Data Center and Enterprise Storage Solutions
The world is generating ever increasing amounts of data, at the same time we’re seeing an acceleration in its richness and immediacy. How do we enable organizations to extract timely insights from this growing diversity of content, transactions and feeds and leverage it in the long run? How can we help businesses transform faster and achieve breakthroughs? How do we deliver higher levels of performance and endurance needed for making critical decisions immediately and over vast amounts of data?

All this data has the potential to unlock a new world of business opportunities. If we’re going to unlock that potential then we need to make data come alive. Legacy solutions are too slow and limited to realize the value and insights hidden in the data. We need to rethink how data is captured, preserved, accessed and transformed. We need a new approach to data storage that delivers speed, agility and longevity for various applications, workloads and outcomes. We need storage solutions that make it economical to make data alive at scale.
Creating environments for data to thrive

89% 55%

Most CIOs and technology decision makers believe all data has value if it can be stored and easily accessed.*

However, more than half are not saving all the data necessary for their long-term business needs and, as a result, are not harnessing its full potential.

Making both fast and big data come alive for organizations requires a deep understanding of how data is transforming businesses across various industries. Our longstanding relationships with customers and partners across the spectrum of data give us unique insights into how needs are evolving. We’re driving the innovation across every layer of the infrastructure necessary to stay ahead of new demands. Our breadth of expertise and level of integration give us an unmatched ability to deliver carefully calibrated solutions for every type and use of data.

We are in the early stages of a data revolution that will break through boundaries and create new frontiers. New discoveries will create intelligent machines, automated learning will transform economies, augmented reality will fundamentally change the way we experience the world around us.

These future innovations will be built on the continuous flow of data that will be mobilized, accessed and transformed in real time. That's the future we're working together with our customers and partners to create right now.

*Visit “Global Survey of CIOs and IT Decision Makers” on HGST.com for more information.
## Enterprise Product Portfolio

### Solid-State Drives

#### Highest Performance

<table>
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<tr>
<th>SAS SSDs</th>
<th>NVMe™ SSDs</th>
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**Optimized For**

Data Analytics & Database Acceleration
- Caching, logging, paging, indexing, flash arrays

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<th>1 to 10 DW/D</th>
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<td>Cost / IOPS</td>
<td>Lowest latency</td>
<td>Cost / IOPS</td>
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<tr>
<td>Segmentation</td>
<td>SAS-scalability and reliability for servers and storage systems</td>
<td>NVMe-low latency, maximum throughput, high reliability</td>
<td>SATA-optimized for cloud, boot and edge</td>
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### Cloud-scale Storage

Object storage

Ease of integration with existing infrastructure

Scalable capacity, data availability, & durability

### Cloud-scale Storage

#### Hard Disk Drives

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#### Data Storage

- Bulk storage, replication, unstructured data
- RAID, structured data, NAS, SAN

#### Storage Expansion

- Scalable storage

#### Systems

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Ultrastar® DC SS530
Enterprise 12Gb/s SAS Solid-State Drives

3.2TB1, 1.6TB, 800GB, 400GB | 1DW/D
6.4TB, 3.2TB, 1.6TB, 800GB, 400GB | 3DW/D
15.36TB, 7.68TB, 3.84TB, 1.92TB, 960GB, 480GB | 10DW/D

Key Features
• Up to 2150MiB/s read & 2120 MiB/s write bandwidth
• Up to 440K read IOPs (4KiB); up to 320k write IOPS (4KiB)
• Enterprise-grade 2.5M hours MTBF reliability rating

Highlights
• 2nd generation 3D TLC NAND flash for ultra-high performance and endurance
• 12Gb/s SAS interface for maximum throughput
• Advanced power-loss and data-management technology
• Self-encrypting models conform to TCG’s Enterprise specification

Applications/Environments
• Ultra-high performance tier-0 enterprise storage
• Enterprise-class servers and high performance computing
• Software-defined storage (SDS)
• Online transaction processing (OLTP)
• Financial and e-commerce
• Database analytics

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Ultrastar DC SS300
Enterprise 12Gb/s SAS Solid-State Drives

7.68TB, 3.84TB, 1.92TB, 960GB, 480GB | ≤ 1 DW/D
3.2TB, 1.6TB, 800GB, 400GB | 10DW/D & 10DW/D | 3DW/D

Key Features
• Up to 2100MB/s read & 2050MB/s write bandwidth
• Up to 400K read IOPS (4KiB); up to 200K write IOPS (4KiB)
• 3 power options (9/11/14W) & 4 endurance options (~0.5/ ~1/3/10 DW/D)

Highlights
• Enterprise-grade 3D MLC or TLC NAND flash for ultra-high performance and endurance
• Best IOPS/Watt for reduced TCO
• Capacity: 400GB to 7.68TB in 2.5-inch drive form factor
• 12Gb/s SAS interface for maximum throughput
• Advanced power loss data management technology
• Instant Secure Erase (ISE) & Self-Encrypting Drive (SED) options including TCG (Trusted Computing Group) Enterprise
• 2M hr MTBF & 5-year limited warranty (or maximum endurance, whichever is less)

