Data Sheet

Ultrastar® SN100 Series

NVM Express™ Compatible PCIe Solid-State Drives

Highlights

- Supports standard NVMe drivers
- Up to 3.2TB capacity in both the HH-HL add-in card and SFF 2.5-inch drive form factors
- Supports the latest generation PCIe Gen 3.0 server platforms
- UEFI boot support
- Advanced power management
- Enterprise-grade reliability: Flash-aware RAID, end-to-end data-path protection, advanced ECC, secure erase, power fail protection

Applications/Environments

- Cloud, hyperscale, enterprise and high performance computing
- Suitable for the most demanding scale-out database workloads
- Online Transaction Processing (OLTP) and Online Analytical Processing (OLAP)
- High Frequency Trading (HFT)
- Virtualized computing
- Space and/or power constrained environments

Ultrastar SN150 I 3200GB and 1600GB
Ultrastar SN100 I 3200GB, 1600GB and 800GB
MLC I HH-HL, 2.5" SFF I PCIe 3.0

PCIe SSDs for Application Acceleration

The HGST Ultrastar® SN100 Series offers unprecedented performance acceleration for today's most demanding cloud, hyperscale and enterprise applications, allowing them to scale to new heights. The HGST architecture has been designed to tightly integrate different kinds of Flash media, hardware and software to deliver memory-class performance with storage-class capacity and persistence. The Ultrastar SN100 Series comes in multiple form factors, as a low-profile HH-HL expansion card and as a highly-serviceable SFF 2.5-inch drive.

NVMe™ Support Eases Deployment and Management

To enable broad product interoperability and improve ease of deployment, the Ultrastar SN100 Series supports standard NVM Express (NVMe) drivers. NVMe is an interface specification that was created to deliver the full potential of non-volatile memory in PCIe-based solid-state storage devices to meet the needs of enterprise and client platforms. The NVMe standard allows the Ultrastar SN100 Series of products to effectively use the high speed PCIe interconnect with a standard OS driver. As a result, NVMe enables simplified configuration management and control in enterprise environments.

Leading Performance

The Ultrastar SN100 Series delivers consistent performance across all application workloads over the lifecycle of the product, even when the device is fully utilized, and provides high performance for various workloads, whether it is random, sequential or mixed I/O. By offering 310,000 mixed random I/O performance, the Ultrastar SN100 Series will allow OLTP applications to scale to new levels.

High Density

Offered in up to 3.2TB capacity in both form factors, the Ultrastar SN100 Series delivers high storage density in a very compact size. In fact, the SFF form factor in this product family delivers the highest density amongst NVMe compliant SFF devices in the industry today.

Lower Capital and Operating Cost

By combining high performance, high density, support for the NVMe standard and trusted HGST reliability, less infrastructure is required to meet the the demanding requirements of enterprise and hyperscale data centers, directly resulting in overall lower total cost of ownership.

Features and Benefits

	Feature / Function	Benefits
Performance	3000MB/s / 1600MB/s sequential R/W	Maximum performance delivers unprecendented application throughput
	743k / 160k IOPS random R/W	
	310k IOPS on 70/30 mix R/W	
Flexibility	PCIe Gen 3.0	Support for latest generation server platforms, including SFF-capable servers
	HH-HL and SFF form factors	
Low Latency	< 20 µs write latencies	DRAM-like performance
Capacity	3200GB, 1600GB, 800GB	High capacity, all presented as a single volume
Reliability	0.44% AFR (2M hours MTBF)	Higher reliability increases return on investment
	Power-safe write processing	
	End-to-end data-path protection	
	Advanced ECC and global wear-leveling, T10 DIF support	

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Ultrastar® SN100 Series PCIe SSDs

HGST Quality and Service

HGST's Ultrastar SN100 Series family extends the company's long-standing tradition of performance and reliability leadership. A balanced combination of new and proven technologies enables high reliability and availability to customer data.

HGST drives are backed by an array of technical support and services, which may include customer and integration assistance. HGST is dedicated to providing a complete portfolio of SSD/HDD solutions to satisfy today's monumental computing needs.

