

Overview

HPE Solid State Disk Drives (SSD & Add-In Cards)

HPE Solid State Drives (SSDs) & Accelerators 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) & modules.



Overview

What's New?

New Solid State Drives & Drive Kit(s):

SAS:

- 870148-B21 HPE 15.3TB SAS 12G RI SFF SC DS SSD

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
- 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.

HPE Selector Tool Enhancements:

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/>

Overview

HPE SSD & AIC (Add-In-Card) Portfolio Overview

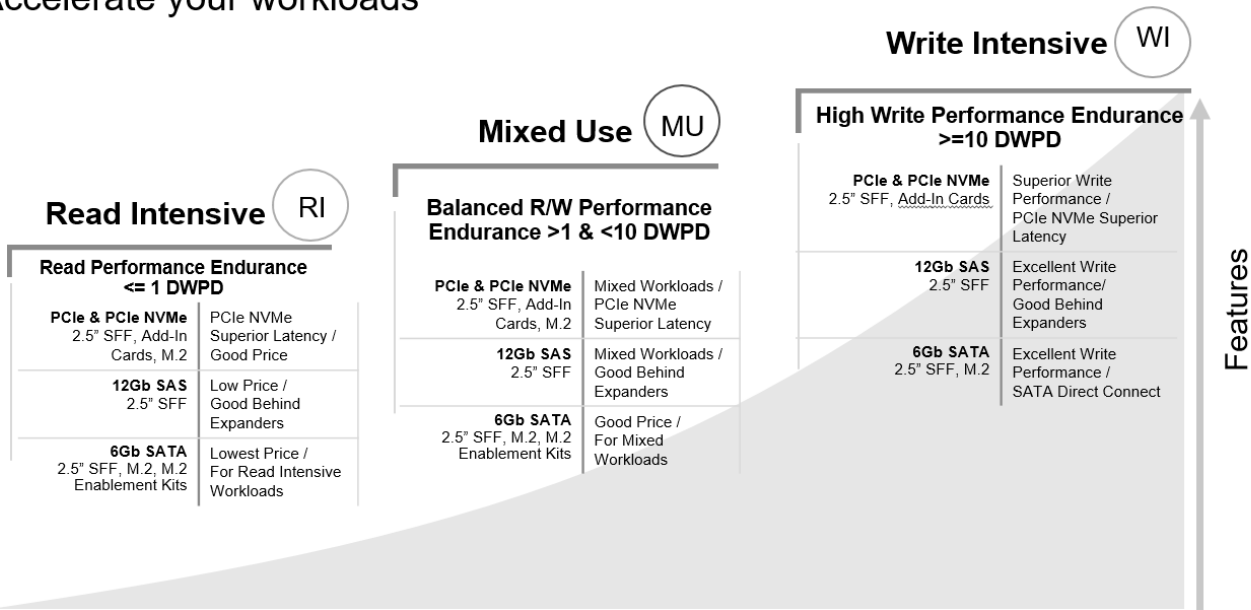
Meeting the storage needs of today & the challenges of tomorrow!

As noted in Figure 1 –SSD Dashboard below, HPE SSDs & AICs are categorized by both interface and workloads.

There are three workload types - Read Intensive (RI), Mixed-Use (MU), and Write Intensive (WI); example for each these workloads are provided in Figure 2 – SSD 3x3 Selection Grid.

Figure 1 – SSD Dashboard

HPE Solid-State Drives
Accelerate your workloads



Notes:
 -- DWPD (Drive Writes Per Day) -> Full drive writes per day for 5 years. Based on 100% Random Writes (4KB)-
 -- HPE Enterprise SSDs deliver: Full data path error detection, surprise power loss protection and Smart SSD Wear Gauge support.

Overview

HPE SSDs & AIC (Add-In-Card) Portfolio Overview

Figure 2 – SSD 3x3 Selection Grid

Figure 2 – SSD 3x3 Selection Grid shows the workloads (RI, MU, WI) horizontally. The drive interface type are shown vertically (PCIe/NVMe, 12Gb SAS etc.) An example of using the grid is depicted by the thick black border which shows a MU workload and SATA interface. This examples produces a SATA MU SSD solution.

Read Intensive (RI) Mixed-Use (MU) Write Intensive (WI) Driven Workloads: Driven Workloads: Driven Workloads:

Mixed-Use (MU)

Read Intensive

- Balances resources for both business intelligence and business transaction processing.

Write Intensive

- Read Caching
- Web Servers
- Social Media
- Boot/Swap
- Analytics
- Cloud Computing
- Bulk Storage
- Active Archiving

- OLTP/Financial
- Business Intelligence
- Big Data Analytics
- Virtualization
- Scientific
- Collaboration Infrastructure
- Enterprise Business

	Read Intensive (RI)	Mixed Use (MU)	Write Intensive (WI)
	Read Performance	Balanced R/W Performance	Write Performance
	Endurance: <=1 DDPD	Endurance: >1 & <10 DDPD	Endurance: >=10 DDPD

Drive Interface Type

PCIe/NVMe 2.5" SFF, Add-in & Mezz Cards	Best Latency / Good Price	Best Latency	Best Write Performance & Latency
12Gb SAS 2.5" SFF	Low Price / Good Behind Expanders	Good Behind Expanders	Good Behind Expanders
6Gb SATA 2.5" SFF, M.2, & Enablement Kits	Lowest Price	Good Price	SATA Direct Connect

Using the above grid along with our [HPE SSD Selector Tool](#) you can quickly determine what SSD/AIC solution might best meet your needs. You can also compare specific capacity, performance attributes, and server compatibility.

Overview

What is a 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 OS 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>

Product Category

HPE Enterprise SSDs are available in three categories based on workload level: Read Intensive (RI), Mixed Use (MU), and Write Intensive (WI). These categories indicate the number of drive writes per day (DWPDP1) that you can expect from the drive. (DWPDP 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 (DWPDP) - 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.

NOTE: HPE SMARTSSD Wear Gauge™ is not supported on NVMe drives.

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

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

Overview

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.

NOTE: 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.

Technical Specifications

The following charts are provided to assist in decoding the PCIe/NVMe, M.2, and AIC 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.

PCIe/NVMe, M.2, & AIC SKU Decoders

NVMe SSDs SKU Decoder

Long 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	DS Digitally Signed Firmware DP Dual Port <i>In priority order where 1st is closest to Drive Type</i>	SSD

NVMe SSDs SKU Decoder

Short 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 DP Dual Port <i>In priority order where 1st is closest to Drive Type</i>	SSD

M.2 SSDs SKU Decoder

Long 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	DS Digitally Signed Firmware	SSD

Technical Specifications

M.2 SSDs SKU Decoder

Short Name

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 eKits SKU Decoder

Long 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

Short 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

Add-In Card SKU Decoder

Long 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

Technical Specifications

AIC SKU Decoder

Short Name

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

Technical Specifications

PCIe/NVMe Interface - Read Intensive (RI) SFF (Capacity, Workload, Carrier...)

HPE Option Kit SKU	Short Description	Capacity	Workload Type	Interface Type	Form Factor	Plug Type	Carrier Type	Digitally Signed Firmware (DS)	Flash Type	Server Gen Supported (Select Platforms)
764904-B21	HPE 400GB NVMe x4 RI SFF SCN SSD	400	RI	PCIe / PCIe NVMe	SFF	Hot Plug	SCN	No	MLC	Gen9
764906-B21	HPE 1.2TB NVMe x4 RI SFF SCN SSD	1,200	RI	PCIe / PCIe NVMe	SFF	Hot Plug	SCN	No	MLC	Gen9
764908-B21	HPE 2TB NVMe x4 RI SFF SCN SSD	2,000	RI	PCIe / PCIe NVMe	SFF	Hot Plug	SCN	No	MLC	Gen9
875587-B21	HPE 480GB NVMe x4 RI SFF SCN DS SSD	480	RI	PCIe / PCIe NVMe	SFF	Hot Plug	SCN	Yes	MLC	Gen9 & 10
875589-B21	HPE 960GB NVMe x4 RI SFF SCN DS SSD	960	RI	PCIe / PCIe NVMe	SFF	Hot Plug	SCN	Yes	MLC	Gen9 & 10
875591-B21	HPE 1.92TB NVMe x4 RI SFF SCN DS SSD	1,920	RI	PCIe / PCIe NVMe	SFF	Hot Plug	SCN	Yes	MLC	Gen9 & 10

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

Technical Specifications

PCIe/NVMe Interface – Mixed Use (MU) SFF (Capacity, Workload, Carrier...)

HPE Option Kit SKU	Short Description	Capacity	Workload Type	Interface Type	Form Factor	Plug Type	Carrier Type	Digitally Signed Firmware (DS)	Flash Type	Server Gen Supported (Select Platforms)
765034-B21	HPE 400GB NVMe x4 MU SFF SCN SSD	400	MU	PCIe / PCIe NVMe	SFF	Hot Plug	SCN	No	MLC	Gen9
765036-B21	HPE 800GB NVMe x4 MU SFF SCN SSD	800	MU	PCIe / PCIe NVMe	SFF	Hot Plug	SCN	No	MLC	Gen9
765038-B21	HPE 1.6TB NVMe x4 MU SFF SCN SSD	1,600	MU	PCIe / PCIe NVMe	SFF	Hot Plug	SCN	No	MLC	Gen9
765044-B21	HPE 2TB NVMe x4 MU SFF SCN SSD	2,000	MU	PCIe / PCIe NVMe	SFF	Hot Plug	SCN	No	MLC	Gen9
875593-B21	HPE 400GB NVMe x4 MU SFF SCN DS SSD	400	MU	PCIe / PCIe NVMe	SFF	Hot Plug	SCN	Yes	MLC	Gen9 & 10
875595-B21	HPE 800GB NVMe x4 MU SFF SCN DS SSD	800	MU	PCIe / PCIe NVMe	SFF	Hot Plug	SCN	Yes	MLC	Gen9 & 10
875597-B21	HPE 1.6TB NVMe x4 MU SFF SCN DS SSD	1,600	MU	PCIe / PCIe NVMe	SFF	Hot Plug	SCN	Yes	MLC	Gen9 & 10

Technical Specifications

PCIe/NVMe Interface – Write Intensive (WI) SFF (Capacity, Workload, Carrier...)