Applications/Environments
• Ultra-high performance tier-0 enterprise storage
• Enterprise-class servers and high performance computing
• Space and/or power constrained environments
• Online Transaction Processing (OLTP)
• Video pre/post-production
• Financial transactions and e-commerce
• Database analytics
Ultrastar DC SS200
Enterprise 12Gb/s SAS Solid-State Drives

7.68TB, 3.84TB, 1.92TB, 960GB, 480GB | 1DW/D
3.2TB, 1.6TB, 800GB, 400GB | 3DW/D

Key Features
- Up to 1800MB/s read & 1000MB/s write bandwidth
- Up to 250K read IOPS (4KiB); up to 86K write IOPS (4KiB)
- Increase application performance and reduce storage system bottlenecks

Highlights
- Enterprise-grade 12Gb/s SAS SSD; backward compatible with 6Gb/s SAS
- Capacity: 400GB to 7.68TB in 2.5-inch drive form factor
- Maximum read throughput up to 1,800MB/s
- Up to 250,000 4KiB IOPS in random reads
- Up to 1,000MB/s sequential writes
- Endurance of 3 or 1 random DW/D for 5 years
- Instant Secure Erase (ISE) & Self-Encrypting Drive (SED) options including TCG Enterprise
- 2M hr MTBF & 5-year limited warranty (or maximum endurance, whichever is less)

Applications/Environments
- Online Transaction Processing (OLTP) databases
- Financial transactions
- E-Commerce
- E-Mail / messaging / collaboration
- Virtual environments

Ultrastar DC SN200
Enterprise NVMe™ Solid State Drives

7.68TB, 3.84TB, 1.92TB, 960GB | 1DW/D
6.4TB, 3.2TB, 1.6TB, 800GB | 3DW/D

Key Features
- Up to 1.2M read IOPS (4KiB); up to 200K write IOPS (4KiB)
- Up to 580K IOPS mixed (R/W) random workloads (4KiB)
- Use as top tier storage to accelerate databases and high frequency workloads

Highlights
- High-performance PCIe Gen 3 & NVMe 1.2 compliant
- Capacity: 800GB to 7.68TB
- Ultra-low consistent latency
- Dual port (2×2) support for 2.5-inch drives for highly available system designs
- Superior enterprise-grade reliability: Flash-aware RAID, end-to-end data path protection, advanced ECC, secure erase, PowerSafe™ power-loss protection
- 2M hr MTBF & 5-year limited warranty (or maximum endurance, whichever is less)

Applications/Environments
- Highest performance tier enterprise storage
- Databases supporting mission-critical applications
- Cloud and Hyperscale computing
- Online Transaction Processing (OLTP) and Online Analytical Processing (OLAP)
- High Frequency Trading (HFT)
- Virtualization
**Ultrastar DC SN620**
Enterprise NVMe Solid-State Drives

- 3.84TB, 1.92TB | Up to 0.6 DW/D (Standard)
- 3.2TB, 1.6TB | Up to 1.7 DW/D (Ultra)

**Features & Benefits**
- PCIe Gen 3, x4 interface and NVMe 1.2 compliance with in-box driver support
  - *Up to 250K read and 83K write IOPS (4KiB)*

**Highlights**
- Industry-standard 2.5-inch small form factor for high serviceability
- Capacity: 1.6TB to 3.84TB
- Optimized for read-intensive & mixed-used workloads
- Half the power consumption compared to 25W PCIe SSD solutions
- Hot Swap/Hot Plug support with data-loss protection
- Includes Guardian Technology Platform for improved flash endurance and data integrity/protection
- 2M hr MTBF & 5-year limited warranty (or maximum endurance, whichever is less)
- Instant Secure Erase (ISE) capability

**Applications/Environments**
- Cloud object storage
- Microsoft® Storage Spaces Direct (S2D)
- Microsoft Azure® Stack (MAS)
- OLAP
- File/Web Servers
- Media Streaming the VoD

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**Ultrastar DC SA620**
Enterprise 6Gb/s SATA Solid-State Drives

- 1.6TB, 800GB, 400GB | 1.8DW/D (Ultra)
- 1.92TB, 960GB, 460GB | 0.6DW/D (Eco)

**Key Features**
- Up to 76K random read and up to 32K write IOPS (4KiB)
- Highly-reliable data throughput, up to 530MB/s sequential read performance

**Highlights**
- Optimized for mixed-use, latency-sensitive write operations (Ultra)
- Optimized for read-intensive application workloads (Eco)
- Capacity: 400GB to 1.92TB
- Data-loss protection with power-failure protection
- Includes the innovative Guardian Technology™ Platform for improved flash endurance and data integrity/protection
- Works within existing infrastructure—6Gb/s SATA interface
- 2M hr MTBF & 5-year limited warranty (or maximum endurance, whichever is less)
- Instant Secure Erase (ISE) capability

