



Western Digital.

Data Center and Enterprise Storage Solutions

Enabling the most mission-critical use cases



Cloud Computing



Big Data Analytics



Database Acceleration



Collaboration Applications



Virtualized Computing



Object Storage

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




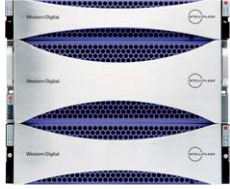

Making both fast and big data come alive for organizations requires a deep understanding of how data is transforming businesses across various industries. Our longstanding relationships with customers and partners across the spectrum of data give us unique insights into how needs are evolving. We're 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.

Enterprise Product Portfolio

Solid-State Drives			
	SATA SSDs	SAS SSDs	NVMe™ SSDs
			 <p>VRI RI Caching Memory</p>
Optimized For	Boot & edge applications, cost-effective flash deployment	Scalable, dual-port, high-endurance options	Essential NVMe class optimized for best \$/IOPS
	0.1 DW/D	1 to 10 DW/D	0.8 to 3 DW/D
Metrics	Watts / IOPS Cost / IOPS	IOPS / System Cost / IOPS	IOPS / System Lowest latency
Segmentation	SATA-optimized for cloud, boot and edge	SAS-scalability and reliability for servers and storage systems	NVMe-low latency, maximum throughput, high reliability
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Hard Disk Drives		Platforms	Systems	
HelioSeal®	Air-Based	Scalability	Flash Storage	Object Storage
 <p>(High Capacity)</p>	 <p>(Medium Capacity)</p>			
Data Storage Bulk storage, replication, unstructured data	Data Storage RAID, structured data, NAS, SAN	Storage Expansion Scalable storage	Arrays NVMe-flash arrays All-flash arrays Hybrid flash arrays	Cloud-scale Storage Object storage
Capacity / Power TCO / TB	IOPS / TB \$/ Unit	\$/ GB for flash platforms TCO/TB for HDD platforms	High IOPS Low latency	Capacity / Footprint \$/ PB
Higher capacity and higher reliability	High capacity and high reliability	Ease of integration with existing infrastructure	High performance Full data management	Scalable capacity, data availability, and durability
Ultrastar SATA Series 8 Ultrastar DC HC620 8 Ultrastar DC HC530 9 Ultrastar DC HC520 9 Ultrastar DC HC510 10	Ultrastar DC HC320 10 Ultrastar DC HC310 11 Ultrastar DC HA210 11	Ultrastar Data102 12 Ultrastar Data60 13 Ultrastar Serv60+8... 14 Ultrastar Serv24-A.... 15 Ultrastar Serv24-HA. 16 Ultrastar Serv24 17 2U24 All-Flash Platform 18	IntelliFlash™ All-Flash and Hybrid Flash Arrays 19 IntelliFlash N-Series (NVMe-Flash Array) . 20 IntelliFlash HD-Series (Dense Flash Array)21 IntelliFlash T-Series (SAS All-Flash Array) ..22 IntelliFlash T-Series (Hybrid Flash Array) ..23	IntelliCare™ Cloud Management24 ActiveScale™ System.. 25 ActiveScale X100 System 26 ActiveScale P100 System 27 ActiveScale CM Cloud-Based Analytics 28

Ultrastar® DC SA210

Enterprise SATA Boot & Edge Solid-State Drives

1.92TB¹, 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 DC SS530

Enterprise 12Gb/s SAS Solid-State Drives

3.2TB, 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



CL SN720

M.2 2280 NVMe™ Solid-State Drives for Data Centers

256GB, 512GB, 1TB, 2TB



Key Features

- Purpose-built for boot and edge computing performance and reliability
- Read Speeds up to 3,250MB/s (1TB Model)

Highlights

- Up to 800 TBW Endurance (1TB Model)
- Optimized for Sequential-Write Workloads
- 2M Hours MTTF
- 256GB – 2TB Capacities
- M.2 2280 Form Factor
- 0°C – 85°C Extended Operating Temperature
- 5-year Limited Warranty
- Remove Management Capabilities

Applications/Environments

- Very Read-Intensive Workloads
- Content Delivery Networks
- Server Boot
- Cloud Gaming Storage



Ultrastar DC SN630

Enterprise NVMe Solid-State Drives

7.68TB, 3.84TB, 1.92TB and 960GB | 0.8 DW/D



Key Features

- PCIe Gen 3, x4 interface and NVMe 1.3 compliant with in-box driver support
- Up to 360K Random Read IOPS 55 Random Write IOPS (4KiB)