HPE Option Kit SKU	Short Description	Capacity	Workload Type	Interface Type	Form Factor	Plug Type	Carrier Type	Digitally Signed Firmware (DS)	Flash Type	Server Gen Supported (Select Platforms)
736936-B21	HPE 400GB NVMe x4 WI SFF SCN SSD	400	WI	PCIe / PCIe NVMe	SFF	Hot Plug	SCN	No	MLC	Gen9
736939-B21	HPE 800GB NVMe x4 WI SFF SCN SSD	800	WI	PCIe / PCIe NVMe	SFF	Hot Plug	SCN	No	MLC	Gen9
764892-B21	HPE 1.6TB NVMe PCIe WI SFF SCN SSD	1,600	WI	PCIe / PCIe NVMe	SFF	Hot Plug	SCN	No	MLC	Gen9
764894-B21	HPE 2TB NVMe x4 WI SFF SCN SSD	2,000	WI	PCIe / PCIe NVMe	SFF	Hot Plug	SCN	No	MLC	Gen9

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

Technical Specifications

PCIe/NVMe Interface - Read Intensive (RI) SFF (Speeds & Feeds)

NOTE: Reference column VI-1 when comparing RI SSDs, & column VI-2 for comparing MU & WI SSDs.

Option Kit SKU	Endurance DDPD	MAX Seq. Reads Throughput (MiB/s)	MAX Seq. Writes Throughput (MiB/s)	Random Read Average Latency uSec (4KiB,Q1)	Random Write Average Latency uSec (4KiB,Q1)	Random Read IOPS (4KiB, Q=16)	Random Write IOPS (4KiB, Q=16)	MAX Random Read IOPS (4KiB)	MAX Random Write IOPS (4KiB)	4KiB Random 70% Read / 30% Write, Queue 32 Performance (IOPS) VI-1	4KiB Random 50% Read / 50% Write, Queue 32 Performance (IOPS) VI-2
764904-B21	0.3	2,500	1,200	95	45	141,000	23,500	460,000 @Q128	23,500 @Q1	58,000	48,000
764906-B21	0.3	2,500	1,600	95	35	145,000	29,000	470,000 @Q128	29,000 @Q1	72,000	57,000
764908-B21	0.3	2,200	950	90	40	150,000	26,500	445,000 @Q128	26,500 @Q1	55,000	48,000
875587-B21	0.3	2,400	485	100	105	125,000	9,500	220,000 @Q64	9,500 @Q1	26,000	17,500
875589-B21	0.3	2,400	835	100	75	135,000	13,500	240,000 @Q64	13,500 @Q1	72,000	57,000
875591-B21	0.3	2,390	850	100	62	140,000	16,500	240,000 @Q64	16,500 @Q1	47,000	31,000

Technical Specifications

PCIe/NVMe Interface – Mixed Use (MU) SFF (Speeds & Feeds)

NOTE: Reference column VI-1 when comparing RI SSDs, & column VI-2 for comparing MU & WI SSDs.

Option Kit SKU	Endurance DDPD	MAX Seq. Reads Throughput (MiB/s)	MAX Seq. Writes Throughput (MiB/s)	Random Read Average Latency uSec (4KiB,Q1)	Random Write Average Latency uSec (4KiB,Q1)	Random Read IOPS (4KiB, Q=16)	Random Write IOPS (4KiB, Q=16)	MAX Random Read IOPS (4KiB)	MAX Random Write IOPS (4KiB)	4KiB Random 70% Read / 30% Write, Queue 32 Performance (IOPS) VI-1	4KiB Random 50% Read / 50% Write, Queue 32 Performance (IOPS) VI-2
765034-B21	3.0	2,000	475	95	27	130,000	39,500	325,000 @Q128	39,500 @Q4	61,000	53,000
765036-B21	3.0	2,400	900	100	24	140,000	53,000	440,000 @Q128	53,000 @Q4	84,000	74,000
765038-B21	3.0	2,400	1,400	100	21	145,000	64,000	465,000 @Q128	67,000 @Q4	111,000	100,000
765044-B21	3.0	2,600	1,600	100	23	145,000	64,000	450,000 @Q128	64,000 @Q4	117,000	100,000
875593-B21	3.0	2,040	490	100	40	125,000	24,500	220,000 @Q64	24,500 @Q16	57,000	40,000
875595-B21	3.0	2,400	840	100	32	135,000	32,000	245,000 @Q64	32,000 @Q16	74,500	55,000
875597-B21	3.0	2,400	840	100	32	140,000	40,000	245,000 @Q64	40,000 @Q16	95,000	70,000

Technical Specifications

PCIe/NVMe Interface – Write Intensive (WI) SFF (Speeds & Feeds)

NOTE: Reference column VI-1 when comparing RI SSDs, & column VI-2 for comparing MU & WI SSDs.

Option Kit SKU	Endurance DWPD	MAX Seq. Reads Throughput (MiB/s)	MAX Seq. Writes Throughput (MiB/s)	Random Read Average Latency uSec (4KiB,Q1)	Random Write Average Latency uSec (4KiB,Q1)	Random Read IOPS (4KiB, Q=16)	Random Write IOPS (4KiB, Q=16)	MAX Random Read IOPS (4KiB)	MAX Random Write IOPS (4KiB)	4KiB Random 70% Read / 30% Write, Queue 32 Performance (IOPS) VI-1	4KiB Random 50% Read / 50% Write, Queue 32 Performance (IOPS) VI-2
736936-B21	10.0	2,600	1,000	90	20	150,000	80,000	474,000 @Q128	80,000 @Q4	103,000	94,000
736939-B21	10.0	2,600	1,700	95	20	155,000	99,000	474,000 @Q128	99,000 @Q4	138,000	125,000
764892-B21	10.0	2,600	1,700	100	20	142,000	150,000	474,000 @Q128	150,000 @Q16	148,000	140,000
764894-B21	10.0	2,600	1,400	100	20	145,000	170,000	474,000 @Q128	170,000 @Q16	170,000	165,000

Technical Specifications

PCIe/NVMe Interface - Read Intensive (RI) SFF (Power & Height)

Option Kit SKU	Power Idle Time	Power Random Read	Power Random Write	Power Sequential Read	Power Sequential Write	Power Random R/W	Height
764904-B21	4.00	8.62	6.45	8.04	12.41	8.63	15mm
764906-B21	4.14	10.34	10.22	9.17	18.53	10.37	15mm
764908-B21	4.00	8.14	8.28	7.55	10.00	7.81	15mm
875587-B21	3.22	3.43	7.85	5.70	7.71	5.88	7mm
875589-B21	3.22	5.31	11.56	5.22	11.04	6.53	7mm
875591-B21	3.22	3.63	12.07	4.52	12.07	6.52	7mm

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

Technical Specifications

PCIe/NVMe Interface – Mixed Use (MU) SFF (Power & Height)

Option Kit SKU	Power Idle Time	Power Random Read	Power Random Write	Power Sequential Read	Power Sequential Write	Power Random R/W	Height
765034-B21	4.00	6.88	7.88	6.87	7.55	5.98	15mm
765036-B21	4.00	8.84	9.99	8.37	12.03	7.33	15mm
765038-B21	4.00	11.04	9.41	8.76	17.56	6.95	15mm
765044-B21	4.14	11.71	10.46	9.90	20.58	7.64	15mm
875593-B21	3.22	3.46	7.68	6.40	7.51	5.51	7mm
875595-B21	3.22	6.40	10.70	6.72	6.85	6.89	7mm
875597-B21	3.22	7.58	11.58	7.01	7.79	7.81	7mm

PCIe/NVMe Interface – Write Intensive (WI) SFF (Power & Height)

Option Kit SKU	Power Idle Time	Power Random Read	Power Random Write	Power Sequential Read	Power Sequential Write	Power Random R/W	Height
736936-B21	4.00	8.57	9.64	8.32	11.31	6.66	15mm
736939-B21	4.00	8.87	17.71	9.29	11.20	7.80	15mm
764892-B21	4.00	11.04	9.69	13.57	8.80	20.10	15mm
764894-B21	4.14	10.43	15.51	10.08	22.52	7.70	15mm

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

Technical Specifications

PCIe/NVMe Interface - Read Intensive (RI) AIC (Capacity, Workload, Carrier...)

HPE Option Kit SKU	Short Description	Capacity	Workload Type	Interface Type	Form Factor	Plug Type	Carrier Type	Digitally Signed Firmware (DS)	Flash Type	Server Gen Supported (Select Platforms)
831733-B21	HPE 1.3TB PCIe x4 RI HH Card	1,300	RI	PCIe / PCIe NVMe	AIC	Non-Hot Plug	AIC	No	MLC	Gen8,9
831739-B21	HPE 6.4TB PCIe x4 RI HH Card	6,400	RI	PCIe / PCIe NVMe	AIC	Non-Hot Plug	AIC	No	MLC	Gen8,9

PCIe/NVMe Interface – Mixed Use (MU) AIC (Capacity, Workload, Carrier...)

HPE Option Kit SKU	Short Description	Capacity	Workload Type	Interface Type	Form Factor	Plug Type	Carrier Type	Digitally Signed Firmware (DS)	Flash Type	Server Gen Supported (Select Platforms)
775672-B21	HPE 5.2TB PCIe x4 MU FH Card	5,200	MU	PCIe / PCIe NVMe	AIC	Non-Hot Plug	AIC	No	MLC	Gen7, 8, 9
803200-B21	HPE 800GB PCIe x4 MU HH Card	800	MU	PCIe / PCIe NVMe	AIC	Non-Hot Plug	AIC	No	MLC	Gen9
803202-B21	HPE 1.6TB PCIe x4 MU HH Card	1,600	MU	PCIe / PCIe NVMe	AIC	Non-Hot Plug	AIC	No	MLC	Gen9
803204-B21	HPE 2.0TB PCIe x4 MU HH Card	2,000	MU	PCIe / PCIe NVMe	AIC	Non-Hot Plug	AIC	No	MLC	Gen9
877825-B21	HPE 1.6TB PCIe x4 MU HH DS Card	1,600	MU	PCIe / PCIe NVMe	AIC	Non-Hot Plug	AIC	Yes	MLC	Gen9 & 10
877827-B21	HPE 3.2TB PCIe x4 MU HH DS Card	3,200	MU	PCIe / PCIe NVMe	AIC	Non-Hot Plug	AIC	Yes	MLC	Gen9 & 10
877829-B21	HPE 6.4TB PCIe x4 MU HH DS Card	6,400	MU	PCIe / PCIe NVMe	AIC	Non-Hot Plug	AIC	Yes	MLC	Gen9 & 10

Technical Specifications

PCIe/NVMe Interface – Write Intensive (WI) AIC (Capacity, Workload, Carrier...)