**Applications/Environments**
- Demanding QoS, latency-sensitive applications and databases
- IaaS, PaaS and SaaS infrastructure
- NoSQL performance acceleration
- DBaaS, MySQL, PostgreSQL transaction processing
- OpenStack
- Software-defined storage
- E-Commerce, micropayments
Ultrastar SA210
Enterprise SATA Boot & Edge Solid-State Drives

1.92TB, 960GB, 480GB, 240GB, 120GB
0.1DW/D (JESD219 Workloads)
0.7DW/D (128KiB Sequential Workloads)

Key Features
• Purpose-Built—Designed for read-intensive workloads
• Versatile Design—Available in 2.5-inch and M.2 2280 form factors
• Optimized Performance—Up to 64K read IOPS (4KiB, QD32); up to 5K write IOPS (4KiB, QD32)

Highlights
• Enterprise-grade SATA 6Gb/s SSD for read-intensive applications
• Designed specifically for boot & edge applications
• Capacity: 120GB to 1.92TB
• 7mm 2.5-inch or M.2 2280 form factor
• 2M hr MTBF & 5-year limited warranty (or maximum endurance, whichever is less)

Applications/Environments
• Enterprise Boot
• Video Streaming, Video-on-Demand
• Audio Streaming
• File Servers
• Read-intensive Applications
Ultrastar SATA Series
3.5-inch Enterprise Hard Drive

Air-based: 1TB, 2TB, 4TB, 6TB, 8TB
HelioSeal: 10TB, 12TB, 14TB

Key Features
- Capacity Choice—Helps address budget and access requirements
- Robust Design—5-year limited warranty, up to 2.5M hr MTBF rating
- Drop-in Ready—Designed for business-critical environments

Highlights
- Up to 12TB capacity
- 6Gb/s SATA interface
- Performance Class—7200 RPM Class
- Sustained transfer rate 184MB/s to 255MB/s (varies by capacity)
- High workload rating supports enterprise-class environments
- 5-year limited warranty

Applications/Environments
- Enterprise servers and storage systems
- Business-critical applications needing reliable, robust high-capacity storage
- Surveillance analytics and industrial applications

Ultrastar DC HC620
3.5-inch Helium Platform Enterprise Hard Drive

14TB

Key Features
- Highest Capacity—14TB SMR HDD
- Extreme Power Efficiency—60% lower idle watts/TB than 8TB air-filled drives
- Purpose Built—Host-managed SMR supports sequential write workloads

Highlights
- Industry's first enterprise-grade 14TB HDD
- Combines HelioSeal® and host-managed SMR to deliver 16% more capacity than 12TB PMR drives
- Purpose-built for sequential write workloads and applications
- Consistent, predictable performance with uncompromising enterprise-class quality and reliability for true-enterprise experience
- 2M hr MTBF & 5-year limited warranty

Applications/Environments
- Big Data or Bulk Storage
- Cloud Storage
- Social Media
- Content Libraries, Streaming Media and Digital Media Assets
- Online Back-up, Replication
- Compliance, Audits, Regulatory Records
- Primary and secondary storage for Apache Hadoop® to support Big Data Analytics
- Centralized video surveillance
- Ideal for all mainstream enterprise-capacity applications
Ultrastar DC HC520
3.5-inch Helium Platform Enterprise Hard Drive
12TB

Key Features
• High capacity—Industry’s first 12TB drive
• Power efficiency—54% lower power than 8TB air drives
• More Reliable—Unbeaten MTBF rating for an HDD at 2.5M hours

Highlights
• PMR technology works with all capacity enterprise applications & environments
• Reliable, field-proven, 4th-generation design
• Helium technology delivers power efficiency (Watts/TB)
• SATA 6Gb/s and SAS 12GB/s
• 2M hr MTBF & 5-year limited warranty
• Instant Secure Erase (ISE) & Self-Encrypting Drive (SED) options
• Advanced format 4Kn and 512e models

Applications/Environments
• Enterprise and data center applications where capacity density, power efficiency and reliability are paramount
• Cloud & hyperscale storage
• Massive scale-out (MSO), high-density data centers
• Distributed File Systems
• Bulk storage using object storage solutions like Ceph™ and OpenStack Swift
• Primary and secondary storage for Apache Hadoop® for Big Data Analytics
• Surveillance analytics

Ultrastar DC HC530
3.5-inch Helium Platform Enterprise Hard Drive
14TB

Key Features
• High Capacity—14TB PMR HDD, drop-in ready for capacity workloads
• Low Power—56% lower idle W/TB than 8TB Ultrastar air-filled drives
• More Reliable—Unbeaten MTBF rating for an HDD at 2.5M hours

