

# HPE Hard Disk Drives QuickSpecs

**HPE Hard Disk Drives (HDDs) are engineered to deliver optimum performance, reliability, compatibility, and data security across HPE server and storage platforms making them the preferred choice for workloads ranging from small businesses to large enterprise.**

HPE HDDs are available for three types of workloads: Enterprise high-performance (Mission Critical), Midline high-capacity (Business Critical) and Entry-level storage solutions.

## Overview

# HPE Hard Disk Drives

## Performance

- HPE HDDs are tuned and tested with on-going quality monitoring throughout their lifecycle
- HPE optimizes HDD firmware for predictable and consistent HDD performance
- Full portfolio of high-performance Mission Critical and high-capacity Business Critical drive solutions

## Reliability

- Hewlett Packard Enterprise's industry-leading rigorous testing and qualification program, backed by 2.4 million test hours
- Pre-failure Alerts with HPE Smart Array Controller, Systems Insight Manager, and HPE Smart firmware
- 3x faster firmware and software updates with HPE Service Pack for ProLiant (HPE SPP)
- Best-in-class supply assurance program reduces downtime due to product delays

## Compatibility

- Simplify HDD planning and standardize HDDs across HPE server and storage solutions
- Common HDD carriers mean re-purposing drives in other servers is a snap

## Security

- HPE Digitally Signed Firmware helps prevent malicious attacks
- HPE Smart Array SR Secure Encryption is a FIPS 140-2 Level 1 validated enterprise class controller-based encryption solution for data-at-rest on all SAS/SATA drives
- HPE Smart Carriers report drive activity and health
- Self-Encrypting Drives (SEDs) provide hardware-based data encryption. All data that is committed to the media is encrypted with either a 128-bit or 256-bit key.

HPE HDDs are available for three types of workloads: Enterprise high-performance (Mission Critical), Midline high-capacity (Business Critical) and Entry-level storage solutions.

## Overview

**HPE HDD portfolio: Proven performance for every workload**

Class	Mission Critical (Enterprise)	Business Critical (Midline)	Entry*
Workload	High	Medium	Low
Usage	<b>Mission-critical, high I/O:</b> Email, enterprise resource planning (ERP), customer relationship management (CRM)	<b>Business Critical, High capacity, high availability storage:</b> Backup, archive, reference	<b>Low I/O:</b> Boot and backup
Interface	SAS 12 Gb	SAS 12 Gb SATA 6 Gb	SATA 6 Gb
RPM	10000	7200	7200
Form factor	SFF	LFF	LFF
Capacities	Up to 2.4 TB	Up to 26 TB	Up to 4 TB
Warranty	3 years	1 year	1 year

**Notes:** \* Supported on select HPE ProLiant servers only.

**What's New**

- Introduced largest capacity 26 TB in Business Critical 7.2K LFF Low-Profile Carrier Portfolio.
  - P80577-B21HPE 26 TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD
  - P80578-B21HPE 26 TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD

**Notes:** A -B21 suffix may be replaced with -H21 and -K21 to support across different server family lines. Please refer to the appropriate Server QuickSpecs for full compatibility details

**Firmware Updates**

Digitally Signed Firmware – Prevent unauthorized access to your data with the expansion of integrated HPE Digitally Signed Firmware (DS) on new drives; 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 protect data-at-rest on any bulk attached storage. This solution meets stringent compliance regulations such as HIPAA and Sarbanes-Oxley.

Standard Features

Models							
Category	Interface	Form Factor	Format	Capacity	HDD Carrier		
					Smart Carrier SKU	Low Profile SKU	Basic Carrier SKU
Mission Critical (10K rpm)	SAS 12G	SFF	512n	300GB	872475-B21		P40430-B21
				600GB	872477-B21		P53561-B21
				1.2TB	872479-B21		P28586-B21
		SFF	512e	1.8TB	872481-B21		P53562-B21
				2.4TB	881457-B21		P28352-B21
		SFF	512n	1.2TB			P28622-B21
				2.4TB			P28618-B21
Mission Critical (10K rpm) Self-Encrypting Drives (SED)	SAS 12G	SFF	512n	1.2TB			P28622-B21
		SFF	512e	2.4TB			P28618-B21

Standard Features

Models							
Category	Interface	Form Factor	Format	Capacity	HDD Carrier		Basic Carrier SKU
					Smart Carrier SKU	Low Profile SKU	
Business Critical (7.2K rpm)	SAS 12G	LFF	512n	2TB		833926-B21	
				4TB	872487-B21	833928-B21	
		LFF	512e	6TB		861746-B21	
				8TB	819201-B21	834031-B21	
				12TB	881779-B21 <sup>He</sup>	881781-B21 <sup>He</sup>	
				16TB		P23608-B21 <sup>He</sup>	
				20TB		P53553-B21 <sup>He</sup>	
				24TB		P68583-B21 <sup>He</sup>	
				26TB		P80577-B21 <sup>He</sup>	
				861686-B21			
		LFF	512n	1TB		861681-B21	
				2TB		861683-B21	
				4TB	872491-B21	861683-B21	
				512e	6TB		
8TB	819203-B21				834028-B21		
12TB	881785-B21 <sup>He</sup>				881787-B21 <sup>He</sup>		
16TB					P23449-B21 <sup>He</sup>		
20TB				P53554-B21 <sup>He</sup>			
24TB		P68585-B21 <sup>He</sup>					
26TB		P80578-B21 <sup>He</sup>					

