Disk Drives (SSD & Add-In Cards)
14-Aug-2017	Version 10	Changed	Technical Specifications were revised
07-Aug-2017	Version 9	Changed	Technical Specifications were revised
17-Jul-2017	Version 8	Changed	Technical Specifications were revised
28-Jun-2017	Version 7	Changed	Technical Specifications were revised
12-Jun-2017	Version 6	Changed	Technical Specifications were revised
06-Jun-2017	Version 5	Changed	Technical Specifications were revised
17-Mar-2017	Version 4	Changed	SSD Selection verbiage was revised
10-Mar-2017	Version 3	Changed	Edits to tables and various verbiage
17-Feb-2017	Version 2	Changed	Technical Specifications were revised
13-Feb-2017	Version 1	New	New QuickSpecs

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

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