Highlights
• 14TB capacity in a standard 3.5-inch form factor
• CMR/PMR technology works seamlessly in capacity enterprise applications & environments
• Reliable, field-proven, 5th generation design
• HelioSeal design delivers outstanding power efficiency (Watts/TB)
• TDMR and improved dual-stage microactuator provide optimal head positioning and rotational vibration robustness
• 2M hr MTBF & 5-year limited warranty
• Self-Encrypting Drive (TCG SED) options offer Instant Secure Erase (ISE) feature

Applications/Environments
• Cloud & Hyperscale storage
• Massive scale-out (MSO), high-density data centers
• Distributed File Systems
• Bulk storage using object storage solutions like Ceph™ and OpenStack Swift
• Primary and secondary storage for Hadoop® to support Big Data Analytics
• Surveillance analytics
• Ideal for all mainstream enterprise-capacity applications
Ultrastar DC HC320
3.5-inch Enterprise Hard Drive
8TB

**Key Features**
- Economical Capacity—Helps address budget and access requirements
- High Performance—Up to 12% faster than prior generation Ultrastar 7K6000
- Drop-in Ready—Designed for traditional storage and server applications

**Highlights**
- Excellent random and sequential performance
- 8TB capacity point supports traditional IT systems
- Sustained transfer rate up to 255MB/s
- Choice of 12Gb/s SAS or 6Gb/s SATA
- Advanced Format 4Kn and 512e models
- Self-Encrypting Drive (TCG SAS) options
- 2M hr MTBF & 5-year limited warranty

**Applications/Environments**
- Distributed file systems, like Hadoop, to support Big Data analytics
- Direct & Network Attached Storage (DAS & NAS)
- RAID arrays

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Ultrastar DC HC310
3.5-inch Helium Platform Enterprise Hard Drive
10TB and 8TB

**Key Features**
- High capacity—Choice of 10TB or 8TB in a 7-disk 7Stac™ design
- Power efficiency—47% more power efficient than 8TB air drives
- TCOptimized™ design—Delivers highest capacity, lower power, cooler and quieter operation

**Highlights**
- Helium technology delivers power efficiency (Watts/TB)
- PMR technology works with all capacity enterprise applications & environments
- Reliable, field-proven, 3rd-generation design
- SATA 6Gb/s and SAS 12Gb/s
- 2M hr MTBF & 5-year limited warranty
- Instant Secure Erase (ISE) & Self-Encrypting Drive (SED) options

**Applications/Environments**
- Enterprise and data center applications where capacity density and power efficiency are paramount
- Cloud & hyperscale storage
- Massive scale-out high-density data centers (MSO)
- Bulk storage using object storage solutions like Ceph and Hadoop to support Big Data Analytics
- Centralized video surveillance
- Drop-in ready for all mainstream enterprise-capacity applications
Ultrastar DC HC310
7200 RPM 12Gb/s SAS or 6Gb/s SATA

6TB & 4TB

Key Features
- Sustained transfer rate up to 255MB/s (512e/4Kn models); 233MB/s (512n models)
- Choice of 12Gb/s SAS or 6Gb/s SATA
- Advanced Format 4Kn and 512e models up to 6TB; 512n formatting available on 4TB to support legacy systems
- Self-Encrypting Drive (TCG SAS) options

Highlights
- 6TB and 4TB capacities support traditional IT systems
- Excellent random and sequential performance
- Economical capacity helps address budget and access requirements
- Provides 12% faster performance than prior generation Ultrastar 7K6000
- Drop-in ready drive designed for traditional storage and server applications
- 2M hr MTBF & 5-year limited warranty

Applications/Environments
- Distributed file systems, like Hadoop, to support Big Data analytics
- Direct & Network Attached Storage (DAS & NAS)
- RAID arrays
- Legacy applications requiring 512n format (4TB)

Ultrastar DC HA210
7200 RPM SATA 6Gb/s 512n

2TB & 1TB

Key Features
- Dual-stage actuator
- Rotational vibration sensor technology
- SATA 6Gb/s with 512n sectors
- 128MB cache buffer

Highlights
- Up to 2TB capacity in a standard 3.5-inch form factor
- Enhanced RAFF™ anti-vibration technology for robust performance in multi-drive environments
- Reliable, field-proven design
- SATA 6Gb/s with 512-byte (512n) supports legacy enterprise applications
- 2M hr MTBF & 5-year limited warranty

Applications/Environments
- RAID arrays
- Massive scale-out (MSO) data centers
- Data warehousing & mining
- Cloud storage
- Enterprise NAS
- Disk-to-disk backup & archiving
- Legacy mainstream enterprise capacity applications that require 512n block size
Ultrastar Data102

102-Bay Hybrid Storage Platform with up to 1.2PB capacity

Key Features
- Up to 102 Ultrastar He12 HDDs (SAS or SATA)
- Hybrid support for up to 24 SSDs (SAS or SATA) for a data acceleration tier
- Up to 1.2PB of raw storage in 4U
- Choose dual-port SAS for high availability or single-port SATA for low cost
- 4 rack units, 1047mm depth
- Up to $12 \times 12\text{Gb/s}$ SAS3 host connections

