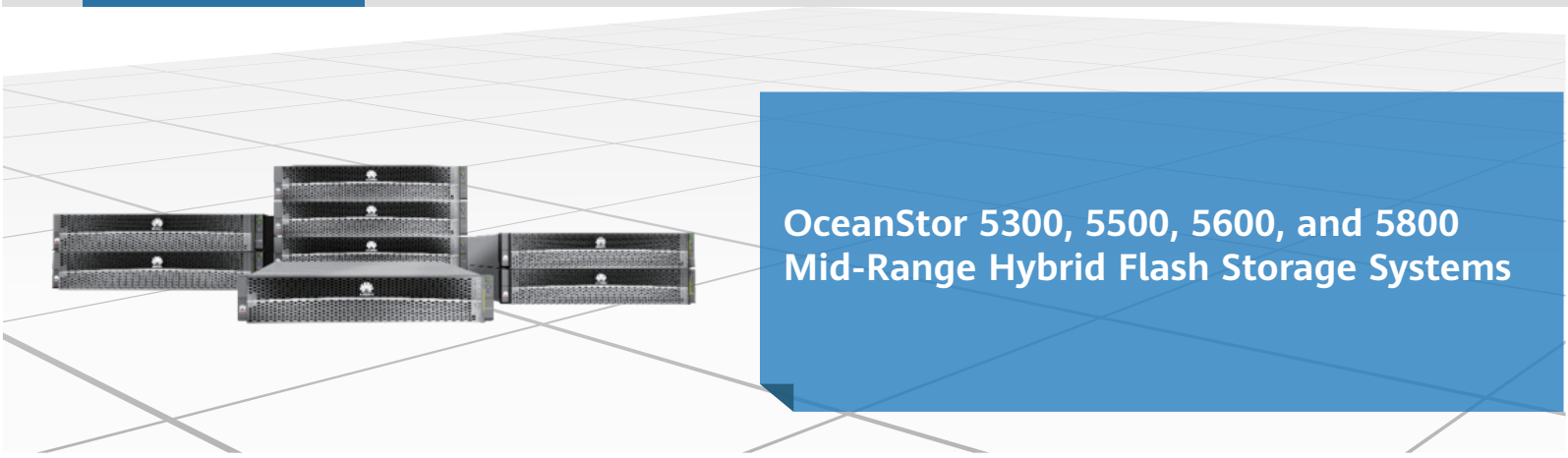
OceanStor 5300, 5500, 5600, and 5800 Mid-Range Hybrid Flash Storage Systems



OceanStor 5300, 5500, 5600, and 5800 mid-range hybrid flash storage systems (OceanStor mid-range hybrid flash storage for short) are Huawei's enterprise-class hybrid flash storage. With a cloud-ready operating system, industry-leading hardware platform, and intelligent management software, OceanStor mid-range hybrid flash storage delivers top-of-the-line functionality, performance, efficiency, reliability, and ease of use. It fully satisfies the data storage requirements of large-database OLTP/OLAP, file sharing, cloud computing, and many other applica-tions, and thereby is applicable to sectors such as government, finance, telecommunications, energy, and media. OceanStor mid-range hybrid flash storage also provides a wide range of efficient and flexible backup and disaster recovery (DR) solutions to ensure service continuity and data security, delivering excellent storage services.

Product Highlights

Multi-Level Convergence

Powered by the latest OceanStor OS, OceanStor mid-range hybrid flash storage provides converged and unified resource pools with the agility of resource scheduling, enabling free data mobility and helping enterprise IT architec-tures evolve to cloud-based architectures.

· **Convergence of all types of flash storage:** Huawei has the most complete flash product portfolio and supports interconnection between different types, levels, and generations of flash storage. Convergence of data, management, and O&M empowers million-level IOPS performance and low-latency flash storage arrays, while ensuring the long-term reliability of SSDs.

· **Convergence of SAN and NAS:** SAN and NAS are converged to provide elastic storage, improve storage resource utilization, and reduce the total cost of ownership (TCO). The new OceanStor mid-range hybrid flash storage not only converges SAN and NAS to support multiple types of services, but also provides industry-leading SAN and NAS performance and functions.