## Standard Features

Models					
Category	Interface	Form Factor	Format	Capacity	HDD Carrier
Entry (7.2K)	SATA 6G		512n	HPE 1TB SATA 6G Business Critical 7.2K LFF RW 1- year Warranty Multi Vendor HDD	801882-B21
				HPE 4TB SATA 6G Business Critical 7.2K LFF RW 1- year Warranty Multi Vendor HDD	801888-B21
<b>Notes:</b>					
<ul style="list-style-type: none"> <li>– <sup>He</sup> Helium Drive.</li> <li>– A -B21 suffix may be replaced with -H21 and -K21 to support across different server family lines. Please refer to the appropriate Server QuickSpecs for full compatibility details.</li> </ul>					

## What is HPE Hard disk drive?

Hewlett Packard Enterprise drives are tuned to deliver optimum performance for HPE Servers. They undergo an intense qualification process to eliminate firmware and O/S incompatibilities. HPE drive firmware is designed to maximize both functionality and compatibility with HPE ProLiant Rack and Tower Servers, Apollo family, Blade and Synergy Platforms.

## Drive Quality and Performance

While selecting the drives in our HPE portfolio, only those drives with a performance level suitable for an enterprise environment are selected through the Hewlett Packard Enterprise qualification process and are labeled "best-in-class."

## Standard Features

### Pre-Failure Alert

When used in conjunction with a SMART Array Controller and Systems Insight Manager, the SMART capable firmware in HPE hard drives enables extensive fault prediction capabilities. If potential problems develop in one of the drives, the Smart Array Controller, Systems Insight Manager and/or SMART hard disk drive lets you know in advance so you can have the drive replaced, before it fails, under warranty.

**Notes:** All drives are protected by a Pre-Failure Alert when used with a HPE Smart Array controller and Systems Insight Manager, allowing hard drives to be replaced before failure under warranty. In addition, all drives are covered by a one or three-year limited on-site warranty period for the system in which they are installed. The drive warranty is automatically uplifted when used in a server or MSA for which a HPE Services service contract is purchased. Please see the Support Services section below for additional services.

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### Smart Carriers

HPE Hard Drives with smart carriers are designed to provide an interface to communicate critical status and management information. System status LED icons and a spinning activity ring reflecting the data-writing process notify users of the current system status. A blue LED located behind the handle can be activated remotely to guide users to a specific drive tray, while a do-not-remove icon positioned on the tray's eject button lights up to warn users when the removal of the drive would cause data loss.

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### Helium Drives

Although hard drives are sealed, they have air inside. Air can create turbulence-induced risk vibrations which can limit the storage density of HDDs. Newer helium-filled drives virtually eliminate turbulence because helium is 1/7th as dense as air. This lower density allows the read/write mechanism to spin more easily and precisely, with less drag. Less internal turbulence means the drive platters can be closer together, allowing more platters and increasing the capacity potential in the same space. Less turbulence also means helium drives tend to use less power, and run cooler and quieter.

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### Support Matrix

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

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

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### Warranty

Enterprise hard drives have a 3 year limited warranty regardless of the warranty period for the system in which they are installed.

Midline hard drives have a 1 year limited warranty regardless of the warranty period for the system in which they are installed.

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Service and Support

For the most up-to-date information on HPE Services, please refer to the [HPE Services – Supplemental QuickSpecs](#), which provides a comprehensive and regularly updated overview of available services.