Highlights
- **Patented IsoVibe technology** ensures maximum performance and drive life even under heavy workloads
- **Cold-Aisle Access:** Rack-mounted top cover and Cable Management Arm for quick and easy service from your data center’s cold aisle
- **More Efficient Cooling:** Patented ArcticFlow technology reduces power requirements and fan speed
- **Enterprise Grade:** Redundant, hot-swap PSUs, IO Modules and fans. Supports SCSI Enclosure Services (SES-3) and Microsoft certified drives
- **Industry Leading Warranty:** Enclosure and all components covered by a 5-year limited warranty

Applications/Environments
- Dense server expansion
- Software-defined storage
- Private cloud
- Big data analytics
- Data tier for service provider

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**IsoVibe™ Patented Vibration Isolation Technology**
Precise cuts in the baseboard provide a suspension for the drives in the chassis, isolating them from transmitted vibration. The result is that consistent performance is maintained, even when all the drives are working hard.

**ArcticFlow™ Patented Thermal Zone Cooling technology**
By introducing cool air into the center of the chassis, drives operate at lower and more consistent temperatures than conventional systems. This results in lower fan speeds, reduced vibration, lower power consumption, quieter operation and ultimately higher reliability.
Ultrastar Data60

60-Bay Hybrid Storage Platform with up to 720TB Capacity

Key Features
- Up to 60 Ultrastar He12 HDDs (SAS or SATA)
- Hybrid support for up to 24 SSDs (SAS or SATA) to create a caching or data acceleration tier
- Up to 720TB of raw storage in 4U
- Dual-port SAS for high availability or single-port SATA for low cost
- 4 rack units height, 712mm depth
- Up to 12 x 12Gb/s SAS3 host connections

Highlights
- Patented IsoVibe technology ensures maximum performance and drive life even under heavy workloads
- Cold-Aisle Access: Rack-mounted top cover and Cable Management Arm for quick and easy service from your datacenter’s cold aisle
- More Efficient Cooling: Patented ArcticFlow technology reduces power requirements and fan speed
- Enterprise Grade: Redundant, hot-swap PSUs, IO Modules and fans. Supports SCSI Enclosure Services (SES-3) and Microsoft certified drives
- Industry Leading Warranty: Enclosure and all components covered by a 5-year limited warranty

Applications/Environments
- Dense server expansion
- Software-defined storage
- Private cloud
- Big data analytics
- Data tier for service provider

IsoVibe™ Patented Vibration Isolation Technology
Precise cuts in the baseboard provide a suspension for the drives in the chassis, isolating them from transmitted vibration. The result is that consistent performance is maintained, even when all the drives are working hard.

ArcticFlow™ Patented Thermal Zone Cooling technology
By introducing cool air into the center of the chassis, drives operate at lower and more consistent temperatures than conventional systems. This results in lower fan speeds, reduced vibration, lower power consumption, quieter operation and ultimately higher reliability.
Ultrastar Serv60+8

High-capacity Hybrid Storage Server

Features
- Up to 60 Ultrastar® He12 HDDs (SAS or SATA) plus up to 8 NVMe™ (SAS or SATA) SSDs
- Over 900TB of raw storage in 4U possible with planned 14TB drives and 7.68TB SSDs
- Dual-port SAS for high availability or single-port SATA for low cost
- Hybrid support: up to 24 slots can be populated with SSDs (SAS or SATA) to create a data acceleration tier
- 4 rack units height, 1099mm depth
- Patented IsoVibe technology ensures maximum performance even in heavy workloads
- Enterprise-grade redundant and hot-swappable PSUs, fans, IO module and drive modules
- Improved cooling from innovative, patented ArcticFlow technology
- Rack-mounted top cover for quick and easy service

Designed for Fast Data
This new, high-capacity hybrid storage server addresses the demanding needs of large enterprise customers, OEMs, cloud service providers, and resellers/integrators that require dense, shared HDD or hybrid storage with compute included. The Ultrastar® Serv60+8 hybrid storage server offers a choice of CPUs, memory, and drives, providing the flexibility to balance capacity, performance and cost.

Western Digital HelioSeal HDDs ensure cool running, quiet operation and high reliability while the SSDs provide a fast data tier for additional performance. Conventional dense disk shelves frequently suffer from performance degradation due to induced vibration from adjacent drives. And traditional platforms have cooling challenges as the cooling air passes over successive rows of drives, losing effectiveness as it gets heated up along the airflow path. Our patented IsoVibe and ArcticFlow technologies address these challenges. IsoVibe reduces vibration-induced performance degradation, while ArcticFlow overcomes the cooling issues by introducing cool air into the middle of the platform. Both these technologies contribute to long-term reliability, enabling our five-year limited warranty on the entire platform.