· **Convergence of storage resource pools:** The built-in heterogeneous virtualization function enables OceanStor mid-range hybrid flash storage to take over the storage arrays of different levels, types, and models from other mainstream vendors, and integrate them into a unified resource pool. This eliminates data silos, achieves unified resource management, and enables automated service orchestration. In addition, data can be automatically migrated from third-party storage to Huawei storage without interrupting services. Huawei's automatic migration tool reduces the migration time by 60% on average.

· **Convergence of multiple data centers:** The converged active-active solution converges gateways, quorum devices, and networks to make the networking simpler. The HyperMetro active-active solution, in combination with HyperVault 3DC, further guarantees the continuity of core services. Active-active data center deployment can be smoothly upgraded to the geo-redundant 3DC layout to achieve the highest level of service continuity protection. Customers can also deploy hierarchical data centers for the purpose of centralized disaster recovery. Currently, Huawei storage supports the backup of data from 64 subordinate data centers to a central data center.

Excellent Performance

Meeting performance requirements for core enterprise services

· **Flash-oriented storage architecture:** OceanStor mid-range hybrid flash storage employs a flash-oriented system architecture, based on the flash convergence technology, CPU scheduling, cache, RAID, and interworking between the OceanStor OS and disks that are specially designed to suit flash memory. OceanStor mid-range hybrid flash storage can intelligently sense HDDs and SSDs, automatically distinguish between media types, and dynamically select the optimal algorithms to provide a stable I/O response time that is shorter than 1 ms in the event of a large number of service access requests, thereby ensuring the optimal performance of critical applications. (In the high-end storage industry, the average I/O response time is about 5 to 10 ms.)

· **Industry-leading flash-oriented specifications:** OceanStor mid-range hybrid flash storage employs multi-core processors, cutting-edge RDMA technology, 12 Gbit/s SAS 3.0 or 100 Gbit/s NVMe over Fabric disk ports, and a variety of front-end ports such as 32 Gbit/s Fibre Channel and 100 Gbit/s Ethernet front-end ports. It fully meets requirements for bandwidth-sensitive application scenarios, such as those involving videos and large files.

· **Flexible scalability:** With the scale-out architecture, OceanStor mid-range hybrid flash storage can be equipped with a maximum of 16 controllers, 12 TB of cache, and 2,400 disks, providing performance necessary to support customers' ever-increasing data demands and maximizing their return on investment.

Solid Reliability

99.9999% availability at product and solution levels

· **Load balancing among multiple controllers:** OceanStor mid-range hybrid flash storage enables load balancing among controllers and eliminates single points of failure, thereby ensuring high system availability and stable service running. Multiple controllers can be used simultaneously to accelerate services for one host, removing performance bottlenecks of a single controller and doubling performance.

· **Unique, rapid data restoration technology:** Innovative block-level virtualization is employed to reduce the time needed to reconstruct 1 TB of data from 10 hours to 30 minutes. Compared with traditional storage systems, OceanStor mid-range hybrid flash storage reduces the risk of data damage caused by disk failures by 95%.

· **A wide range of data protection software:** The Hyper series of data protection software includes snapshot, clone, all-in-one backup, remote replication, and other data protection technologies. They protect user data locally, remotely, inside systems, and across different regions, and achieve 99.9999% availability, maximizing service continuity and data availability. The intelligent data encryption technology can meet data encryption requirements in various scenarios, preventing data theft and ensuring service security.

· **Active-active SAN and NAS for core applications:** Huawei takes the lead to launch an active-active solution for both SAN and NAS, ensuring high availability for databases and file services. The gateway-free HyperMetro solution enables load balancing of active-active mirrors and non-disruptive cross-site takeover, ensuring zero loss of core application data and zero service interruption. In addition, HyperMetro can be effortlessly upgraded to the geo-redundant layout with three data centers.