## Technical Specifications

## HDD Specifications

Mission Critical (10K rpm)									
<b>Form Factor</b>		SFF (2.5")		<b>Carrier</b>		Smart Carrier (SC)			
<b>Rotational Speed</b>		10000 rpm		<b>Dimensions</b>					
<b>Interface</b>		SAS		<b>Height</b>		0.62 in (15.6 mm)			
<b>Transfer Rate Synchronous (Max)</b>		12Gb/sec		<b>Width</b>		2.98 in (75.7 mm)			
<b>Bytes/Sector</b>		512		<b>Depth</b>		4.67 in (118.7 mm)			
<b>Operating Temperature</b>		50° to 95° F (10° to 35°C)							
<b>SKU</b>	<b>SKU Description</b>	<b>OD Media Rate, Max Sequential Throughput (MiB/s)</b>	<b>128Kib Random Rd (IOPs)</b>	<b>128Kib Random 70% RD/ 30% WT (IOPs)</b>	<b>128Kib Random 50% RD/ 50% WT (IOPs)</b>	<b>Power Idle Time (Watts)</b>	<b>Power Random R/W (Watts)</b>	<b>Power Sequential Read (Watts)</b>	<b>Power Sequential Write (Watts)</b>
872475-B21	HPE 300GB SAS 12G Mission Critical 10K SFF SC 3-year Warranty Multi Vendor HDD	195	170	170	170	4.7	6.1	6.3	6.4
872477-B21	HPE 600GB SAS 12G Mission Critical 10K SFF SC 3-year Warranty Multi Vendor HDD	195	165	165	165	4.7	6.1	6.3	6.4
872479-B21	HPE 1.2TB SAS 12G Mission Critical 10K SFF SC 3-year Warranty Multi Vendor HDD	195	165	165	165	4.0	7.5	6.5	5.9
872481-B21	HPE 1.8TB SAS 12G Mission Critical 10K SFF SC 3-year Warranty 512e Multi Vendor HDD	230	165	170	185	4.6	6.9	6.0	5.8
881457-B21	HPE 2.4TB SAS 12G Mission Critical 10K SFF SC 3-year Warranty 512e Multi Vendor HDD	255	160	180	195	4.8	6.0	7.8	6.6

## Technical Specifications

Mission Critical (10K rpm)									
<b>Form Factor</b>		SFF (2.5")		<b>Carrier</b>		Basic Carrier (BC)			
<b>Rotational Speed</b>		10000 rpm		<b>Dimensions</b>					
<b>Interface</b>		SAS		<b>Height</b>		0.62 in (15.6 mm)			
<b>Transfer Rate Synchronous (Max)</b>		12Gb/sec		<b>Width</b>		2.98 in (75.7 mm)			
<b>Bytes/Sector</b>		512		<b>Depth</b>		4.67 in (118.7 mm)			
<b>Operating Temperature</b>		50° to 95° F (10° to 35°C)							
<b>SKU</b>	<b>SKU Description</b>	<b>OD Media Rate, Max Sequential Throughput (MiB/s)</b>	<b>128Kib Random Rd (IOPs)</b>	<b>128Kib Random 70% RD/30% WT (IOPs)</b>	<b>128Kib Random 50% RD/50% WT (IOPs)</b>	<b>Power Idle Time (Watts)</b>	<b>Power Random R/W (Watts)</b>	<b>Power Sequential Read (Watts)</b>	<b>Power Sequential Write (Watts)</b>
P40430-B21	HPE 300GB SAS 12G Mission Critical 10K SFF BC 3-year Warranty Multi Vendor HDD	195	170	170	170	4.7	6.9	6.3	6.4
P53561-B21	HPE 600GB SAS 12G Mission Critical 10K SFF BC 3-year Warranty Multi Vendor HDD	200	165	165	165	4.7	6.1	6.3	6.4
P28586-B21	HPE 1.2TB SAS 12G Mission Critical 10K SFF BC 3-year Warranty Multi Vendor HDD	195	165	165	165	4.1	7.5	6.5	6.1
P53562-B21	HPE 1.8TB SAS 12G Mission Critical 10K SFF BC 3-year Warranty 512e Multi Vendor HDD	260	165	180	190	2.6	3.6	4.4	3.9
P28352-B21	HPE 2.4TB SAS 12G Mission Critical 10K SFF BC 3-year Warranty 512e Multi Vendor HDD	255	160	180	190	4.8	6	7.8	6.6

## Technical Specifications

Mission Critical (10K rpm) Self-Encrypting Drives (SED)										
<b>Form Factor</b>		SFF (2.5")			<b>Carrier</b>		Basic Carrier (BC)			
<b>Rotational Speed</b>		10000 rpm			<b>Dimensions</b>					
<b>Interface</b>		SAS			<b>Height</b>		0.62 in (15.6 mm)			
<b>Transfer Rate Synchronous (Max)</b>		12Gb/sec			<b>Width</b>		2.98 in (75.7 mm)			
<b>Bytes/Sector</b>		512			<b>Depth</b>		4.67 in (118.7 mm)			
<b>Operating Temperature</b>		50° to 95° F (10° to 35°C)								
<b>SKU</b>	<b>SKU Description</b>	<b>OD Media Rate, Max Sequential Throughput (MiB/s)</b>	<b>128Kib Random Rd (IOPs)</b>	<b>128Kib Random 70% RD/ 30% WT (IOPs)</b>	<b>128Kib Random 50% RD/ 50% WT (IOPs)</b>	<b>Power Idle Time (Watts)</b>	<b>Power Random R/W (Watts)</b>	<b>Power Sequential Read (Watts)</b>	<b>Power Sequential Write (Watts)</b>	
P28622-B21	HPE 1.2TB SAS 12G Mission Critical 10K SFF BC 3yr Wty FIPS 140-2 TAA-compliant HDD	250	170	170	170	2.6	3.6	4.4	3.9	
P28618-B21	HPE 2.4TB SAS 12G Mission Critical 10K SFF BC 3yr Wty 512e FIPS 140-2 TAA-compliant HDD	255	160	180	195	4.8	6.0	7.8	6.6	