HPE Option Kit SKU	Short Description	Capacity	Workload Type	Interface Type	Form Factor	Plug Type	Carrier Type	Digitally Signed Firmware (DS)	Flash Type	Server Gen Supported (Select Platforms)
764892-B21	HPE 1.6TB NVMe PCIe WI SFF SCN SSD	1,600	WI	PCIe / PCIe NVMe	SFF	Hot Plug	SCN	No	MLC	Gen9
803195-B21	HPE 800GB PCIe x4 WI HH Card	800	WI	PCIe / PCIe NVMe	AIC	Non-Hot Plug	AIC	No	MLC	Gen9 & 10
803197-B21	HPE 1.6TB PCIe x4 WI HH Card	1,600	WI	PCIe / PCIe NVMe	AIC	Non-Hot Plug	AIC	No	MLC	Gen9 & 10

PCIe/NVMe Interface - Read Intensive (RI) AIC (Speeds & Feeds)

NOTE: Reference column VI-1 when comparing RI SSDs, & column VI-2 for comparing MU & WI SSDs.

Option Kit SKU	Endurance DDPD	MAX Seq. Reads Throughput (MiB/s)	MAX Seq. Writes Throughput (MiB/s)	Random Read Average Latency uSec (4KiB,Q1)	Random Write Average Latency uSec (4KiB,Q1)	Random Read IOPS (4KiB, Q=16)	Random Write IOPS (4KiB, Q=16)	MAX Random Read IOPS (4KiB)	MAX Random Write IOPS (4KiB)	4KiB Random 70% Read / 30% Write, Queue 32 Performance (IOPS) VI-1	4KiB Random 50% Read / 50% Write, Queue 32 Performance (IOPS) VI-2
831733-B21	0.7	2,150	1,300	95	23	95,000	105,000	175,000 @Q256	105,000 @Q16	102,000	90,000
831739-B21	0.7	2,100	1,600	95	21	71,500	78,500	245,000 @Q256	78,500 @Q16	105,000	95,000

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

Technical Specifications

PCIe/NVMe Interface – Mixed Use (MU) AIC (Speeds & Feeds)

NOTE: Reference column VI-1 when comparing RI SSDs, & column VI-2 for comparing MU & WI SSDs.

Option Kit SKU	Endurance DDPD	MAX Seq. Reads Throughput (MiB/s)	MAX Seq. Writes Throughput (MiB/s)	Random Read Average Latency uSec (4KiB, Q1)	Random Write Average Latency uSec (4KiB, Q1)	Random Read IOPS (4KiB, Q=16)	Random Write IOPS (4KiB, Q=16)	MAX Random Read IOPS (4KiB)	MAX Random Write IOPS (4KiB)	4KiB Random 70% Read / 30% Write, Queue 32 Performance (IOPS) VI-1	4KiB Random 50% Read / 50% Write, Queue 32 Performance (IOPS) VI-2
775672-B21	3.0	2,050	1,150	110	23	73,000	133,000	184,000 @Q128	133,000 @Q16	113,000	115,000
803200-B21	3.0	2,450	880	100	22	140,000	54,000	450,000 @Q128	54,000 @Q4	85,000	75,000
803202-B21	3.0	2,500	1,400	95	21	135,000	66,000	465,000 @Q128	66,000 @Q4	111,000	100,000
803204-B21	3.0	2,575	1,625	95	21	150,000	64,000	465,000 @Q128	64,000 @Q4	117,000	105,000
877825-B21	5.0	5,700	2,145	80	22	180,000	130,000	900,000 @Q256	135,000 @Q32	155,000	140,000
877827-B21	5.0	6,400	2,800	80	22	180,000	160,000	900,000 @Q256	175,000 @Q32	180,000	155,000
877829-B21	5.0	6,400	2,800	80	22	180,000	160,000	900,000 @Q256	175,000 @Q32	185,000	160,000

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

Technical Specifications

PCIe/NVMe Interface – Write Intensive (WI) AIC (Speeds & Feeds)

NOTE: Reference column VI-1 when comparing RI SSDs, & column VI-2 for comparing MU & WI SSDs.

Option Kit SKU	Endurance DDPD	MAX Seq. Reads Throughput (MiB/s)	MAX Seq. Writes Throughput (MiB/s)	Random Read Average Latency uSec (4KiB,Q1)	Random Write Average Latency uSec (4KiB,Q1)	Random Read IOPS (4KiB, Q=16)	Random Write IOPS (4KiB, Q=16)	MAX Random Read IOPS (4KiB)	MAX Random Write IOPS (4KiB)	4KiB Random 70% Read / 30% Write, Queue 32 Performance (IOPS) VI-1	4KiB Random 50% Read / 50% Write, Queue 32 Performance (IOPS) VI-2
764892-B21	10.0	2,600	1,700	100	20	142,000	150,000	474,000 @Q128	150,000 @Q16	148,000	140,000
803195-B21	10.0	2,600	1,700	92	22	160,000	99,000	474,000 @Q128	99,000 @Q4	138,000	125,000
803197-B21	10.0	2,600	1,700	95	17	150,000	152,000	474,000 @Q128	152,000 @Q16	150,000	145,000

PCIe/NVMe Interface - Read Intensive (RI) AIC (Power & Height)

Option Kit SKU	Power Idle Time	Power Random Read	Power Random Write	Power Sequential Read	Power Sequential Write	Power Random R/W	Height
831733-B21	21.00	21.00	21.00	21.00	21.00	21.00	Half Height/Half Length
831739-B21	25.00	25.00	25.00	25.00	25.00	25.00	Full Height/Half length

Technical Specifications

PCIe/NVMe Interface – Mixed Use (MU) AIC (Power & Height)

Option Kit SKU	Power Idle Time	Power Random Read	Power Random Write	Power Sequential Read	Power Sequential Write	Power Random R/W	Height
775672-B21	25.00	25.00	25.00	25.00	25.00	25.00	Full Height/Half Length
803200-B21	4.00	8.84	9.99	8.37	12.03	7.33	Half Height/Half Length
803202-B21	4.00	11.04	9.41	8.76	17.56	6.95	Half Height/Half Length
803204-B21	4.14	11.71	10.46	9.90	20.58	7.64	Half Height/Half Length
877825-B21	8.00	20.00	18.00	21.00	21.00	19.00	Half Height/Half Length
877827-B21	8.00	20.00	18.00	23.00	22.00	19.00	Half Height/Half Length
877829-B21	8.00	20.00	18.00	23.00	22.00	19.00	Half Height/Half Length

PCIe/NVMe Interface – Write Intensive (WI) AIC (Power & Height)

Option Kit SKU	Power Idle Time	Power Random Read	Power Random Write	Power Sequential Read	Power Sequential Write	Power Random R/W	Height
764892-B21	4.00	11.04	9.69	13.57	8.80	20.10	15mm
803195-B21	4.00	8.87	17.71	9.29	11.20	7.80	Half Height/Half Length
803197-B21	4.00	9.69	13.57	8.80	20.10	7.07	Half Height/Half Length

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

Inbox NVMe Drivers

Inbox NVMe drivers for the 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 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

Technical Specifications

The following charts are provided to assist in decoding the SSD SAS and SATA 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.

SAS and SATA SSD SKU Decoders

SSD SKU Decoder

Long Name

HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 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	120-960GB 1.6-12.8TB	SATA/SAS 6G/12G	Write Intensive Mixed Use Read Intensive	SFF (2.5IN) LFF (3.5IN)	SC Smart Carrier SCN Smart Carrier <u>NVMe</u> 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	3yr Wty 1yr Wty	DS Digitally Signed Firmware SED Self Encrypting Drive TBD Low Power <i>In priority order where 1st is closest to Drive Type</i>	SSD

SSD SKU Decoder

Short Name

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 <u>NVMe</u> 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 <i>In priority order where 1st is closest to drive type</i>	SSD

Technical Specifications

SAS Interface - Read Intensive (RI) SFF & LFF (Capacity, Workload, Carrier...)

Option Kit SKU	Short Description	Capacity	Workload Type	Interface Type	Form Factor	Plug Type	Carrier Type	Digitally Signed Firmware (DS)	Flash Type	Server Gen Supported (Select Platforms)
870144-B21	HPE 7.68TB SAS RI SFF SC DS SSD	7,680	RI	SAS	SFF	Hot Plug	SC	Yes	TLC	Gen9 & 10
872390-B21	HPE 960GB SAS 12G RI SFF SC DS SSD	960	RI	SAS	SFF	Hot Plug	SC	Yes	MLC	Gen9 & 10
872392-B21	HPE 1.92TB SAS 12G RI SFF SC DS SSD	1,920	RI	SAS	SFF	Hot Plug	SC	Yes	MLC	Gen9 & 10
872394-B21	HPE 3.84TB SAS 12G RI SFF SC DS SSD	3,840	RI	SAS	SFF	Hot Plug	SC	Yes	MLC	Gen9 & 10
875311-B21	HPE 480GB SAS RI SFF SC DS SSD	480	RI	SAS	SFF	Hot Plug	SC	Yes	MLC	Gen9 & 10
875313-B21	HPE 960GB SAS RI SFF SC DS SSD	960	RI	SAS	SDD	Hot Plug	SC	Yes	MLC	Gen9 & 10
875326-B21	HPE 1.92TB SAS RI SFF SC DS SSD	1,920	RI	SAS	SFF	Hot Plug	SC	Yes	MLC	Gen9 & 10
875330-B21	HPE 3.84TB SAS RI SFF SC DS SSD	3,840	RI	SAS	SFF	Hot Plug	SC	Yes	MLC	Gen9 & 10

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

Technical Specifications

SAS Interface – Mixed Use (MU) SFF & LFF (Capacity, Workload, Carrier...)