Intelligent Services

Accelerating the cloud transformation of enterprises

· **Intelligent O&M:** eService enables cloud-based monitoring, around-the-clock proactive monitoring, minute-level fault sensing, automatic fault reporting, and automatic ticket creation. eService can also automatically inspect every aspect of a device's status, provide cloud-ready evaluation services, automatically analyze workload characteristics, generate an analysis report with one click, recommend storage design schemes, offer intelligent trend prediction, and plan expansion in advance.

· **Hybrid cloud solution:** Huawei offers a hybrid-cloud-based storage solution for enterprises, which implements on- and off-premises resource collaboration and data mobility. Public cloud is regarded as a storage tier. Customers can perform cross-cloud data backup and migration, achieving smooth cloud transformation of storage services.

Product Specifications

Name	OceanStor 5300	OceanStor 5500	OceanStor 5600	OceanStor 5800
Controller Enclosure Specifications				
Processor	Multi-core processors			
System cache (expands with the number of controllers)	128 GB to 2 TB	384 GB to 4 TB	768 GB to 8 TB	1536 GB to 12 TB
Maximum number of controllers	16	16	16	16
Supported storage protocols	Fibre Channel, iSCSI, NFS, CIFS, FTP, HTTP			
Types of front-end ports	8/16/32 Gbit/s Fibre Channel, 1/10/25/40/100 Gbit/s Ethernet			
Type of back-end ports	NVMe over Fabric / SAS 3.0			
Maximum number of hot-pluggable I/O modules per controller	3	6	6	6
Maximum number of front-end ports per controller	20	24	24	24
Maximum number of disks	1,200	1,600	2,000	2,400
Disk type	NVMe SSD, SAS SSD, SAS, NL-SAS			
RAID	RAID 0, 1, 3, 5, 6, 10, 50			
Key Software Features				
Data protection software	HyperSnap, HyperClone HyperCopy, HyperMirror HyperMetro, HyperReplication HyperLock, HyperVault			
Mission-critical service protection	SmartQoS SmartPartition SmartCache SmartEncryption			
Resource efficiency improvement software	SmartMigration, SmartVirtualization SmartMulti-Tenant, SmartQuota SmartDedupe, SmartCompression SmartThin, SmartTier SmartMotion, SmartErase			
Storage management software	UltraPath BCManager DeviceManager eSight eService			

Name	OceanStor 5300	OceanStor 5500	OceanStor 5600	OceanStor 5800
Virtualization Features				
Heterogeneous virtualization	Consolidates storage resources of mainstream products to manage and allocate storage resources in a flexible and unified manner			
Block-level virtualization	Enables balanced data distribution and quick fault recovery			
Physical Specifications				
Power supply	AC: 100 V to 240 V±10% DC: -48V to -60V	AC: 110 V to 240 V±10% DC: 240 V±20%		
Dimensions (H x W x D)	2 U controller enclosure: 86.1 mm x 447 mm x 520 mm 86.1 mm x 447 mm x 600 mm 86.1 mm x 447 mm x 620 mm	2 U controller enclosure: 86.1 mm x 447 mm x 820 mm 86.1 mm x 447 mm x 900 mm 86.1 mm x 447 mm x 920 mm		
	2 U SAS disk enclosure: 86.1 mm x 447 mm x 410 mm 2 U NVMe disk enclosure: 86.1 mm x 447 mm x 620 mm 4 U disk enclosure: 175 mm x 447 mm x 490 mm 4 U high-density disk enclosure: 176.5mm x 447mm x 974mm			
Weight	2 U controller enclosure: ≤ 39 kg 2 U disk enclosure: ≤ 25 kg 4 U disk enclosure: ≤ 40 kg 4 U high-density disk enclosure: ≤ 91kg			
Operating temperature	5°C to 40°C (altitude: < 1,800 m), 5°C to 35°C (altitude: 1,800 m to 3,000 m)			
Operating humidity	10% RH to 90% RH			

To learn more about Huawei storage, please contact the local office or visit Huawei Enterprise website http://e.huawei.com.

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