## Technical Specifications

Business Critical (7.2K rpm)									
<b>Form Factor</b>		LFF (3.5")		<b>Carrier</b>		Smart Carrier (SC)			
<b>Rotational Speed</b>		7200 rpm		<b>Dimensions</b>					
<b>Interface</b>		SAS		<b>Height</b>		1.06 in (26.8 mm)			
<b>Transfer Rate Synchronous (Max)</b>		12Gb/sec		<b>Width</b>		4.16 in (105.8 mm)			
<b>Bytes/Sector</b>		512		<b>Depth</b>		6.69 in (170.0 mm)			
<b>Operating Temperature</b>		50° to 95° F (10° to 35°C)							
<b>SKU</b>	<b>SKU Description</b>	<b>OD Media Rate, Max Sequential Throughput (MiB/s)</b>	<b>128Kib Random Rd (IOPs)</b>	<b>128Kib Random 70% RD/ 30% WT (IOPs)</b>	<b>128Kib Random 50% RD/ 50% WT (IOPs)</b>	<b>Power Idle Time (Watts)</b>	<b>Power Random R/W (Watts)</b>	<b>Power Sequential Read (Watts)</b>	<b>Power Sequential Write (Watts)</b>
872485-B21	HPE 2TB SAS 12G Business Critical 7.2K LFF SC 1-year Warranty Multi Vendor HDD	190	100	100	100	8.8	12.2	10.8	10.5
872487-B21	HPE 4TB SAS 12G Business Critical 7.2K LFF SC 1-year Warranty Multi Vendor HDD	190	100	100	100	8.8	12.2	10.8	10.5
861754-B21	HPE 6TB SAS 12G Business Critical 7.2K LFF SC 1-year Warranty 512e Multi Vendor HDD	200	100	105	110	8.8	12.2	10.8	10.5
819201-B21	HPE 8TB SAS 12G Business Critical 7.2K LFF SC 1-year Warranty 512e Multi Vendor HDD	230	100	110	110	8.3	11.3	10.6	10.2
881779-B21	HPE 12TB SAS 12G Business Critical 7.2K LFF SC 1-year Warranty Helium 512e Multi Vendor HDD	235	105	115	125	6.3	8.7	8.0	8.7
P23863-B21	HPE 16TB SAS 12G Business Critical 7.2K LFF SC 1-year Warranty Helium 512e ISE Multi Vendor HDD	250	105	115	125	5.7	9.6	8.7	9.1
P53552-B21	HPE 20TB SAS 12G Business Critical 7.2K LFF SC 1-year Warranty Helium 512e ISE Multi Vendor HDD	260	105	118	130	6.1	9.9	8.6	8.9

## Technical Specifications

Business Critical (7.2K rpm)									
<b>Form Factor</b>		LFF (3.5")		<b>Carrier</b>		Low Profile (LP)			
<b>Rotational Speed</b>		7200 rpm		<b>Dimensions</b>					
<b>Interface</b>		SAS		<b>Height</b>		1.028 in (26.1 mm)			
<b>Transfer Rate Synchronous (Max)</b>		12Gb/sec		<b>Width</b>		4.15 in (105.5 mm)			
<b>Bytes/Sector</b>		512		<b>Depth</b>		6.16 in (156.58 mm)			
<b>Operating Temperature</b>		50° to 95° F (10° to 35°C)							
<b>SKU</b>	<b>SKU Description</b>	<b>OD Media Rate, Max Sequential Throughput (MiB/s)</b>	<b>128Kib Random Rd (IOPs)</b>	<b>128Kib Random 70% RD/ 30% WT (IOPs)</b>	<b>128Kib Random 50% RD/ 50% WT (IOPs)</b>	<b>Power Idle Time (Watts)</b>	<b>Power Random R/W (Watts)</b>	<b>Power Sequential Read (Watts)</b>	<b>Power Sequential Write (Watts)</b>
833926-B21	HPE 2TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	195	100	100	100	8.8	12.2	10.8	10.5
833928-B21	HPE 4TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	195	100	100	100	8.8	12.2	10.8	10.5
861746-B21	HPE 6TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty 512e Multi Vendor HDD	215	100	110	110	8.8	12.2	10.8	10.5
834031-B21	HPE 8TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty 512e Multi Vendor HDD	230	100	110	110	8.3	11.3	10.6	10.2
881781-B21	HPE 12TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e Multi Vendor HDD	235	105	115	125	6.3	8.7	8.0	8.7
P23608-B21	HPE 16TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	250	105	115	125	5.7	9.6	8.7	9.1