Option Kit SKU	Short Description	Capacity	Workload Type	Interface Type	Form Factor	Plug Type	Carrier Type	Digitally Signed Firmware (DS)	Flash Type	Server Gen Supported (Select Platforms)
872374-B21	HPE 400GB SAS 12G MU SFF SC DS SSD	400	MU	SAS	SFF	Hot Plug	SC	Yes	MLC	Gen9 & 10
872376-B21	HPE 800GB SAS 12G MU SFF SC DS SSD	800	MU	SAS	SFF	Hot Plug	SC	Yes	MLC	Gen9 & 10
872378-B21	HPE 800GB SAS 12G MU LFF SCC DS SSD	800	MU	SAS	LFF	Hot Plug	SCC	Yes	MLC	Gen9 & 10
872380-B21	HPE 800GB SAS 12G MU LFF LPC DS SSD	800	MU	SAS	LFF	Hot Plug	LPC	Yes	MLC	Gen9 & 10
872382-B21	HPE 1.6TB SAS 12G MU SFF SC DS SSD	1,600	MU	SAS	SFF	Hot Plug	SC	Yes	MLC	Gen9 & 10
872384-B21	HPE 1.6TB SAS 12G MU LFF LPC DS SSD	1,600	MU	SAS	LFF	Hot Plug	LPC	Yes	MLC	Gen9 & 10
872386-B21	HPE 3.2TB SAS 12G MU SFF SC DS SSD	3,200	MU	SAS	SFF	Hot Plug	SC	Yes	MLC	Gen9 & 10
873359-B21	HPE 400GB SAS 12G MU SFF SC DS SSD	400	MU	SAS	SFF	Hot Plug	SC	Yes	MLC	Gen9 & 10
873363-B21	HPE 800GB SAS 12G MU SFF SC DS SSD	800	MU	SAS	SFF	Hot Plug	SC	Yes	MLC	Gen9 & 10
873365-B21	HPE 1.6TB SAS 12G MU SFF SC DS SSD	1,600	MU	SAS	SFF	Hot Plug	SC	Yes	MLC	Gen9 & 10
873367-B21	HPE 3.2TB SAS 12G MU SFF SC DS SSD	3,200	MU	SAS	SFF	Hot Plug	SC	Yes	MLC	Gen9 & 10

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

Technical Specifications

SAS Interface – Write Intensive (WI) SFF & LFF (Capacity, Workload, Carrier...)

Option Kit SKU	Short Description	Capacity	Workload Type	Interface Type	Form Factor	Plug Type	Carrier Type	Digitally Signed Firmware (DS)	Flash Type	Server Gen Supported (Select Platforms)
873349-B21	HPE 400GB SAS 12G WI SFF STD DS SSD	400	WI	SAS	SFF	Hot Plug	STD	Yes	MLC	Gen9 & 10
873351-B21	HPE 400GB SAS 12G WI SFF SC DS SSD	400	WI	SAS	SFF	Hot Plug	SC	Yes	MLC	Gen9 & 10
873355-B21	HPE 800GB SAS 12G WI SFF SC DS SSD	800	WI	SAS	SFF	Hot Plug	SC	Yes	MLC	Gen9 & 10
873357-B21	HPE 1.6TB SAS 12G WI SFF SC DS SSD	1,600	WI	SAS	SFF	Hot Plug	SC	Yes	MLC	Gen9 & 10
873460-B21	HPE 800GB SAS 12G WI SFF STD DS SSD	800	WI	SAS	SFF	Hot Plug	STD	Yes	MLC	Gen9 & 10

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

Technical Specifications

SAS Interface - Read Intensive (RI) SFF & LFF (Speeds & Feeds)

NOTE: Reference column VI-1 when comparing RI SSDs, & column VI-2 for comparing MU & WI SSDs.

Option Kit SKU	Endurance DDPD	MAX Seq. Reads Throughput (MiB/s)	MAX Seq. Writes Throughput (MiB/s)	Random Read Average Latency uSec (4KiB,Q1)	Random Write Average Latency uSec (4KiB,Q1)	Random Read IOPS (4KiB, Q=16)	Random Write IOPS (4KiB, Q=16)	MAX Random Read IOPS (4KiB)	MAX Random Write IOPS (4KiB)	4KiB Random 70% Read / 30% Write, Queue 32 Performance (IOPS) VI-1	4KiB Random 50% Read / 50% Write, Queue 32 Performance (IOPS) VI-2
870144-B21	1.0	940	1,000	150	40	93,000	34,000	148,000 @Q64	34,000 @Q4	66,000	54,000
872390-B21	1.0	1,070	1,025	120	50	120,000	29,000	185,000 @Q32	29,000 @Q4	60,000	50,000
872392-B21	1.0	1,070	1,025	120	50	125,000	34,000	185,000 @Q32	34,000 @Q4	75,000	60,000
872394-B21	1.0	1,070	1,025	120	50	125,000	34,000	185,000 @Q32	34,000 @Q4	75,000	60,000
875311-B21	1.0	940	615	115	47	110,000	21,000	170,000 @Q128	21,000 @Q1	50,000	38,000
875313-B21	1.0	940	1,015	115	42	110,000	32,000	170,000 @Q128	32,000 @Q4	59,000	54,000
875326-B21	1.0	940	1,020	115	42	110,000	37,000	170,000 @Q128	37,000 @Q4	65,000	60,000
875330-B21	1.0	940	1,020	115	40	110,000	26,000	170,000 @Q128	26,000 @Q4	54,000	44,000

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

Technical Specifications

SAS Interface – Mixed Use (MU) SFF & LFF (Speeds & Feeds)

NOTE: Reference column VI-1 when comparing RI SSDs, & column VI-2 for comparing MU & WI SSDs.

Option Kit SKU	Endurance DDPD	MAX Seq. Reads Throughput (MiB/s)	MAX Seq. Writes Throughput (MiB/s)	Random Read Average Latency uSec (4KiB,Q1)	Random Write Average Latency uSec (4KiB,Q1)	Random Read IOPS (4KiB, Q=16)	Random Write IOPS (4KiB, Q=16)	MAX Random Read IOPS (4KiB)	MAX Random Write IOPS (4KiB)	4KiB Random 70% Read / 30% Write, Queue 32 Performance (IOPS) VI-1	4KiB Random 50% Read / 50% Write, Queue 32 Performance (IOPS) VI-2
872374-B21	3.0	1,075	1,025	120	48	120,000	80,000	185,000 @Q32	80,000 @Q16	105,000	87,500
872376-B21	3.0	1,075	1,025	126	57	120,000	90,000	185,000 @Q32	90,000 @Q16	107,000	92,500
872378-B21	3.0	1,075	1,025	126	57	120,000	90,000	185,000 @Q32	90,000 @Q16	107,000	92,500
872380-B21	3.0	1,075	1,025	126	57	120,000	90,000	185,000 @Q32	90,000 @Q16	107,000	92,500
872382-B21	3.0	1,075	1,025	120	48	125,000	93,000	185,000 @Q32	93,000 @Q16	120,000	107,000
872384-B21	3.0	1,075	1,025	120	48	125,000	93,000	185,000 @Q32	93,000 @Q16	120,000	107,500
872386-B21	3.0	1,075	1,025	120	50	125,000	93,000	185,000 @Q32	93,000 @Q16	120,000	107,500
873359-B21	3.0	1,050	820	105	35	115,000	100,000	170,000 @Q64	100,000 @Q16	105,000	100,000
873363-B21	3.0	1,050	1,010	105	35	120,000	100,000	170,000 @Q64	100,000 @Q16	110,000	105,000
873365-B21	3.0	1,050	1,010	105	35	125,000	100,000	170,000 @Q64	100,000 @Q16	130,000	120,000
873367-B21	3.0	1,050	1,010	105	35	130,000	100,000	170,000 @Q64	100,000 @Q16	140,000	125,000

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

Technical Specifications

SAS Interface – Write Intensive (WI) SFF & LFF (Speeds & Feeds)

NOTE: Reference column VI-1 when comparing RI SSDs, & column VI-2 for comparing MU & WI SSDs.

Option Kit SKU	Endurance DDPD	MAX Seq. Reads Throughput (MiB/s)	MAX Seq. Writes Throughput (MiB/s)	Random Read Average Latency uSec (4KiB,Q1)	Random Write Average Latency uSec (4KiB,Q1)	Random Read IOPS (4KiB, Q=16)	Random Write IOPS (4KiB, Q=16)	MAX Random Read IOPS (4KiB)	MAX Random Write IOPS (4KiB)	4KiB Random 70% Read / 30% Write, Queue 32 Performance (IOPS) VI-1	4KiB Random 50% Read / 50% Write, Queue 32 Performance (IOPS) VI-2
873349-B21	10.0	1,050	1,005	110	45	100,000	100,000	170,000 @Q64	100,000 @Q16	115,000	110,000
873351-B21	10.0	1,050	1,005	110	45	100,000	100,000	170,000 @Q64	100,000 @Q16	115,000	110,000
873355-B21	10.0	1,050	1,005	105	35	120,000	100,000	170,000 @Q64	100,000 @Q16	125,000	115,000
873357-B21	10.0	1,050	1,005	105	35	125,000	100,000	170,000 @Q64	100,000 @Q16	140,000	125,000
873460-B21	10.0	1,050	1,005	105	35	120,000	100,000	170,000 @Q64	100,000 @Q16	125,000	115,000

SAS Interface - Read Intensive (RI) SFF & LFF Interface (Power & Height)

Option Kit SKU	Power Idle Time	Power Random Read	Power Random Write	Power Sequential Read	Power Sequential Write	Power Random R/W	Height
870144-B21	6.13	6.91	6.91	8.44	8.73	6.91	15mm
872390-B21	3.06	4.07	4.07	6.28	8.22	4.07	15mm
872392-B21	3.64	4.16	4.16	6.95	8.67	4.16	15mm
872394-B21	4.22	4.74	4.74	7.75	9.50	4.74	15mm
875311-B21	4.33	4.67	4.67	4.89	6.76	4.67	15mm
875313-B21	4.37	4.73	4.73	4.97	6.79	4.73	15mm
875326-B21	4.45	4.83	4.83	4.97	6.83	4.83	15mm
875330-B21	4.38	4.69	4.69	4.96	6.60	4.69	15mm

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

Technical Specifications

SAS Interface – Mixed Use (MU) SFF & LFF Interface (Power & Height)