Applications/Environments
- Dense server expansion
- Software-defined storage
- Private cloud
- Big data analytics
- Data tier for service provider
Ultrastar Serv24-A

Portable Storage Server

Key Features
- Tamper-evident 2U aluminum enclosure
- Optional Secure Erase, Trusted Platform Module
- Multiple security options
- AES-256 SSD encryption available
- Rear connectors can be selectively covered
- Ruggedized yet lightweight for easy transport
- Dual-socket Intel Xeon scalable processor-based server
- 10 Gb Ethernet connections RJ45 or SFP+
- Up to 184TB raw capacity

Ruggedized Data Transport

High Performance Meets Portability

Sometimes data needs to be physically transported safely and with multiple security measures when traditional methods of sending that data over a network may not be a viable alternative due to cost, security, or speed. This may include transporting movie files from location to post-production; seismic data from exploration rig to shore; sensitive battlefield data to base; or simply moving data center content to a cloud service provider. The Ultrastar Serv24-A Portable Storage Server provides up to 184TB¹ of solid-state storage in a rugged, tamper-evident case. With dual Intel® Xeon® CPUs and high-performance SSDs, data ingest and transfer is fast and efficient.

Multiple security options are available, including Trusted Platform Module (TPM), secure erase, and up to AES-256 SSD encryption. The integrated handle makes it easy to carry and the available wheeled transit case can provide for even more rugged transport. The Ultrastar Serv24-A Portable Storage Server is built to deliver high performance and enterprise-class reliability. The entire enclosure is backed with a 5-year limited warranty.
Ultrastar Serv24-HA Storage Server

Performance-optimized NVMe Platform for Software-defined Storage (SDS)

Key Features
- Up to 24 2.5” dual-port NVMe SSDs
- Up to 184TB\(^1\) of raw storage in 2U
- Dual Intel Xeon Scalable Processor-based server canisters
- Each compute canister includes
  —Dual processors with a choice of Intel Xeon CPUs
  —2 M.2 SSD boot drives
  —24 DDR4–2400 DIMM slots
  —4 10GbE ports
  —1GbE for IPMI system management
  —3 Gen 3 PCIe x16 slots
- Enterprise-grade redundant and hot-swappable PSUs, SSDs, server canisters
- Optional battery backup unit

Designed for Fast Data
Newly available dual-port NVMe SSD technology means that all-flash array deployments can now benefit from full high availability and NVMe performance. The servers are connected with a Non-Transparent Bridge (NTB), a PCIe Gen3×16 link, which the software-defined storage stack can use to synchronize metadata between the two compute canisters.

The Ultrastar Serv24-HA is built to deliver high availability and enterprise-class reliability. The entire enclosure, including server canisters, is backed with a 5-year limited warranty.

Applications/Environments
Purpose-built for such storage/IO intensive applications such as:
- All-Flash Array
- Software-defined storage
- Private cloud
- Fast data analytics
Ultrastar Serv24

Performance-optimized NVMe Platform for Software-defined Storage (SDS)

Key Features
- Up to 184TB in a 2U unit
- Up to 24 NVMe SSDs with a range of capacities and endurance options
- High-performance Intel “Purley”—based server with a choice of CPUs
- 2 512GB M.2 SSD boot drives
- 256GB DDR4 DRAM
- 2-port 10GbE included
- 1-port 1GbE for system management
- 2 PCIe x16 slots available for add-in cards
- Enterprise-grade redundant and hot-swappable PSUs and fans

Applications/Environments
Purpose-built for such storage/IO intensive applications such as:
- Software-defined storage
- Private cloud
- Big data server
- Data analytics
- Data tier for service provider

The Ultrastar Serv24 enables rapid deployment into rack-scale IT environments.

Designed for Fast Data
Flash technology has revolutionized the performance of storage systems; NVMe technology extends flash storage to its full potential. Built upon our storage expertise, the Ultrastar Serv24 features the latest Intel® Xeon® CPUs. Chipset, core count and power can be customized, providing the flexibility to meet varying requirements depending on data workload and performance requirements.

Whether as a stand-alone file server or part of a scale-out deployment, the Ultrastar Serv24 is built to deliver screaming performance in software-defined storage environments. With low latency and consistently high bandwidth, data is accelerated to the speed of flash.
2U24 Flash Storage Platform

Low Latency Flash Storage Platform with up to 184TB Capacity

Key Features
- Flash storage platform with up to 24 Ultrastar® 2.5" SAS SSD modules or 24 Ultrastar DC SA620 SATA SSD modules
- Up to 4.7M IOPS, 23 GB/s; <1ms latency
- Available SSD capacities include 7.68TB, 3.84TB, 1.92TB, and 960GB
- Start with 12 SSDs; upgrade one additional module at a time
- 2 rack units
- Up to six 12Gb/s SAS3 connections to host
- Easy maintenance of front-accessible, hot-swappable SSD modules.