How to Read the Ultrastar Model Number

HUSPR3232AHP301 = 3200GB, HH-HL, PCIe Gen 3.0

H	=	HGST
U	=	Ultrastar
S	=	Standard
PR	=	PCIe read intense
32	=	Full capacity (3200GB)
32	=	Capacity of this model (32 = 3200GB, 16 = 1600GB, 80 = 800GB)
A	=	Generation code
H	=	HH-HL form factor (vs. D for SFF form factor)
P3	=	Interface, PCIe Gen 3.0
0	=	Reserved
1	=	NVMe compatible

Information and Technical Support

www.hgst.com (main website)
www.hgst.com/partners (partner website)

North America

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Toll Free: +1 888 426-5214, Direct: +1 408 717-8087

Asia Pacific

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Program Support

Partners First Program: channelpartners@hgst.com

Specifications

Model # / Part #	HUSPR3216AHP301 / 0T00831 HUSPR3232AHP301 / 0T00833	HUSPR3280ADP301 / 0T00835 HUSPR3216ADP301 / 0T00837 HUSPR3232ADP301 / 0T00839	
Configuration			
Interface	PCIe 3.0 x4	PCIe 3.0 x4 (8639)	
Form factors	HH-HL add-in card	SFF 2.5-inch drive	
Performance[1]	ULTRASTAR SN150	ULTRASTAR SN100	
Capacities (GB[2])	3200 / 1600	3200 / 1600	800
Read throughput (max MB/s, sequential 128k)	3000	3000	2600
Write throughput (max MB/s, sequential 128k)	1600	1600	1400
Read IOPS (max IOPS, random 4k)	743,000	743,000	634,000
Write IOPS (max IOPS, random 4k)	160,000	160,000	107,000
Mixed IOPS (70/30 R/W, random 4k)	310,000	310,000	190,000
Read IOPS (max IOPS, random 8k)	385,000	385,000	330,000
Write IOPS (max IOPS, random 8k)	75,000	75,000	42,000
Latency 512B (µs)	20	20	20
Reliability			
MTBF[3] (M hours)	2.0		
Annual failure rate[3] (AFR)	0.44%		
Endurance	3 DW/D		
Warranty	5 years		
Physical			
Dimensions, without bracket (mm)	167.65 x 68.9 x 14.49	100.45 x 69.85 x 15	
Weight, without bracket (g)	232 / 231	177 / 174 / 166	
Environmental			
Power consumption (active/idle)	25 Watts / 8 Watts	25 Watts / 8 Watts	
Operating temperature	0° to 55°C	0° to 60°C	
Non-operating temperature	-40° to 70°C	-40° to 70°C	
Airflow (LFM)	300	300	
Thermal throttling	Supported		
Temperature monitoring	In-band and out-band using SMBus		
PowerSafe® technology	Data protection during power loss		
Power throttling	Supported		
Power rails	3.3V aux, 12V supply rail		
JEDEC compliance	3-month retention at 40°C at EOL		
Operating Systems			
Linux	RHEL 6/7, SLES 12, CentOS 6/7, Open SUSE 12		
Windows	Microsoft Server 2008 R2, Windows 2012, Windows 2012 Server		
Software			
HGST Device Manager (HDM)	CLI and GUI interface		
NVMe standard	1.1a		
Manufacturing Standards			
Penang, Malaysia	ISO 9001:2008 certified, ISO 14001:2004 certified		

[1] All performance measurements are in full sustained mode.

[2] One gigabyte (GB) is equal to one billion bytes, one terabyte (TB) is equal to 1,000GB (one trillion bytes), and one petabyte (PB) is equal to 1,000TB (one quadrillion bytes) when referring to solid-state drive or hard drive capacity. Accessible capacity will vary from the stated capacity due to formatting and partitioning of the drive, the computer's operating system, and other factors.

[3] MTBF and AFR targets are based on a sample population and are estimated by statistical measurements and acceleration algorithms under median operating conditions. MTBF and AFR ratings do not predict an individual drive's reliability and do not constitute a warranty.

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