## Technical Specifications

Business Critical (7.2K rpm)									
<b>Form Factor</b>		LFF (3.5")		<b>Carrier</b>		Low Profile (LP)			
<b>Rotational Speed</b>		7200 rpm		<b>Dimensions</b>					
<b>Interface</b>		SAS		<b>Height</b>		1.028 in (26.1 mm)			
<b>Transfer Rate Synchronous (Max)</b>		12Gb/sec		<b>Width</b>		4.15 in (105.5 mm)			
<b>Bytes/Sector</b>		512		<b>Depth</b>		6.16 in (156.58 mm)			
<b>Operating Temperature</b>		50° to 95° F (10° to 35°C)							
SKU	SKU Description	OD Media Rate, Max Sequential Throughput (MiB/s)	128Kib Random Rd (IOPs)	128Kib Random 70% RD/ 30% WT (IOPs)	128Kib Random 50% RD/ 50% WT (IOPs)	Power Idle Time (Watts)	Power Random R/W (Watts)	Power Sequential Read (Watts)	Power Sequential Write (Watts)
P53553-B21	HPE 20TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	260	105	118	130	6.1	9.9	8.6	8.9
P68583-B21	HPE 24TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	271	106	135	164	5.9	9.6	8.7	9.3
P80577-B21	HPE 26TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	278	117	152	197	5.9	9.6	8.0	7.9

## Technical Specifications

Business Critical (7.2K rpm)									
<b>Form Factor</b>		LFF (3.5")		<b>Carrier</b>		Smart Carrier (SC)			
<b>Rotational Speed</b>		7200 rpm		<b>Dimensions</b>					
<b>Interface</b>		SATA		<b>Height</b>		1.06 in (26.8 mm)			
<b>Transfer Rate Synchronous (Max)</b>		6Gb/sec		<b>Width</b>		4.16 in (105.8 mm)			
<b>Bytes/Sector</b>		512		<b>Depth</b>		6.69 in (170.0 mm)			
<b>Operating Temperature</b>		50° to 95° F (10° to 35°C)							
<b>SKU</b>	<b>SKU Description</b>	<b>OD Media Rate, Max Sequential Throughput (MiB/s)</b>	<b>128Kib Random Rd (IOPs)</b>	<b>128Kib Random 70% RD/ 30% WT (IOPs)</b>	<b>128Kib Random 50% RD/ 50% WT (IOPs)</b>	<b>Power Idle Time (Watts)</b>	<b>Power Random R/W (Watts)</b>	<b>Power Sequential Read (Watts)</b>	<b>Power Sequential Write (Watts)</b>
861691-B21	HPE 1TB SATA 6G Business Critical 7.2K LFF SC 1-year Warranty Multi Vendor HDD	185	90	90	90	8.8	12.2	10.8	10.5
872489-B21	HPE 2TB SATA 6G Business Critical 7.2K LFF SC 1-year Warranty Multi Vendor HDD	185	90	90	90	8.8	12.2	10.8	10.5
872491-B21	HPE 4TB SATA 6G Business Critical 7.2K LFF SC 1-year Warranty Multi Vendor HDD	190	100	100	100	8.8	12.2	10.8	10.5
861750-B21	HPE 6TB SATA 6G Business Critical 7.2K LFF SC 1-year Warranty 512e Multi Vendor HDD	215	100	100	105	8.8	12.2	10.8	10.5
819203-B21	HPE 8TB SATA 6G Business Critical 7.2K LFF SC 1-year Warranty 512e Multi Vendor HDD	230	100	110	110	7.2	10.8	10.1	9.8
881785-B21	HPE 12TB SATA 6G Business Critical 7.2K LFF SC 1-year Warranty Helium 512e Multi Vendor HDD	235	105	115	125	6.3	8.5	8.2	8.1
P23857-B21	HPE 16TB SATA 6G Business Critical 7.2K LFF SC 1-year Warranty Helium 512e ISE Multi Vendor HDD	258	105	115	125	5.5	9.1	7.8	8.4
P53555-B21	HPE 20TB SATA 6G Business Critical 7.2K LFF SC 1-year Warranty Helium 512e ISE Multi Vendor HDD	249	110	118	130	5.8	9.3	8.1	8.6