Benefits
The 2U24 flash platform addresses the demanding storage needs of large enterprises and cloud service providers who require high-performance, reliable, easy-to-expand flash capacity. The platform offers these distinct features designed for modern data centers:
- Enterprise-class high availability: hot-swappable components including SSDs, I/O Modules, power supply units (integrated fans)
- Fully upgradeable firmware enables drive technology and capacity updates without impacting applications
- Supports enterprise workloads including database, virtualization and scale-out configurations

Applications/Environments
Ideal for accelerating enterprise workloads that require high IOPS, low latency and flexible compute-to-storage ratio.
- Scale-out flash file servers
- Hyper-V, SQL, data analytics
- Virtual Desktop Infrastructure, Virtual Server Infrastructure
- HPC
IntelliFlash™ NVMe Storage Arrays (N-Series)

Benefits
• 60M IOPS per rack
• 14PB per rack
• 99.9999% Availability

Tier 0 storage @ the speed of memory
Imagine how much faster your business applications would run if your Tier 0 storage ran at the speed of memory. Get ready to be blown away by the performance of the N-Series array.

NVMe is designed from the ground up to deliver high bandwidth and low latency storage access. The N-Series unified array combines NVMe technology with the innovative data management capabilities of Tegile’s IntelliFlash OS to deliver 100x performance acceleration for Tier 0 applications.

Memory-class performance in a united storage array
The N-Series array delivers superior always-on performance effortlessly while seamlessly compressing and deduplicating data for all applications.

We have packed the N-Series with every imaginable Tier 0 storage feature—multiple protocols, data reduction, data protection, automated data healing, high availability, disaster prevention non-disruptive upgrades.

Rack-scale storage for every IT need
The N-Series is the perfect storage platform for every IT need—from high-performance application workload acceleration to Tier 0 multi-petabyte-scale consolidation of ALL workloads in the data center.

Scale as your performance and capacity needs grow. Add dense flash enclosures to N-Series to seamlessly make it a multi-tiered flash system for your entire data center.
IntelliFlash All-Flash Arrays (T-Series)

Applications Environments
By delivering high performance, high density and compelling economics, the T-Series is ideal for latency-sensitive, business critical workloads such as:

- Online transaction processing
- Real-time analytics
- Decision support
- Data warehousing

All-Flash Arrays for Any Workload
IntelliFlash all-flash arrays make it easy and affordable to make the transition to a flash-centric data center. The T-Series portfolio enables you to start small and scale in capacity as your business grows. Start with the T4500 or T4600 all-flash array and deliver a turbo-boost to your legacy storage while deferring equipment replacement and move up to the T4800 when your density and capacity requirements grow.
IntelliFlash Hybrid Storage Array (T-Series)

Applications/Environments
- Virtualize & consolidate business-critical applications with confidence
- Deliver supreme performance for virtual desktops

Performance of Flash at the Price of Disk
IntelliFlash offers an extensive line of hybrid arrays as part of the IntelliFlash portfolio. IntelliFlash hybrid storage arrays leverage the performance of flash, the density of hard disks and the rich features of the IntelliFlash operating system to deliver a compelling storage platform that accelerates a wide variety of workloads in the enterprise.

Fully redundant with active/active controllers, these arrays are built for enterprise datacenters with resilience, data availability and data protection in mind. With IntelliFlash hybrid arrays, you no longer have to compromise between performance, capacity and cost for accelerating and protecting your enterprise applications.
IntelliFlash HD Flash Arrays

**Applications/Environments**

IntelliFlash HD is tailor made for any workflow that requires the extreme performance of the industry's fastest flash combined with the high density of large capacity flash in a single storage system.

**Highlights**

- **Scalable Architecture**—Dual active-controller scale-up architecture allows for easy capacity and performance growth
- **High-Capacity Density**—Performance means nothing if you don't have the space to use it. IntelliFlash HD delivers petabytes of capacity in a compact 6U footprint
- **Sustained Performance**—With high throughput and low latency for mixed workload consolidation and Big Data analytics IntelliFlash HD can handle your most intensive workload.
- **Affordable Disaster Recovery**—Replicate between all-flash AND hybrid configurations
- **Unified Storage**—Native block (FC, iSCSI) and file (NFS, CIFS/SMB3) access that can be run concurrently
- **Comprehensive Data Services**—Inline deduplication and compression, snapshots, read/write clones, and thin provisioning help you get the most capacity out of your IntelliFlash HD array

**Benefits**

- **Superior Economics**—With industry-leading densities, you will find the perfect balance of performance and economics
- **Industry Leading OPEX**—With a platform that is energy efficient, features inline data reduction and is easy to maintain, customers save on power, cooling and labor
- **Unmatched Compatibility**—With multiple certified configurations with Oracle®, Microsoft, VMware®, and many others, IntelliFlash HD is ready for your IT environment
- **VMware Support**—Includes a vCenter plug-in and Integrates with VMware SRM and VAAI
- **Simplified Management**—Single UI management for all operations

**All-Flash Arrays for Any Workload**

At the core of IntelliFlash HD is the same platform that powers the rest of the award-winning IntelliFlash arrays. The IntelliFlash platform brings together several architectural innovations in flash management, data persistence and data management to enable IntelliFlash HD to deliver unprecedented levels of performance, data consolidation, simplicity and economics. IntelliFlash arrays can already run any of an organization's workloads. With IntelliFlash HD, you can consolidate all your workloads and all of your data onto a single array to achieve the best balance of performance and economics at scale.
ActiveScale™ X100 System

The ActiveScale X100 system is an integrated object-storage solution for large-scale data that requires extreme data durability with easy and fast retrieval. The ActiveScale system provides outstanding levels of simplicity, scalability, resiliency and affordability. Facilitate your Data Forever architecture with ActiveScale.