Highlights

- Industry-standard 2.5-inch U.2 small form factor for high serviceability in a slim 7mm package
- Optimized for read-intensive & mixed-use workloads
- 65% less power consumption compared to 25W PCIe SSD solutions
- Hot Swap/Hot Plug support with data-loss protection
- NVMe MI 1.0 Management Interface Support
- MTBF rating of 2 million hours
- Instant Secure Erase (ISE) with AES-256 encryption

Applications/Environments

- Cloud and hyperscale storage
- Software Defined Storage
- File, Block and Object Storage applications
- Direct-attached Storage (DAS)
- Hyper-converged Infrastructure
- NoSQL databases
- Content Delivery Network (CDN)
- Virtualization



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

U.2 2.5-inch drive



HH-HL add-in card (AIC)



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 (2x2) 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 ME200

Memory Extension Drive, NVMe 2.5-inch U.2 and PCIe AIC HH-HL

1TiB, 2TiB, 4TiB

U.2 2.5-inch drive



HH-HL add-in card (AIC)



Key Feature

- Delivers DRAM-like performance for key enterprise applications and workloads

Highlights

- Enables scaling of system memory, typically up to 24TiB¹ per 1U server and 96TiB in 4U servers
- Transparent to existing OS and applications
- Promotes server consolidation
- Fits most industry-standard server models

Applications/Environments

- Business Analytics
- Data Warehousing
- Application Caching
- Server Virtualization
- Container-Based Applications
- Genomics & AI Research
- Real-Time Analysis
- Cloud Services and SaaS
- IoT, Time-Series Analysis

¹ Memory capacity is indicated by GiB and TiB and based on binary values such that one gibibyte (GiB) is equal to 230 bytes and one tebibyte (TiB) is equal to 1024 GiB (240) bytes. Storage capacity and endurance is indicated by TB and PB where one PB equals 1,000TB. Accessible capacity can vary from stated capacity due to software, formatting, and other factors.



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 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 Apache Hadoop® for Big Data Analytics
- Surveillance analytics

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

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 (DFS)
- Bulk storage using object storage solutions like Ceph™ and OpenStack™ Swift
- Primary and secondary storage for Hadoop® to support Big Data Analytics
- Centralized video surveillance
- Ideal for all mainstream enterprise-capacity applications



Ultrastar DC HC510

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 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



Ultrastar DC HC310

7200 RPM 12Gb/s SAS or 6Gb/s SATA

6TB and 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 and 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 1.4PB capacity



IsoVibe™ 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™ 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.

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 1.4PB 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 × 12Gb/s SAS-3 host connections

Highlights

- **Innovative 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:** 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



Ultrastar Data60

60-Bay Hybrid Storage Platform with up to 840TB Capacity



IsoVibe™ 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™ 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.

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 840TB 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 × 12Gb/s SAS-3 host connections

Highlights

- **Innovative 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:** 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



Ultrastar Serv60+8

High-capacity Hybrid Storage Server



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.

Features

- Up to 60 Ultrastar HDDs (SAS or SATA) plus up to 8 (SAS or SATA) SSDs
- Over 960TB of raw storage in 4U with 14TB drives and 15.35TB 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
- Innovative 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 ArcticFlow technology
- Rack-mounted top cover for quick and easy service

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.



Ultrastar Serv24-HA Storage Server

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



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 Gen3x16 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.

Key Features

- Up to 24 2.5" dual-port NVMe SSDs
- Up to 184TB¹ 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

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)



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.

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:

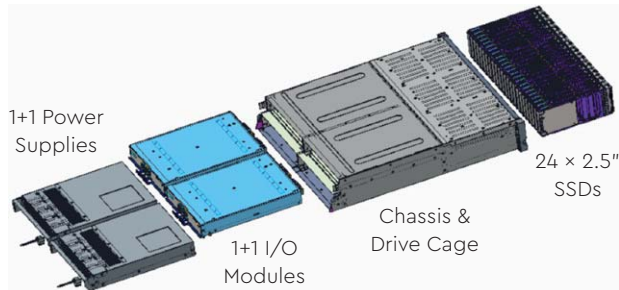
- Software-defined storage
- Private cloud
- Big data server
- Data analytics
- Data tier for service provider

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



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™ All-Flash and Hybrid Flash Arrays

The IntelliFlash portfolio of all-flash and hybrid flash arrays delivers extreme performance and exceptional economics for a wide range of workloads in the data center. These storage arrays provide turnkey solutions for customers seeking the combination of high performance, massive data consolidation, built-in disaster prevention, and simplified management.