## Technical Specifications

Business Critical (7.2K rpm)									
<b>Form Factor</b>		LFF (3.5")		<b>Carrier</b>		Low Profile (LP)			
<b>Rotational Speed</b>		7200 rpm		<b>Dimensions</b>					
<b>Interface</b>		SATA		<b>Height</b>		1.028 in (26.1 mm)			
<b>Transfer Rate Synchronous (Max)</b>		6Gb/sec		<b>Width</b>		4.15 in (105.5 mm)			
<b>Bytes/Sector</b>		512		<b>Depth</b>		6.16 in (156.58 mm)			
<b>Operating Temperature</b>		50° to 95° F (10° to 35°C)							
<b>SKU</b>	<b>SKU Description</b>	<b>OD Media Rate, Max Sequential Throughput (MiB/s)</b>	<b>128Kib Random Rd (IOPs)</b>	<b>128Kib Random 70% RD/ 30% WT (IOPs)</b>	<b>128Kib Random 50% RD/ 50% WT (IOPs)</b>	<b>Power Idle Time (Watts)</b>	<b>Power Random R/W (Watts)</b>	<b>Power Sequential Read (Watts)</b>	<b>Power Sequential Write (Watts)</b>
861686-B21	HPE 1TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	185	90	90	90	8.8	12.2	10.8	10.5
861681-B21	HPE 2TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	185	90	90	90	8.8	12.2	10.8	10.5
861683-B21	HPE 4TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	195	100	100	100	8.8	12.2	10.8	10.5
861742-B21	HPE 6TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty 512e Multi Vendor HDD	215	100	100	105	8.8	12.2	10.8	10.5
834028-B21	HPE 8TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty 512e Multi Vendor HDD	230	100	110	110	7.2	10.8	10.1	9.8
881787-B21	HPE 12TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e Multi Vendor HDD	235	105	115	125	6.3	8.5	7.7	8.1
P23449-B21	HPE 16TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	258	105	115	125	5.5	9.1	7.8	8.4
P53554-B21	HPE 20TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	249	110	118	130	5.8	9.3	8.1	8.6

## Technical Specifications

Business Critical (7.2K rpm)									
<b>Form Factor</b>		LFF (3.5")		<b>Carrier</b>		Low Profile (LP)			
<b>Rotational Speed</b>		7200 rpm		<b>Dimensions</b>					
<b>Interface</b>		SATA		<b>Height</b>		1.028 in (26.1 mm)			
<b>Transfer Rate Synchronous (Max)</b>		6Gb/sec		<b>Width</b>		4.15 in (105.5 mm)			
<b>Bytes/Sector</b>		512		<b>Depth</b>		6.16 in (156.58 mm)			
<b>Operating Temperature</b>		50° to 95° F (10° to 35°C)							
<b>SKU</b>	<b>SKU Description</b>	<b>OD Media Rate, Max Sequential Throughput (MiB/s)</b>	<b>128Kib Random Rd (IOPs)</b>	<b>128Kib Random 70% RD/ 30% WT (IOPs)</b>	<b>128Kib Random 50% RD/ 50% WT (IOPs)</b>	<b>Power Idle Time (Watts)</b>	<b>Power Random R/W (Watts)</b>	<b>Power Sequential Read (Watts)</b>	<b>Power Sequential Write (Watts)</b>
P68585-B21	HPE 24TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	273	111	140	171	5.6	9.4	8.6	8.7
P80578-B21	HPE 26TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	277	116	154	199	5.6	9.4	7.7	7.6

## Technical Specifications

Entry									
<b>Form Factor</b>		LFF (3.5")		<b>Carrier</b>		Non Hot Plug Carrier (RW)			
<b>Rotational Speed</b>		7200 rpm		<b>Dimensions</b>					
<b>Interface</b>		SATA		<b>Height</b>		1.028 in (26.1 mm)			
<b>Transfer Rate Synchronous (Max)</b>		6Gb/sec		<b>Width</b>		4.00 in (101.6 mm)			
<b>Bytes/Sector</b>		512		<b>Depth</b>		5.75 in (146.0 mm)			
<b>Operating Temperature</b>		50° to 95° F (10° to 35°C)							
<b>SKU</b>	<b>SKU Description</b>	<b>OD Media Rate, Max Sequential Throughput (MiB/s)</b>	<b>128Kib Random Rd (IOPs)</b>	<b>128Kib Random 70% RD/ 30% WT (IOPs)</b>	<b>128Kib Random 50% RD/ 50% WT (IOPs)</b>	<b>Power Idle Time (Watts)</b>	<b>Power Random R/W (Watts)</b>	<b>Power Sequential Read (Watts)</b>	<b>Power Sequential Write (Watts)</b>
801882-B21	HPE 1TB SATA 6G Business Critical 7.2K LFF RW 1-year Warranty Multi Vendor HDD	160	95	95	95	8.8	12.2	10.8	10.5
801888-B21	HPE 4TB SATA 6G Business Critical 7.2K LFF RW 1-year Warranty Multi Vendor HDD	160	95	95	95	8.8	12.2	10.8	10.5

## Carrier Decoder

HPE Hard Disk Drives (HDDs) utilize a wide variety of carriers, which houses the HDD 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.