Highlights

- **High performance** at the cost of tape
- **Ready to Deploy**—Pre-configured system speeds implementation
- **Easy to Grow**—Increase capacity and performance as data grows
- **Extreme Scalability**—Scales easily for the most demanding environments
- **High Resiliency**—Up to 19 nines of data durability
- **Outstanding TCO**—Low acquisition cost, power/TB and operating costs
- **System Availability**—Choose 3-geo scale-out, 2-site or hybrid cloud replication
- **Security Features**—End-to-end encryption for sensitive application data
- **System Resiliency**—BitSpread® with dynamic data placement avoids rebalancing and delivers consistent performance
- **Strong Consistency**—For always-fresh data for scale-out configurations
- **Protection**—Object versioning provides rapid recovery from accidental deletes and hybrid cloud replication provides a data recovery copy in the public cloud

Applications/Environments

- **Analytics**
  - Data Lakes for analysis
  - High scalability for complete analysis
- **Media and Entertainment**
  - Live video archive
  - On-demand catalog
  - Cloud DVR
- **Healthcare and Life Sciences**
  - Genome data banks
  - Medical imaging
- **Backup, Recovery & Archive**
  - Backup as a Service
  - Data management
  - Disaster recovery
ActiveScale P100 System

The ActiveScale P100 is a modular object storage system for large-scale data that requires extreme data durability with easy and fast retrieval. The ActiveScale P100 provides outstanding levels of simplicity, scalability, resiliency and affordability. Facilitate your Data Forever architecture with ActiveScale.

Highlights
• High performance at the cost of tape
• Ready to Deploy—Pre-configured system speeds implementation
• Easy to Grow—Increase capacity and performance as data grows
• Extreme Scalability—Scales easily for the most demanding environments
• High Resiliency—Up to 19 nines of data durability
• Outstanding TCO—Low acquisition cost, power/TB and operating costs
• System Availability—Choose 3-geo scale-out, 2-site or hybrid cloud replication
• Security Features—End-to-end encryption for sensitive application data
• System Resiliency—BitSpread® with dynamic data placement avoids rebalancing and delivers consistent performance
• Strong Consistency—For always-fresh data for scale-out configurations
• Protection—Object versioning provides rapid recovery from accidental deletions and hybrid cloud replication provides a DR copy in the public cloud

Applications/Environments
• Media & Entertainment Media Archive
  — Production Media Archive
  — On-premises Amazon S3™-compliant Media Target
• Life Sciences and Health Care
  — Genome data banks
  — Medical imaging
• Backup and Archive
  — Tape consolidation
  — Active data repository
• Analytic Storage Tier
  — Big data repository
ActiveScale CM Cloud-Based Analytics

Monitoring and storage analytics for ActiveScale Object Storage Systems by way of a cloud interface lets you get ahead of events before they become problems.

ActiveScale CM Provides
Forecast and planning capabilities based on current utilization trends
• Capacity modeling and forecast

Operational Reports
• System load and load balancing across different data centers
• Object system characteristics such as object size histogram, data protection overhead and frequently accessed objects

Proactive Support
• Upload logs and configuration automatically to expedite case triage and resolution

Telemetry and Analytics Portal
• Get insights information by way of an easy-to-use cloud portal
• Cloud-based analytics engine enables users to proactively manage their ActiveScale systems without competing with user IO requests, maximizing productivity
• Remote monitoring of system health and utilization regardless of system locations
• Leverages big data analytics to identify system anomalies for proactive management

Highlights
• See all ActiveScale systems in one GUI
• System health overview, prescriptive as well as predictive
• System capacity and utilization analytics, including trends and forecasting
• Enhanced experience with proactive support
• Quick support turnaround by eliminating/reducing the need to request log data
• Included as part of your systems support offering

Breakthrough Object Storage Management
ActiveScale CM provides cloud-based, advanced system insights and analytics for our object storage systems. The following features leverage big data analytics, complement basic system management functionalities and enable proactive system maintenance:

• System utilization monitoring
• Capacity modeling
• Forecasting
• Historical trends

All work to effectively manage the ActiveScale system across your data centers, regardless of their location.
One megabyte (MB) is equal to one million bytes, one gigabyte (GB) is equal to 1,000MB (one billion bytes) and one terabyte (TB) is equal to 1,000GB (one trillion bytes) when referring to solid-state 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.

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