Option Kit SKU	Power Idle Time	Power Random Read	Power Random Write	Power Sequential Read	Power Sequential Write	Power Random R/W	Height
872374-B21	3.82	4.33	4.33	6.41	8.42	4.33	15mm
872376-B21	3.06	4.07	4.07	6.28	8.22	4.07	15mm
872378-B21	3.06	4.07	4.07	6.28	8.22	4.07	15mm
872380-B21	3.06	4.07	4.07	6.28	8.22	4.07	15mm
872382-B21	3.64	4.16	4.16	6.95	8.67	4.16	15mm
872384-B21	3.64	4.16	4.16	6.95	8.67	4.16	15mm
872386-B21	4.22	4.74	4.74	7.75	9.50	4.74	15mm
873359-B21	3.64	5.39	5.39	5.60	7.29	5.39	15mm
873363-B21	3.58	5.99	5.99	6.47	9.84	5.99	15mm
873365-B21	3.56	6.45	6.45	6.39	10.18	6.45	15mm
873367-B21	4.24	8.74	8.74	6.51	9.93	8.74	15mm

SAS Interface – Write Intensive (WI) Interface (Power & Height)

Option Kit SKU	Power Idle Time	Power Random Read	Power Random Write	Power Sequential Read	Power Sequential Write	Power Random R/W	Height
873349-B21	3.46	5.86	5.86	5.65	8.08	5.86	15mm
873351-B21	3.46	5.86	5.86	5.65	8.08	5.86	15mm
873355-B21	3.61	6.19	6.19	6.63	10.65	6.19	15mm
873357-B21	3.22	6.66	6.66	6.66	9.89	6.66	15mm
873460-B21	3.61	6.19	6.19	6.63	10.65	6.19	15mm

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

Technical Specifications

SATA – Read Intensive (RI) SFF & LFF (Capacity, Workload, Carrier...)

Option Kit SKU	Short Description	Capacity	Workload Type	Interface Type	Form Factor	Plug Type	Carrier Type	Digitally Signed Firmware (DS)	Flash Type	Server Gen Supported (Select Platforms)
868814-B21	HPE 240GB SATA RI SFF SC DS SSD	240	RI	SATA	SFF	Hot Plug	SC	Yes	MLC	Gen9, & 10
868818-B21	HPE 480GB SATA RI SFF SC DS SSD	480	RI	SATA	SFF	Hot Plug	SC	Yes	MLC	Gen9, & 10
868822-B21	HPE 960GB SATA RI SFF SC DS SSD	960	RI	SATA	SFF	Hot Plug	SC	Yes	MLC	Gen9, & 10
868826-B21	HPE 1.92TB SATA RI SFF SC DS SSD	1,920	RI	SATA	SFF	Hot Plug	SC	Yes	MLC	Gen9, & 10
868830-B21	HPE 3.84TB SATA RI LFF SCC DS SSD	3,840	RI	SATA	LFF	Hot Plug	SCC	Yes	MLC	Gen9, & 10
869056-B21	HPE 480GB SATA RI LFF LPC DS SSD	480	RI	SATA	LFF	Hot Plug	LPC	Yes	MLC	Gen9, & 10
869058-B21	HPE 1.92TB SATA RI LFF LPC DS SSD	1,920	RI	SATA	LFF	Hot Plug	SCM	Yes	MLC	Gen9, & 10
869374-B21	HPE 150GB SATA RI SFF SC DS SSD	150	RI	SATA	SFF	Hot Plug	SC	Yes	MLC	Gen9, & 10
869376-B21	HPE 240GB SATA RI SFF SC DS SSD	240	RI	SATA	SFF	Hot Plug	SC	Yes	MLC	Gen9, & 10
869378-B21	HPE 480GB SATA RI SFF SC DS SSD	480	RI	SATA	SFF	Hot Plug	SC	Yes	MLC	Gen9, & 10
869380-B21	HPE 480GB SATA RI LFF SCC DS SSD	480	RI	SATA	LFF	Hot Plug	SCC	Yes	MLC	Gen9, & 10
869382-B21	HPE 480GB SATA RI LFF LPC DS SSD	480	RI	SATA	LFF	Hot Plug	LPC	Yes	MLC	Gen9, & 10
869384-B21	HPE 960GB SATA RI SFF SC DS SSD	960	RI	SATA	SFF	Hot Plug	SC	Yes	MLC	Gen9, & 10
869386-B21	HPE 1.6TB SATA RI SFF SC DS SSD	1,600	RI	SATA	SFF	Hot Plug	SC	Yes	MLC	Gen9, & 10
869388-B21	HPE 1.6TB SATA RI LFF SCC DS SSD	1,600	RI	SATA	LFF	Hot Plug	SCC	Yes	MLC	Gen9, & 10
871768-B21	HPE 960GB SATA RI SFF SC DS SSD	960	RI	SATA	SFF	Hot Plug	SC	No	MLC	Gen9
871770-B21	HPE 1.92TB SATA RI SFF SC DS SSD	1,920	RI	SATA	SFF	Hot Plug	SC	No	MLC	Gen9

Technical Specifications

Option Kit SKU	Short Description	Capacity	Workload Type	Interface Type	Form Factor	Plug Type	Carrier Type	Digitally Signed Firmware (DS)	Flash Type	Server Gen Supported (Select Platforms)
875503-B21	HPE 240GB SATA RI SFF SC DS SSD	240	RI	SATA	SFF	Hot Plug	SC	Yes	TLC	Gen9, & 10
875507-B21	HPE 240GB SATA RI SFF RW DS SSD	240	RI	SATA	SFF	Hot Plug	RW	Yes	TLC	Gen9, & 10
875509-B21	HPE 480GB SATA RI SFF SC DS SSD	480	RI	SATA	SFF	Hot Plug	SC	Yes	TLC	Gen9, & 10
875511-B21	HPE 960GB SATA RI SFF SC DS SSD	960	RI	SATA	SFF	Hot Plug	SC	Yes	TLC	Gen9, & 10
875513-B21	HPE 1.92TB SATA RI SFF SC DS SSD	1,920	RI	SATA	SFF	Hot Plug	SC	Yes	TLC	Gen9, & 10
877740-B21	HPE 240GB SATA RI SFF SC DS SSD	240	RI	SATA	SFF	Hot Plug	SC	Yes	MLC	Gen9 & 10
877746-B21	HPE 480GB SATA RI SFF SC DS SSD	480	RI	SATA	SFF	Hot Plug	SC	Yes	MLC	Gen9 & 10
877748-B21	HPE 480GB SATA RI LFF SCC DS SSD	480	RI	SATA	LFF	Hot Plug	SCC	Yes	MLC	Gen9 & 10
877752-B21	HPE 960GB SATA RI SFF SC DS SSD	960	RI	SATA	SFF	Hot Plug	SC	Yes	MLC	Gen9 & 10
877754-B21	HPE 960GB SATA RI LFF SCC DS SSD	960	RI	SATA	LFF	Hot Plug	SCC	Yes	MLC	Gen9 & 10
877756-B21	HPE 960GB SATA RI LFF LPC DS SSD	960	RI	SATA	LFF	Hot Plug	LPC	Yes	MLC	Gen9 & 10
877758-B21	HPE 1.92TB SATA RI SFF SC DS SSD	1,920	RI	SATA	SFF	Hot Plug	SC	Yes	MLC	Gen9 & 10
877760-B21	HPE 1.92TB SATA RI LFF SCC DS SSD	1,920	RI	SATA	LFF	Hot Plug	SCC	Yes	MLC	Gen9 & 10
877762-B21	HPE 1.92TB SATA RI LFF LPC DS SSD	1,920	RI	SATA	LFF	Hot Plug	LPC	Yes	MLC	Gen9 & 10
877764-B21	HPE 3.84TB SATA RI SFF SC DS SSD	3,840	RI	SATA	SFF	Hot plug	SC	Yes	MLC	Gen9 & 10

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

Technical Specifications

SATA – Mixed Use (MU) SFF & LFF (Capacity, Workload, Carrier...)

Option Kit SKU	Short Description	Capacity	Workload Type	Interface Type	Form Factor	Plug Type	Carrier Type	Digitally Signed Firmware (DS)	Flash Type	Server Gen Supported (Select Platforms)
872344-B21	HPE 480GB SATA MU SFF SC DS SSD	480	MU	SATA	SFF	Hot Plug	SC	Yes	MLC	Gen9, & 10
872346-B21	HPE 480GB SATA MU LFF SCC DS SSD	480	MU	SATA	LFF	Hot Plug	SCC	Yes	MLC	Gen9, & 10
872348-B21	HPE 960GB SATA MU SFF SC DS SSD	960	MU	SATA	SFF	Hot Plug	SC	Yes	MLC	Gen9, & 10
872350-B21	HPE 960GB SATA MU LFF SCC DS SSD	960	MU	SATA	LFF	Hot Plug	SCC	Yes	MLC	Gen9, & 10
872352-B21	HPE 1.92TB SATA MU SFF SC DS SSD	1,920	MU	SATA	SFF	Hot Plug	SC	Yes	MLC	Gen9, & 10
875470-B21	HPE 480GB SATA MU SFF SC DS SSD	480	MU	SATA	SFF	Hot Plug	SC	Yes	TLC	Gen9, & 10
875474-B21	HPE 960GB SATA MU SFF SC DS SSD	960	MU	SATA	SFF	Hot Plug	SC	Yes	TLC	Gen9, & 10
875478-B21	HPE 1.92TB SATA MU SFF SC DS SSD	1,920	MU	SATA	SFF	Hot Plug	SC	Yes	TLC	Gen9, & 10
875480-B21	HPE 1.92TB SATA MU LFF SCC DS SSD	1,920	MU	SATA	LFF	Hot Plug	SCC	Yes	TLC	Gen9, & 10
875483-B21	HPE 240GB SATA MU SFF SC DS SSD	240	MU	SATA	SFF	Hot Plug	SC	Yes	TLC	Gen9, & 10
877776-B21	HPE 480GB SATA MU SFF SC DS SSD	480	MU	SATA	SFF	Hot Plug	SC	Yes	MLC	Gen9 & 10
877782-B21	HPE 960GB SATA MU SFF SC DS SSD	960	MU	SATA	SFF	Hot Plug	SC	Yes	MLC	Gen9 & 10
877784-B21	HPE 960GB SATA MU LFF SCC DS SSD	960	MU	SATA	LFF	Hot Plug	SCC	Yes	MLC	Gen9 & 10
877788-B21	HPE 1.92TB SATA MU SFF SC DS SSD	1,920	MU	SATA	SFF	Hot Plug	SC	Yes	MLC	Gen9 & 10
877790-B21	HPE 1.92TB SATA MU LFF SCC DS SSD	1,920	MU	SATA	LFF	Hot Plug	SCC	Yes	MLC	Gen9 & 10
880295-B21	HPE 240GB SATA MU SFF SC DS SSD	240	MU	SATA	SFF	Hot Plug	SC	Yes	MLC	Gen9 & 10

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

Technical Specifications

SATA – Write Intensive (WI) SFF & LFF (Capacity, Workload, Carrier...)