## Technical Specifications

Server Family	Server Model	Generation	SFF Carriers		LFF Carriers		
			Smart Carrier (SC)	Basic Carrier (BC)	Smart Carrier (SC)I	Low Profile (LP)	Raw Carrier(RW)/(AKA NPH)
HPE ProLiant	<b>HPE ProLiant DL</b>						
	HPE ProLiant DL20 Gen10 Plus Server	Gen10 Plus		Yes		Yes	Yes
	HPE ProLiant DL160 Gen10 Server	Gen10	Yes			Yes	
	HPE ProLiant DL180 Gen10 Server	Gen10	Yes			Yes	
	HPE ProLiant DL320 Gen11	Gen11		Yes		Yes	
	HPE ProLiant DL325 Gen10 Plus Server	Gen10 Plus	Yes			Yes	
	HPE ProLiant DL325 Gen10 Plus V2 Server	Gen10 Plus V2		Yes		Yes	
	HPE ProLiant DL325 Gen11 Server	Gen11		Yes		Yes	
	HPE ProLiant DL345 Gen10 Plus Server	Gen10 Plus		Yes		Yes	
	HPE ProLiant DL345 Gen11 Server	Gen11		Yes		Yes	
	HPE ProLiant DL360 Gen10 Server	Gen10	Yes		Yes		
	HPE ProLiant DL360 Gen10 Plus Server	Gen10 Plus		Yes		Yes	
	HPE ProLiant DL360 Gen11	Gen11		Yes		Yes	
	HPE ProLiant DL365 Gen10 Plus Server	Gen10 Plus		Yes		Yes	
	HPE ProLiant DL365 Gen11 Server	Gen11		Yes		Yes	
	HPE ProLiant DL380 Gen10 Server	Gen10	Yes		Yes		
	HPE ProLiant DL380 Gen10 Plus Server	Gen10 Plus		Yes		Yes	
	HPE ProLiant DL380 Gen11	Gen11		Yes		Yes	
	HPE ProLiant DL385 Gen10 Plus Server	Gen10 Plus	Yes			Yes	
	HPE ProLiant DL385 Gen10 Plus V2 Server	Gen10 Plus V2		Yes		Yes	
	HPE ProLiant DL385 Gen11 Server	Gen11		Yes		Yes	
	HPE ProLiant DL 560 Gen10 Server	Gen10	Yes				
	HPE ProLiant DL 580 Gen10 Server	Gen10	Yes				
	<b>HPE ProLiant ML</b>						
	HPE ProLiant MicroServer Gen10 Plus	Gen10 Plus					Yes
	HPE ProLiant ML30 Gen10 Plus Server	Gen10 Plus		Yes		Yes	Yes
	HPE ProLiant ML110 Gen10 Server	Gen10	Yes			Yes	Yes
	HPE ProLiant ML350 Gen10 Server	Gen10	Yes			Yes	Yes
	HPE ProLiant ML350 Gen11 Server	Gen11	Yes			Yes	

Technical Specifications

Server Family	Server Model	Generation	SFF Carriers		LFF Carriers		
			Smart Carrier (SC)	Basic Carrier (BC)	Smart Carrier (SC)I	Low Profile (LP)	Raw Carrier(RW)/(AKA NPH)
HPE Synergy	<b>HPE Synergy</b>						
	HPE Synergy 480 Gen10 Compute Module	Gen10	Yes				
	HPE Synergy 480 Gen10 Compute Module	Gen10 Plus	Yes				
	HPE Synergy 660 Gen10 Compute Module	Gen10	Yes				
	HPE Synergy D3940 Storage Module		Yes				

## HDD SKU Description Decoder

### Long Name

**HPE 20 TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD**

Brand	Storage Capacity	Interface Type/Interface Speed	Workload	Form Factor Type/Size	Carriers	Warranty	Special Features	Drive Type
HPE	300-9000 GB 1-20 TB	SATA/SAS 6G/12G	Mission Critical 15/10K Business Critical 7.2K (BC 7.2K)	SFF LFF	BC Basic Carrier LP Low Profile LPC Low Profile Converter QR Quick Release RW Raw Drive SC Smart SCC Smart Carrier Converter ST Standard STC Standard Carrier Converter	1yr Wty 1-year Warranty 3yr Wty 3-year Warranty	MV Multi Vendor SPL Special PVT Private FIPS Self- encrypting FIPS ISE Instant Secure Erase 512e 512e Emulation (no descriptor) 512n He Helium <i>*in priority order</i>	HDD

## **Environment friendly Products and Approach End-of life Management and Recycling**

Hewlett Packard Enterprise offers end-of-life, 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 European Union Waste Electrical and Electronic Equipment Directive [EU WEEE] (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.