Built on a high-performance non-volatile memory architecture, IntelliFlash arrays support multiple grades of storage media including persistent memory, flash, and hard disks. In a single platform, you get:

NVMe, All-Flash, Dense Flash, Hybrid Flash

Dial up the amount of flash as needed in a single system to meet the changing needs of the business over time.

ONE OS, ONE feature set, ONE user experience

Storage administrators learn only one toolset to manage the platform independent of capacity or type of media in the system.

Multi-Protocol Support

Native support for block AND file protocols (iSCSI, FC, NFS, CIFS/SMB 3.0) enables easy consolidation.

Full Data Protection

Snapshots, clones, encryption

Superior Data Reduction

Selectable inline compression AND deduplication

Enterprise Resiliency

Fully redundant hardware AND active/active controllers

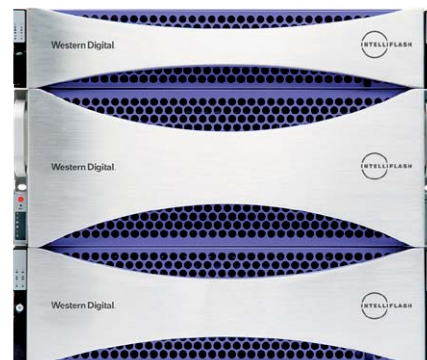
Affordable Disaster Recovery

Replicate between any type of flash or hybrid flash configurations



N-Series

- NVMe all-flash arrays
- <1ms latency



HD-Series

- High-density all-flash arrays
- 1ms latency



T-Series

- SAS all-flash and hybrid flash arrays
- 1ms – 2ms latency



IntelliFlash N-Series (NVMe-Flash Array)



The N-Series is a portfolio of unified, NVMe-flash arrays that leverages the speed and efficiency of NVMe to deliver maximum performance to the most demanding enterprise applications. The N-series features a new architecture that is optimized for NVMe-based flash media. N-series arrays deliver data access at latencies as low as 200 microseconds.

The N-series accelerates structured and unstructured data analysis to unearth insights and turn them into significant business results.

Key Features

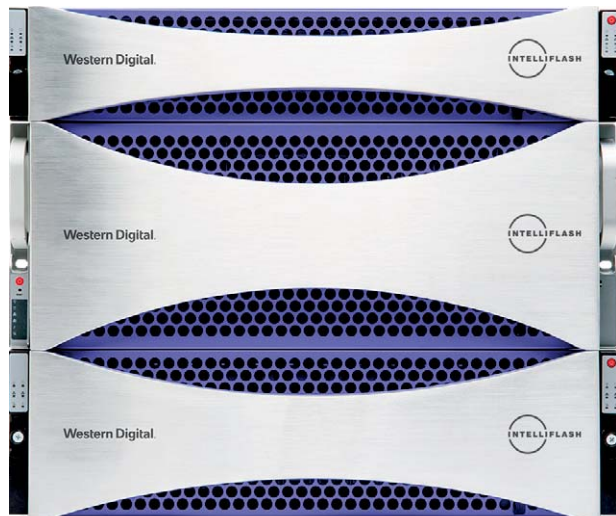
- 100% NVMe Optimized – Designed from the ground up for high-performance applications.
- Ultra-Low Latency – Up to 3x better performance than non-NVMe all-flash arrays with latency as low as 200 microseconds.
- Maximum Efficiency – Selectable inline data reduction dramatically lowers data center footprint and cost.

Benefits

- Direct access to flash memory with latency as low as 200 microseconds
- ONE flash platform, ANY workload concurrent NAS and SAN connectivity
- Substantial TCO savings with up to 10:1 data consolidation effectively
- Designed for future persistent media and NVMe-oF™ data access



IntelliFlash HD Flash Arrays



HD-Series all-flash arrays offer massive density and high performance in a single platform. These arrays leverage dense SAS-based flash media to deliver exceptional levels of consolidation, footprint reduction, and OPEX savings.

Ideal for mixed workloads, HD-Series arrays deliver consistent and predictable low-latency data access.