Option Kit SKU	Short Description	Capacity	Workload Type	Interface Type	Form Factor	Plug Type	Carrier Type	Digitally Signed Firmware (DS)	Flash Type	Server Gen Supported (Select Platforms)
872355-B21	HPE 400GB SATA WI SFF SC DS SSD	400	WI	SATA	SFF	Hot Plug	SC	Yes	MLC	Gen9, & 10
872357-B21	HPE 400GB SATA WI LFF SCC DS SSD	400	WI	SATA	LFF	Hot Plug	SCC	Yes	MLC	Gen9, & 10
872359-B21	HPE 800GB SATA WI SFF SC DS SSD	800	WI	SATA	SFF	Hot Plug	SC	Yes	MLC	Gen9, & 10
872361-B21	HPE 800GB SATA WI LFF SCC DS SSD	800	WI	SATA	LFF	Hot Plug	SCC	Yes	MLC	Gen9, & 10
872363-B21	HPE 1.6TB SATA WI SFF SC DS SSD	1,600	WI	SATA	SFF	Hot Plug	SC	Yes	MLC	Gen9, & 10
872365-B21	HPE 1.6TB SATA WI LFF SCC DS SSD	1,600	WI	SATA	LFF	Hot Plug	SCC	Yes	MLC	Gen9, & 10

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

SATA Interface – Read Intensive (RI) SFF & LFF (Speeds & Feeds)

NOTE: Reference column VI-1 when comparing RI SSDs, & column VI-2 for comparing MU & WI SSDs.

Option Kit SKU	Endurance DWPD	MAX Seq. Reads Throughput (MiB/s)	MAX Seq. Writes Throughput (MiB/s)	Random Read Average Latency uSec (4KiB,Q1)	Random Write Average Latency uSec (4KiB,Q1)	Random Read IOPS (4KiB, Q=16)	Random Write IOPS (4KiB, Q=16)	MAX Random Read IOPS (4KiB)	MAX Random Write IOPS (4KiB)	4KiB Random 70% Read / 30% Write, Queue 32 Performance (IOPS) VI-1	4KiB Random 50% Read / 50% Write, Queue 32 Performance (IOPS) VI-2
868814-B21	0.8	370	300	120	105	66,000	9,800	73,000 @Q32	9,800 @Q4	21,500	16,000
868818-B21	0.8	530	490	120	58	66,000	17,000	75,500 @Q32	17,000 @Q1	37,500	27,500
868822-B21	0.8	530	490	120	41	64,000	24,500	75,500 @Q32	24,500 @Q4	53,000	40,000
868826-B21	0.8	530	490	120	38	61,500	26,000	73,500 @Q32	26,000 @Q1	56,000	44,000
868830-B21	0.8	530	490	120	36	63,000	27,500	75,500 @Q32	27,500 @Q1	58,000	46,500
869056-B21	0.8	530	490	120	58	66,000	17,500	75,500 @Q64	17,000 @Q1	37,500	27,500
869058-B21	0.8	530	490	120	38	61,500	26,000	73,500 @Q32	26,000 @Q1	56,000	44,000

Technical Specifications

869374-B21	0.4	190	180	145	145	41,000	6,500	45,000 @Q32	6,500 @Q1	14,500	11,500
869376-B21	0.3	325	290	145	70	55,000	15,000	59,000 @Q32	15,000 @Q4	26,500	23,000
869378-B21	0.3	410	350	145	75	55,000	15,000	59,000 @Q32	15,000 @Q4	30,000	23,500
869380-B21	0.3	410	350	145	75	55,000	15,000	59,000 @Q32	15,000 @Q4	30,000	23,500
869382-B21	0.5	410	350	145	75	55,000	15,000	59,000 @Q32	15,000 @Q4	30,000	23,500
869384-B21	0.3	420	315	155	80	55,000	14,000	59,000 @Q32	14,000 @Q4	30,000	22,000
869386-B21	0.3	420	340	155	76	55,000	15,000	59,000 @Q32	15,000 @Q4	30,000	23,500
869388-B21	0.3	420	340	155	76	55,000	15,000	59,000 @Q32	15,000 @Q4	30,000	23,500
871768-B21	0.6	540	480	120	65	59,000	16,500	72,000 @Q32	16,500 @Q1	50,000	30,000
871770-B21	0.6	530	445	125	70	55,000	15,000	65,000 @Q32	15,000 @Q1	48,000	27,000

Technical Specifications

SATA Interface – Read Intensive (RI) SFF & LFF (Speeds & Feeds)

NOTE: Reference column VI-1 when comparing RI SSDs, & column VI-2 for comparing MU & WI SSDs.

Option Kit SKU	Endurance DDPD	MAX Seq. Reads Throughput (MiB/s)	MAX Seq. Writes Throughput (MiB/s)	Random Read Average Latency uSec (4KiB,Q1)	Random Write Average Latency uSec (4KiB,Q1)	Random Read IOPS (4KiB, Q=16)	Random Write IOPS (4KiB, Q=16)	MAX Random Read IOPS (4KiB)	MAX Random Write IOPS (4KiB)	4KiB Random 70% Read / 30% Write, Queue 32 Performance (IOPS) VI-1	4KiB Random 50% Read / 50% Write, Queue 32 Performance (IOPS) VI-2
875503-B21	1.5	505	260	125	40	62,500	33,000	69,500 @Q32	33,000 @Q4	40,000	36,000
875507-B21	1.5	505	380	125	40	62,500	33,000	69,500 @Q32	33,000 @Q4	40,000	36,000
875509-B21	0.5	505	380	125	40	61,000	34,000	67,000 @Q32	34,000 @Q4	45,000	41,000
875511-B21	0.5	505	475	125	40	61,000	31,000	67,000 @Q32	31,000 @Q4	50,000	45,000
875513-B21	0.9	505	475	130	40	59,000	27,000	67,000 @Q32	27,000 @Q4	47,500	37,500
877740-B21	1.4	500	185	120	60	56,000	17,000	64,000 @Q32	17,000 @Q1	33,000	27,000
877746-B21	1.0	500	330	120	60	60,000	20,000	64,000 @Q32	20,000 @Q4	36,000	32,000
877748-B21	1.0	500	330	120	60	60,000	20,000	64,000 @Q64	20,000 @Q4	36,000	32,000
877752-B21	1.0	500	465	120	60	60,000	30,000	64,000 @Q64	30,000 @Q16	43,000	39,000
877754-B21	1.0	500	465	120	60	60,000	30,000	64,000 @Q64	30,000 @Q16	43,000	39,000
877756-B21	1.0	500	465	120	60	60,000	30,000	64,000 @Q64	30,000 @Q16	43,000	39,000
877758-B21	1.0	500	445	120	60	57,000	31,000	64,000 @Q32	31,000 @Q16	46,000	41,000
877760-B21	1.0	500	445	120	60	57,000	31,000	64,000 @Q32	31,000 @Q16	46,000	41,000
877762-B21	1.0	500	445	120	60	57,000	31,000	64,000 @32	31,000 @Q16	46,000	41,000
877764-B21	1.0	500	445	120	60	59,000	30,000	63,000 @Q32	30,000 @Q16	45,000	39,000

Technical Specifications

SATA Interface – Mixed Use (MU) SFF & LFF (Speeds & Feeds)

NOTE: Reference column VI-1 when comparing RI SSDs, & column VI-2 for comparing MU & WI SSDs.

Option Kit SKU	Endurance DDPD	MAX Seq. Reads Throughput (MiB/s)	MAX Seq. Writes Throughput (MiB/s)	Random Read Average Latency uSec (4KiB,Q1)	Random Write Average Latency uSec (4KiB,Q1)	Random Read IOPS (4KiB, Q=16)	Random Write IOPS (4KiB, Q=16)	MAX Random Read IOPS (4KiB)	MAX Random Write IOPS (4KiB)	4KiB Random 70% Read / 30% Write, Queue 32 Performance (IOPS) VI-1	4KiB Random 50% Read / 50% Write, Queue 32 Performance (IOPS) VI-2
872344-B21	3.5	510	475	110	50	63,000	20,000	69,000 @Q32	20,000 @Q4	43,000	32,000
872346-B21	3.5	510	475	110	50	63,000	20,000	69,000 @Q32	20,000 @Q4	43,000	32,000
872348-B21	3.5	510	475	110	40	62,000	26,500	69,000 @Q32	26,500 @Q4	53,500	43,000
872350-B21	3.5	510	475	110	40	62,000	26,500	69,000 @Q32	26,500 @Q4	53,500	43,000
872352-B21	3.5	500	475	110	38	61,500	28,500	69,000 @Q32	28,500 @Q4	50,500	47,500
875470-B21	5.0	510	455	125	40	62,000	52,500	68,500 @Q32	52,500 @Q16	58,000	56,000
875474-B21	5.0	510	480	130	40	60,000	52,500	67,500 @Q32	52,500 @Q16	61,500	58,000
875478-B21	5.0	500	480	190	40	54,000	53,000	61,500 @Q32	53,000 @Q4	63,000	60,000
875480-B21	5.0	500	480	190	40	54,000	53,000	61,500@Q32	53,000@Q4	63,000	60,000
875483-B21	5.0	510	320	125	40	62,000	52,500	70,000 @Q32	52,500 @Q16	53,000	51,000
877776-B21	3.0	500	455	120	48	60,000	46,000	65,000 @Q32	47,500 @Q32	53,000	51,000
877782-B21	3.0	500	455	120	48	60,000	45,000	65,000 @Q32	47,500 @Q32	56,000	53,000
877784-B21	3.0	500	455	120	48	60,000	45,000	65,000 @Q32	47,500 @Q32	56,000	53,000
877788-B21	3.0	500	435	120	48	60,000	45,000	65,000 @Q32	47,500 @Q31	57,000	53,000
877790-B21	3.0	500	435	120	48	60,000	45,000	65,000 @Q32	47,500 @Q32	57,000	53,000
880295-B21	3.0	500	240	120	48	59,000	37,000	65,000@Q32	37,000@Q4	45,000	43,000

Technical Specifications

SATA Interface – Write Intensive (WI) SFF & LFF (Speeds & Feeds)

NOTE: Reference column VI-1 when comparing RI SSDs, & column VI-2 for comparing MU & WI SSDs.