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## Summary of Changes

Date	Version History	Action	Description of Change
04-May-2026	<a href="#">Version 39</a>	Changed	Service and Support and Technical Specifications sections were updated.
		Added	Updated GreenLake statement. Mission Critical (10K rpm) Self-Encrypting Drives (SED)
02-Feb-2026	<a href="#">Version 38</a>	Changed	Overview, Standard Features and Technical Specifications sections were updated.
		Added	HPE 26TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD  HPE 26TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD
23-Jun-2025	<a href="#">Version 37</a>	Changed	Technical Specifications information was updated for the following SKUs (IOPs – Watts): P68585-B21, P68583-B21, P40430-B21, 872475-B21
17-Mar-2025	<a href="#">Version 36</a>	Changed	Models and Service and Support Sections were updated
03-Sep-2024	<a href="#">Version 35</a>	Changed	Models Section was updated
22-Jan-2024	<a href="#">Version 34</a>	Changed	Models Section was updated
04-Dec-2023	<a href="#">Version 33</a>	Changed	Service and Support Section was updated
15-May-2023	<a href="#">Version 32</a>	Changed	Technical Specifications Sections was updated
07-Nov-2022	<a href="#">Version 31</a>	Changed	SKUs Names were updated
01-Aug-2022	<a href="#">Version 30</a>	Changed	Tables were fixed, Overview and Technical Specifications Sections were updated
06-Jun-2022	<a href="#">Version 29</a>	Changed	Technical Specifications Section was updated
17-Jan-2022	<a href="#">Version 28</a>	Changed	Technical Specifications Section was updated
06-Dec-2021	<a href="#">Version 27</a>	Changed	Technical Specifications Section was updated
15-Nov-2021	<a href="#">Version 26</a>	Changed	Service and Support Section was updated
04-Oct-2021	<a href="#">Version 25</a>	Changed	SKUs Names were updated
12-Jul-2021	<a href="#">Version 23</a>	Changed	Technical Specifications Section was updated
06-Jul-2021	<a href="#">Version 22</a>	Changed	Overview and Technical Specifications Sections were updated
06-Apr-2021	<a href="#">Version 21</a>	Changed	Tables were fixed, Overview and Technical Specifications Sections were updated
01-Feb-2021	<a href="#">Version 20</a>	Changed	Overview and Technical Specifications Sections were updated
20-Jul-2020	<a href="#">Version 19</a>	Changed	Overview and Technical Specifications Sections were updated
01-Jun-2020	<a href="#">Version 18</a>	Changed	SKUs were Added in Overview Section
03-Feb-2020	<a href="#">Version 17</a>	Changed	Overview Section was updated
09-Dec-2020	<a href="#">Version 16</a>	Changed	Added new HPE 16TB Midline 7.2K LFF (3.5in) Helium 512e Digitally Signed Firmware HDD models.
02-Dec-2019	<a href="#">Version 15</a>	Changed	Technical Specifications and Overview Sections were updated
03-Jun-2019	<a href="#">Version 14</a>	Changed	Technical Specifications and Overview Sections were updated
04-Feb-2019	<a href="#">Version 13</a>	Changed	Technical Specifications and Overview Sections were updated
15-Oct-2018	<a href="#">Version 12</a>	Changed	Technical Specifications was revised.
01-Oct-2018	<a href="#">Version 11</a>	Changed	Overview, Standard Features, Service and Support, and Technical Specifications were revised.
04-Sep-2018	<a href="#">Version 10</a>	Changed	Technical Specifications Section was updated

## Summary of Changes

Date	Version History	Action	Description of Change
04-Jun-2018	<a href="#">Version 9</a>	Changed	<p>PO4695-B21 HPE 600GB Enterprise 15K SAS 12G LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware HDD PO4693-B21 HPE 300GB Enterprise 15K SAS 12G LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware HDD Power specs for all drives</p> <p>Seek time specs to IOPs From Recommended to Extended: 861590-B21, 861594-B21, 861596-B21 From Extended to Recommended: 801882-B21, 881787-X21</p>
05-Mar-2018	<a href="#">Version 8</a>	Changed	Overview, Service and Support, and Technical Specifications were revised.
05-Feb-2018	<a href="#">Version 7</a>	Changed	<p>Added new HPE 12TB Midline 7.2K SAS LFF (3.5in) Helium 512e Digitally Signed Firmware HDD models: 881779-B21, 881781-X21, 881783-B21</p> <p>Change format to breakout recommended and extended portfolios.</p> <p>Obsolete SKUs</p>
04-Dec-2017	<a href="#">Version 6</a>	Changed	<p>Added new HPE 12TB Midline 7.2K LFF (3.5in) Helium 512e Digitally Signed Firmware HDD models.</p> <p>Overview, Service and Support, and Technical Specifications were revised.</p> <p>Obsolete SKUs were removed from the QuickSpecs.</p>
23-Oct-2017	<a href="#">Version 5</a>	Changed	<p>Part number 881458-B21 was changed to 881457-X21. Care Pack references changed to HPE Services operational services.</p>
25-Sep-2017	<a href="#">Version 4</a>	Changed	<p>Added 881458-B21 HPE 2.4TB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty 512e Digitally Signed Firmware HDD</p> <p>Overview, Standard Features, Service and Support, and Technical Specifications were revised.</p>
12-Jun-2017	<a href="#">Version 3</a>	Changed	Overview and Technical Specifications were revised.
27-Mar-2017	<a href="#">Version 2</a>	Changed	Added new HDD offering.
13-Feb-2017	<a href="#">Version 1</a>	New	New QuickSpecs

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

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