Key Features

- Ultra-Dense, yet Compact – Over 5 Petabytes of effective storage capacity in a compact 10RU footprint
- Unified Storage – Concurrent block and file access for workload consolidation
- Sub-millisecond response times – Consistent low-latency performance for mixed workloads

Benefits

- Consistent sub-millisecond response times with SAS-based 3D NAND flash
- One Flash Platform, ANY Workload Concurrent NAS and SAN connectivity
- Substantial TCO savings with up to 10:1 data consolidation efficiency
- Dense, yet Compact – Over 5PB of effective capacity in 10RU



IntelliFlash T-Series (SAS All-Flash Array)



T-Series all-flash arrays are purpose-built for virtual environments that require high-performance at low latency. These arrays deliver consistent low-latency I/O while providing tremendous cost savings by seamlessly reducing data footprint through inline deduplication and compressions.

The T-series accelerates structured and unstructured data analysis to unearth insights and turn them into significant business results.

Key Features

- Easy to Manage – VM-aware, simple, and flexible storage management
- Eliminates Noisy Neighbor – Low latency with high IOPS to avoid noisy neighbor VM performance issues
- Maximum Efficiency – Achieve up to 10:1 data footprint reduction through selectable inline data reduction.

Benefits

- Consistent sub-millisecond response times with SAS-based 3D NAND flash
- One Flash Platform, ANY Workload Concurrent NAS and SAN connectivity
- VM-aware monitoring and management makes deployment easy
- Up to 10:1 data reduction for virtual application workloads



IntelliFlash T-Series (Hybrid Flash Array)



T-Series hybrid flash arrays combine the performance of flash memory and the economics of hard disk drives to deliver an efficient, hybrid storage solution. Ideal for applications that require cost-effective flash performance, IntelliFlash hybrid flash arrays offer exceptional value for storing and managing your secondary and backup data. The arrays come in various configurations that enable customers to dial up the flash:disk ratio to balance performance and economics as required.

Key Features

- Radically Simple – Configure, deploy, and manage with ease
- Dial Up Flash as Needed – Configurations include 10% / 30% / 60% flash as a percentage of total capacity
- Advanced Storage Pooling – All-flash and hybrid flash storage pools for different performance service levels

Benefits

- Dial up flash for more performance with flexible ratio of flash:disk capacity
- One Flash Platform, ANY Workload Concurrent NAS and SAN connectivity
- Built-in Data Reduction delivers great Economics for Secondary Workloads
- All-flash and hybrid-flash storage pools for different performance service levels



IntelliCare™ Cloud Management

IntelliCare is a comprehensive predictive analytics application designed to maximize the efficiency and uptime of your IntelliFlash array deployment. It is hosted in the cloud and it enables you to quickly and easily monitor the health, performance, and usage of IntelliFlash arrays, predict future requirements, and detect problems before they develop into component and system failures.

Data Collection

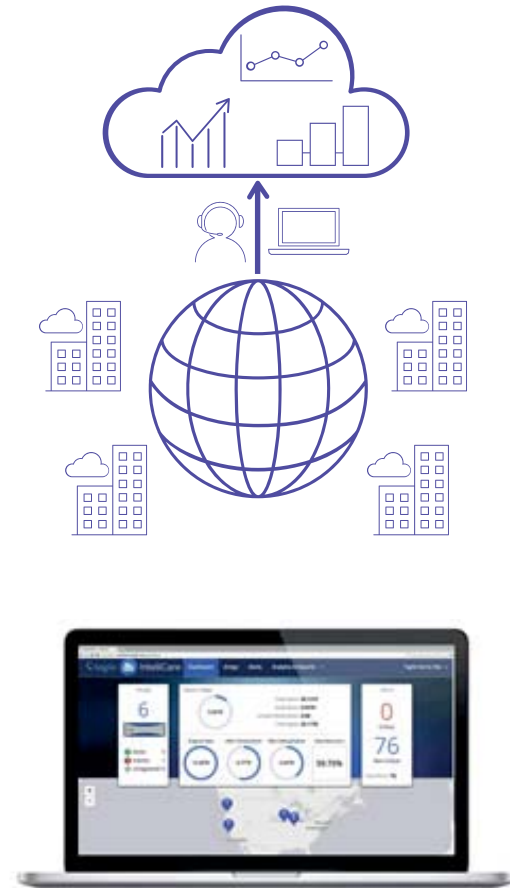
IntelliCare collects millions of different data points from IntelliFlash storage arrays around the world, including capacity usage, configurations, system health, and performance. Servers in the cloud then process and analyze data to detect issues and identify patterns that can help predict trends. No need to install any agents or stand up your own infrastructure.