Option Kit SKU	Endurance DDPD	MAX Seq. Reads Throughput (MiB/s)	MAX Seq. Writes Throughput (MiB/s)	Random Read Average Latency uSec (4KiB,Q1)	Random Write Average Latency uSec (4KiB,Q1)	Random Read IOPS (4KiB, Q=16)	Random Write IOPS (4KiB, Q=16)	MAX Random Read IOPS (4KiB)	MAX Random Write IOPS (4KiB)	4KiB Random 70% Read / 30% Write, Queue 32 Performance (IOPS) VI-1	4KiB Random 50% Read / 50% Write, Queue 32 Performance (IOPS) VI-2
872355-B21	10.0	510	475	110	37	63,000	46,500	69,000 @Q32	46,500 @Q4	61,000	60,000
872357-B21	10.0	510	475	110	37	63,000	46,500	69,000 @Q32	46,500 @Q4	61,000	60,000
872359-B21	10.0	510	475	110	37	62,000	51,500	69,000 @Q32	51,500 @Q4	61,000	60,000
872361-B21	10.0	510	475	110	37	62,000	51,500	69,000 @Q32	51,500 @Q4	61,000	60,000
872363-B21	10.0	500	475	110	37	61,500	54,500	69,000 @Q32	54,500 @Q4	61,000	60,000
872365-B21	10.0	500	475	110	37	61,500	54,500	69,000 @Q32	54,500 @Q4	61,000	60,000

Technical Specifications

SATA Interface – Read Intensive (RI) SFF & LFF Interface (Power & Height)

Option Kit SKU	Power Idle Time	Power Random Read	Power Random Write	Power Sequential Read	Power Sequential Write	Power Random R/W	Height
868814-B21	1.24	2.34	2.34	2.68	2.71	2.34	7mm
868818-B21	1.26	2.79	2.79	2.70	3.52	2.79	7mm
868822-B21	1.28	2.80	2.80	2.82	3.64	2.80	7mm
868826-B21	1.29	2.87	2.87	3.10	3.98	2.87	7mm
868830-B21	1.41	3.05	3.05	3.29	4.24	3.05	7mm
869056-B21	1.26	2.79	2.79	2.70	3.52	2.79	7mm
869058-B21	1.29	2.87	2.87	3.10	3.98	2.87	7mm
869374-B21	0.72	2.06	2.06	2.24	2.55	2.06	7mm
869376-B21	0.71	2.17	2.17	2.66	3.02	2.17	7mm
869378-B21	0.67	2.44	2.44	2.91	3.33	2.44	7mm
869380-B21	0.67	2.44	2.44	2.91	3.33	2.44	7mm
869382-B21	0.75	2.42	2.42	3.10	3.58	2.42	7mm
869384-B21	0.75	2.42	2.42	3.10	3.58	2.42	7mm
869386-B21	0.69	2.83	2.83	3.26	3.69	2.83	7mm
869388-B21	0.69	2.83	2.83	3.26	3.69	2.82	7mm
871768-B21	.70	2.50	2.50	1.92	3.52	2.50	7mm
871770-B21	.74	2.59	2.59	2.32	4.17	2.59	7mm
875503-B21	1.07	3.00	3.00	3.21	3.90	2.95	7mm
875507-B21	1.07	3.00	3.00	3.21	3.90	2.95	7mm
875509-B21	1.07	3.17	3.17	3.82	5.62	3.10	7mm
875511-B21	1.07	3.17	3.17	3.82	5.62	3.10	7mm
875513-B21	1.07	3.51	3.51	4.52	6.12	3.40	7mm
877740-B21	1.24	2.64	2.84	2.20	2.83	2.64	7mm
877746-B21	1.25	2.40	3.60	2.17	3.52	3.08	7mm
877748-B21	1.20	2.40	3.60	2.17	3.52	3.08	7mm

Technical Specifications

SATA Interface – Read Intensive (RI) SFF & LFF Interface (Power & Height)

Option Kit SKU	Power Idle Time	Power Random Read	Power Random Write	Power Sequential Read	Power Sequential Write	Power Random R/W	Height
877752-B21	1.31	2.69	4.60	2.31	4.70	3.76	7mm
877754-B21	1.31	2.69	4.60	2.31	4.70	3.76	7mm
877756-B21	1.29	2.69	4.60	2.31	4.70	3.76	7mm
877758-B21	1.29	2.77	5.23	2.35	4.89	4.10	7mm
877760-B21	1.29	2.77	5.23	2.35	4.86	4.10	7mm
877762-B21	1.29	2.77	5.23	2.35	4.86	4.10	7mm
877764-B21	1.35	3.00	5.44	2.50	5.28	4.28	7mm

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

Technical Specifications

SATA Interface – Mixed Use (MU) SFF & LFF Interface (Power & Height)

Option Kit SKU	Power Idle Time	Power Random Read	Power Random Write	Power Sequential Read	Power Sequential Write	Power Random R/W	Height
872344-B21	1.23	2.51	2.51	2.59	2.83	2.51	7mm
872346-B21	1.23	2.51	2.51	2.59	2.83	2.51	7mm
872348-B21	1.23	2.66	2.66	2.69	2.84	2.66	7mm
872350-B21	1.23	2.66	2.66	2.69	2.84	2.66	7mm
872352-B21	1.23	2.59	2.59	2.71	2.84	2.59	7mm
875470-B21	1.07	3.02	3.02	3.42	4.03	3.00	7mm
875474-B21	1.07	3.17	3.17	3.82	5.62	3.10	7mm
875478-B21	1.07	3.51	3.51	4.52	6.12	3.40	7mm
875480-B21	1.07	3.51	3.51	4.52	6.12	3.40	7mm
875483-B21	1.07	3.00	3.00	3.21	3.90	2.95	7mm
877776-B21	1.25	2.45	4.25	2.19	4.44	3.06	7mm
877782-B21	1.31	2.64	4.90	2.28	4.74	3.41	7mm
877784-B21	1.32	2.64	4.90	2.28	4.74	3.42	7mm
877788-B21	1.31	2.87	5.54	2.35	4.86	3.74	7mm
877790-B21	1.32	2.87	5.48	2.35	4.86	3.74	7mm
880295-B21	1.25	2.45	3.40	2.37	3.40	2.91	7mm

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

Technical Specifications

SATA Interface – Write Intensive (WI) SFF & LFF Interface (Power & Height)

Option Kit SKU	Power Idle Time	Power Random Read	Power Random Write	Power Sequential Read	Power Sequential Write	Power Random R/W	Height
872355-B21	1.23	2.51	2.51	2.59	2.83	2.51	7mm
872357-B21	1.23	2.51	2.51	2.59	2.83	2.51	7mm
872359-B21	1.23	2.66	2.66	2.66	2.68	2.66	7mm
872361-B21	1.23	2.66	2.66	2.66	2.68	2.66	7mm
872363-B21	1.25	2.66	2.66	2.71	2.87	2.65	7mm
872365-B21	1.28	2.65	2.65	2.71	2.87	2.65	7mm

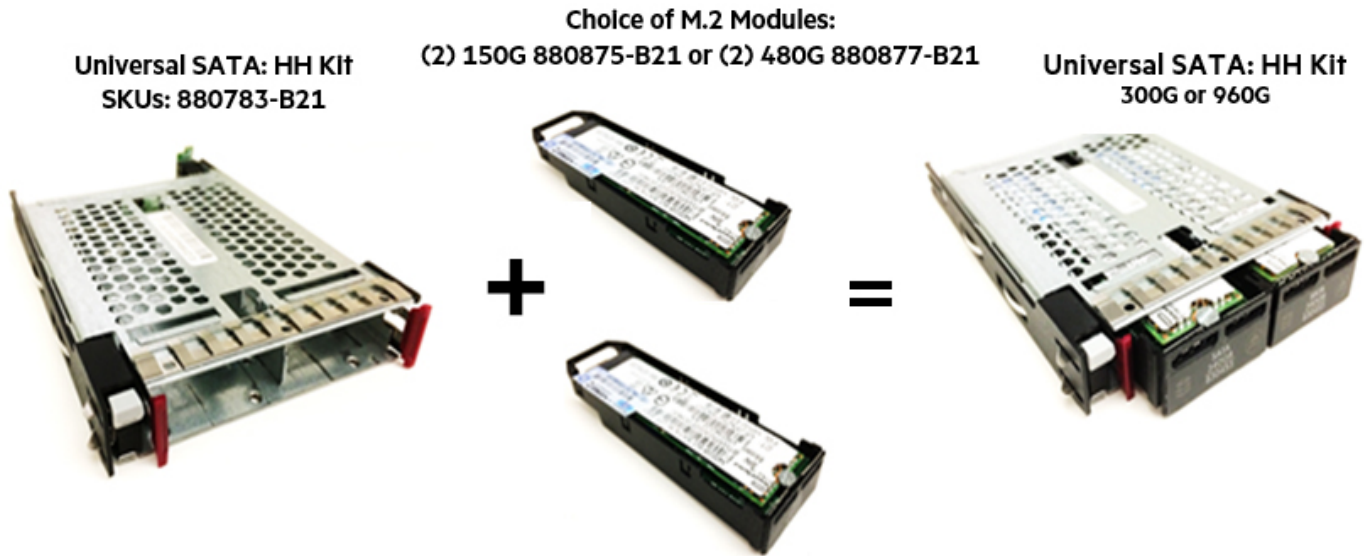
Technical Specifications

SATA – Read Intensive (RI) M.2 & M.2 eKits (Capacity, Workload, Carrier...)