Web Portal

Use IntelliCare to monitor your IntelliFlash arrays from a single web portal. Simply log in and you have a wealth of information at your fingertips:

- Configuration details as well as pool, project, share, and LUN properties
- Storage space usage and aggregate data reduction rates
- Critical and non-critical alerts
- Current and historical performance, including IOPS, bandwidth, latency, and cache hits

You have the power to accurately predict future requirements and learn about problems before they develop into component or system failures. IntelliCare is available to every customer under a current Standard or Premier Support contract.



ActiveScale™ System – Cloud-Scale Object Storage

The ActiveScale portfolio of cloud-scale object storage provides a home for unstructured data with scale, performance, extreme data durability, and exceptional economics. These storage systems provide turnkey solutions for customers seeking the combination of large scale for massive amounts of unstructured data combined with exceptional performance and a variety of system availability options with simplified management at a petabyte scale.

Built on advanced erasure code architecture with Dynamic Data Placement, ActiveScale Systems provides:

- **Advanced Erasure Code** – Dynamic Data Placement provides easy integration of new capacity and failure tolerance in a patented technology that avoids rebalancing.
- **Massive Growth** – Unstructured data is growing at 50% a year and can break traditional NAS infrastructure – move cold files to ActiveScale and save money.
- **Unified Data Access** – Use the scale and economics of ActiveScale to offload cold files from traditional NAS.
- **Extreme Data Durability** – Achieve up to 19 nines durability
- **Flexibility** – Choose between capacity and durability, and configure the system to optimize small object sizes.
- **Strong Consistency** – Always get fresh data when using geo-spreading for high system availability.
- **Data Integrity** – Background integrity checks with self-healing to counteract bit rot.



X100 System

- 1PB – 7PB usable
- Petabyte scale
- Fast growth



P100 System

- 854TB – 2.5PB usable
- Sub-petabyte footprint
- Fast growth



ActiveScale X100 System

The ActiveScale X100 system is an integrated cloud object storage solution that allows you to scale up from 1PB to 7PB (raw) and scale out to over 63PB (raw), so you can easily keep up with data growth and deliver on business objectives. For large-scale data that requires extreme data durability with easy and fast retrieval, the ActiveScale X100 system is designed to facilitate "Data Forever" architecture for investment protection and ease of operation.



Key Features

- **Integrated Design** – Available as a complete rack for easy implementation and rapid time to solution
- **Unstructured Data Solution** – Scale up and Scale out to accommodate rapid data growth
- **Facilitate a Data Forever Architecture** – Advanced features support long term data retention with peace of mind



ActiveScale P100 System

The ActiveScale P100 system is a modular cloud-scale object storage system that enables you to scale-out or geo-spread to over 23PB (raw), so you can easily keep up with data growth, storage management needs and deliver on business objectives. For large-scale data that requires long-term retention with easy and fast retrieval, the ActiveScale P100 is designed to facilitate a "Data Forever" architecture for investment protection and ease of operation.



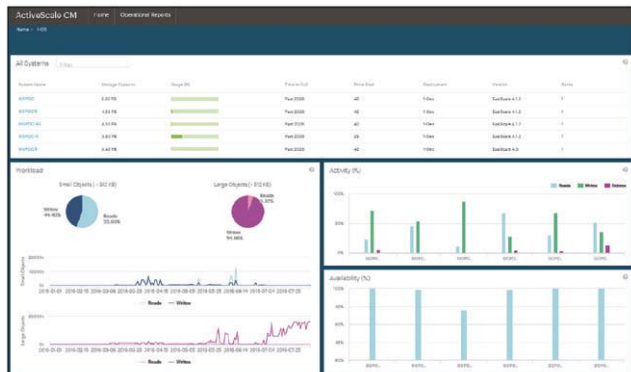
Key Features

- **Modular Design** – Designed as our lowest cost of entry with easy to integrate modular building blocks
- **Unstructured Data Solution** – Scale up and Scale out to accommodate rapid data growth
- **Facilitate a Data Forever Architecture** – Advanced features to support long term data retention with peace of mind



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.

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¹ 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) one petabyte (PB) is equal to 1,000TB (one quadrillion 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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