Option Kit SKU	Short Description	Capacity	Workload Type	Interface Type	Form Factor	Plug Type	Carrier Type	Digitally Signed Firmware (DS)	Flash Type	Server Gen Supported (Select Platforms)
835563-B21	HPE 340GB SATA RI M.2 Kit	340	RI	SATA	M.2	Non-Hot Plug	AIC	Yes	MLC	Gen9, & 10
835565-B21	HPE 340GB SATA RI Dual M.2 Kit	340	RI	SATA	M.2	Non-Hot Plug	AIC	Yes	MLC	Gen9, & 10
875317-B21	HPE 150GB SATA RI M.2 2280 DS SSD	150	RI	SATA	M.2	N/A	N/A	Yes	MLC	Gen9
875319-B21	HPE 480GB SATA RI M.2 2280 DS SSD	480	RI	SATA	M.2	N/A	N/A	Yes	MLC	Gen9
875498-B21	HPE 480GB SATA RI M.2 2280 DS SSD	480	RI	SATA	M.2	N/A	N/A	Yes	TLC	Gen9, & 10
875500-B21	HPE 960GB SATA RI M.2 2280 DS SSD	960	RI	SATA	M.2	N/A	N/A	Yes	TLC	Gen9, & 10
878783-B21* (See Illustration Below)	HPE Universal SATA HH M.2 Kit	N/A	N/A	SATA	M.2	Non-Hot Plug	N/A	N/A	N/A	Gen9, & 10
880875-B21* (See Illustration Below)	HPE 2x150GB SATA RI M.2 SFF SCM DS SSD	300	RI	SATA	M.2	Hot-Plug	SCM	Yes	MLC	Gen9 & 10
880877-B21* (See Illustration Below)	HPE 2x480GB SATA RI M.2 SFF SCM DS SSD	960	RI	SATA	M.2	Hot-Plug	SCM	Yes	MLC	Gen9 & 10

NOTE: * Refers to a Universal SATA HH M.2 Kit. – Please see to illustration on page 44.

Technical Specifications



NOTE: Please reference QuickSpecs details for SKU 880875-B21 or SKU 880877-B21 for specific performance and power details.

Technical Specifications

SATA – Mixed Use (MU) M.2 & M.2 eKits (Capacity, Workload, Carrier...)

Option Kit SKU	Short Description	Capacity	Workload Type	Interface Type	Form Factor	Plug Type	Carrier Type	Digitally Signed Firmware (DS)	Flash Type	Server Gen Supported (Select Platforms)
875488-B21	HPE 240GB SATA MU M.2 2280 DS SSD	240	MU	SATA	M.2	N/A	N/A	Yes	TLC	Gen9, & 10
875490-B21	HPE 480GB SATA MU M.2 2280 DS SSD	480	MU	SATA	M.2	N/A	N/A	Yes	TLC	Gen9, & 10
875492-B21	HPE 960GB SATA MU M.2 2280 DS SSD	960	MU	SATA	M.2	N/A	N/A	Yes	TLC	Gen9, & 10

SATA Interface – Read Intensive (RI) M.2 & M2e (Speeds & Feeds)

NOTE: Reference column VI-1 when comparing RI SSDs, & column VI-2 for comparing MU & WI SSDs.

Option Kit SKU	Endurance DDPD	MAX Seq. Reads Throughput (MiB/s)	MAX Seq. Writes Throughput (MiB/s)	Random Read Average Latency uSec (4KiB,Q1)	Random Write Average Latency uSec (4KiB,Q1)	Random Read IOPS (4KiB, Q=16)	Random Write IOPS (4KiB, Q=16)	MAX Random Read IOPS (4KiB)	MAX Random Write IOPS (4KiB)	4KiB Random 70% Read / 30% Write, Queue 32 Performance (IOPS) VI-1	4KiB Random 50% Read / 50% Write, Queue 32 Performance (IOPS) VI-2
835563-B21	0.3	455	320	120	70	71,000	14,500	72,000 @Q32	14,500 @Q1	32,000	25,000
835565-B21*	0.3	455	320	120	70	71,000	14,500	72,000 @Q32	14,500 @Q1	32,000	25,000
875317-B21	0.3	190	175	150	175	41,000	6,000	44,500 @Q32	6,000 @Q4	12,500	10,000
875319-B21	0.3	365	275	100	100	49,000	11,900	50,000 @Q32	11,900 @Q4	24,000	19,000
875498-B21	0.5	500	425	130	40	61,000	46,000	67,000 @Q32	46,000 @Q4	50,000	48,500
875500-B21	0.5	500	465	130	40	61,000	41,000	67,000 @Q32	41,000 @Q4	50,000	41,500
878783-B21*	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD
880875-B21*	3.0	500	240	120	48	59,000	37,000	65,000 @Q32	37,000 @Q14	45,000	43,000
880877-B21*	3.0	500	240	120	48	59,000	37,000	65,000 @Q32	37,000 @Q14	45,000	43,000

NOTE: * Refers to a Universal SATA HH M.2 Kit. – Please see to illustration on page 44.

NOTE: MD indicates that performance detail is dependent upon M.2 used with Universal Kit.

Technical Specifications

SATA Interface – Mixed Use (MU) M.2 & M2e (Speeds & Feeds)

NOTE: Reference column VI-1 when comparing RI SSDs, & column VI-2 for comparing MU & WI SSDs.

Option Kit SKU	Endurance DWPD	MAX Seq. Reads Throughput (MiB/s)	MAX Seq. Writes Throughput (MiB/s)	Random Read Average Latency uSec (4KiB,Q1)	Random Write Average Latency uSec (4KiB,Q1)	Random Read IOPS (4KiB, Q=16)	Random Write IOPS (4KiB, Q=16)	MAX Random Read IOPS (4KiB)	MAX Random Write IOPS (4KiB)	4KiB Random 70% Read / 30% Write, Queue 32 Performance (IOPS) VI-1	4KiB Random 50% Read / 50% Write, Queue 32 Performance (IOPS) VI-2
875488-B21	1.5	500	260	135	40	60,000	34,000	66,000 @Q32	34,000 @Q4	40,000	36,500
875490-B21	1.5	500	400	130	40	60,000	34,000	68,000 @Q32	34,000 @Q4	45,000	40,000
875492-B21	2.6	500	465	130	40	60,000	30,000	68,000 @Q31	30,000 @Q4	40,000	30,000

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

Technical Specifications

SATA Interface – Read Intensive (RI) M.2 & M2e Interface (Power & Height)

Option Kit SKU	Power Idle Time	Power Random Read	Power Random Write	Power Sequential Read	Power Sequential Write	Power Random R/W	Height
835563-B21	1.64	1.91	1.91	1.85	2.15	1.91	Half Height/Half Length
835565-B21	1.64	1.91	1.91	1.85	2.15	1.91	Half Height/Half Length
875317-B21	.72	2.06	2.06	2.24	2.55	2.06	2280 M.2
875319-B21	.67	2.44	2.44	2.91	3.33	2.44	2280 M.2
875498-B21	1.07	3.02	3.02	3.42	4.03	3.00	2280 M.2
875500-B21	1.07	3.17	3.17	3.82	5.62	3.10	2280 M.2
878783-B21*	MD	MD	MD	MD	MD	N/A	Half Height/Half Length
880875-B21*	1.44	4.12	4.12	4.48	5.10	4.12	2280 M.2
880877-B21*	1.34	4.88	4.88	5.82	6.66	4.88	2280 M.2

NOTE: MD indicates that performance detail is dependent upon M.2 used with Universal Kit.

SATA Interface – Mixed Use (MU) M.2 & M2e Interface (Power & Height)

Option Kit SKU	Power Idle Time	Power Random Read	Power Random Write	Power Sequential Read	Power Sequential Write	Power Random R/W	Height
875488-B21	1.07	3.00	3.00	3.21	3.90	2.95	2280 M.2
875490-B21	1.07	3.02	3.02	3.42	4.03	3.00	2280 M.2
875492-B21	1.07	3.17	3.17	3.82	5.62	3.10	2280 M.2

NOTE: * Refers to a Universal SATA HH M.2 Kit. – Please see to illustration on page 44.

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

Technical Specifications

Previous To Current Workload Naming Conversion

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

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

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 noted earlier in this document within SSD SKU Decoder.

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
			Low Profile (LP)	LFF
	Non-Hot Plug	Non-Smart	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 Card	N/A

Technical Specifications

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.

NOTE: 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.

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 <http://www.hp.com/go/hpsc>.

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.

NOTE: 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.

Warranty / Service Coverage

For ProLiant servers and storage systems, the service on the main product covers HP-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.

Service and Support

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 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>

SSD Selection

To streamline the configuration process for HPE ProLiant Gen9 servers and to provide the best product availability, HPE recommends SSDs from the list located here: <http://www.hpe.com/products/recommend>

Best product availability is limited to US, Canada, and Latin America at this time.

To further assist with configuration, HPE also offers an SSD Selector Tool located here: <http://ssd.hpe.com>

Supporting Helpful Links

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

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

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

<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>

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 (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the [Hewlett Packard Enterprise web site](#). 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
04-Dec-2017	From Version 12 to 13	Added	New drive model was added.
		Changed	Technical Specifications were revised.
02-Oct-2017	From Version 11 to 12	Changed	Technical Specifications were revised.
25-Sep-2017	From Version 10 to 11	Added	New drive models were added.
		Changed	Technical Specifications were revised. The title was changed to HPE Solid State Disk Drives (SSD & Add-In Cards).
14-Aug-2017	From Version 9 to 10	Changed	Technical Specifications were revised
07-Aug-2017	From Version 8 to 9	Changed	Technical Specifications were revised
17-Jul-2017	From Version 7 to 8	Changed	Technical Specifications were revised
28-Jun-2017	From Version 6 to 7	Changed	Technical Specifications were revised.
12-Jun-2017	From Version 5 to 6	Changed	Technical Specifications were revised.
06-Jun-2017	From Version 4 to 5	Changed	Technical Specifications were revised.
17-Mar-2017	From Version 3 to 4	Changed	SSD Selection verbiage was revised.
10-Mar-2017	From Version 2 to 3	Changed	Edits to tables and various verbiage.
17-Feb-2017	From Version 1 to 2	Changed	Technical Specifications were revised.
13-Feb-2017	Version 1	Added	New QuickSpecs.



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

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