

# Lightning Fast Rock Solid

Huawei OceanStor Dorado V3 all-flash storage is purpose-built for enterprise-class mission-critical business. Powered by Huawei FlashLink™ technology, it is scalable to 16 controllers and supports up to 7 million IOPS, boosting application performance threefold while delivering a consistent latency of 0.5 ms with inline compression, inline deduplication, and snapshot enabled. It employs gateway-free active-active technology to ensure RPO=0 and RTO≈0, and can be upgraded to the 3DC solution to achieve 99.9999% availability. It also offers a 3:1 data reduction guarantee, leading to 75% OPEX savings.

The OceanStor Dorado V3 is ideal for use with databases, virtual desktop infrastructure (VDI), virtual server infrastructure (VSI), and SAP HANA. It has been designed to facilitate the transition to all-flash for customers in the finance, manufacturing, and telecom sectors.

## Features

### Outstanding Performance

Enterprises are finding accurate decision-making more and more challenging in the face of today's massive, complex, and rapidly changing data. They are in urgent need of high-performance IT infrastructures to support the quick analysis of massive data and the extraction of valuable information. Huawei's OceanStor Dorado V3 all-flash storage is able to deliver 0.5 ms consistent latency by incorporating end-to-end optimizations to SSDs and controllers, and Huawei's unique FlashLink™ technology, improving application performance threefold and reducing report generation time to one third. It can scale out to 16 controllers and 7 million IOPS, making it capable of meeting growing business requirements in the future.

### World's fastest SSD

Huawei is the first in the industry to put NVMe all-flash storage into commercial use. Inside, a proprietary Huawei SSD control chip is used to run the Flash Translation Layer (FTL) algorithm and accelerate data read and write, delivering the lowest read latency in the industry.

### Flash-optimized operating system

Most storage solutions in the industry are based on incremental improvements to traditional storage systems. They cannot take full advantage of the capabilities of SSDs. Huawei OceanStor Dorado V3 storage operating system is the first to adopt the NVMe architecture, which supports direct communication between the CPU and NVMe SSDs. This eliminates the need for SCSI-SAS conversion and shortens the data transmission path, lowering end-to-end latency by 200 μs. Moreover, the system incorporates an industry-leading disk-controller collaboration algorithm, which synchronizes the data layout between SSDs and controllers. This design enables it to provide outstanding performance at a consistently low latency. The redirect on write (ROW) technology keeps performance unaffected after enabling of snapshot. It adjusts LUN granularities based on application needs to better match performances of different applications. Lastly, it provides rich QoS strategies, which ensure high performance for mission-critical applications and excellent user experience.

### Linear performance and capacity expansion

The solution to unpredictable business growth is to implement a storage infrastructure that is predictable, scalable, and has high performance. The scale-out architecture of Dorado V3 supports linear expansion to 16 controllers, ensuring a linear growth of IOPS.

## Stable and Reliable

The adoption of the cloud and flash technologies has fueled explosive growth in the volume of data and driven the search for ever-higher levels of data reliability. The Dorado V3 ensures reliability from the disk, system to solution, achieving 99.9999% availability for mission-critical business and satisfying even the most strict enterprise-class reliability requirements.

## World's most reliable SSD

SSD is the carrier of data, so its reliability has always been users' greatest concern. Huawei SSDs leverage the global wear-leveling technology to balance the load among all SSDs and extend the duration of each. In addition, Huawei's patented anti-wear leveling technology prevents group failures of multiple disks and improves the reliability of the entire system. Applying numerous encryption strategies ensures data security. With the mean time between failure (MTBF) of 3 million hours, Huawei SSDs outperform those of other vendors by 20%.

## Comprehensive security hardening

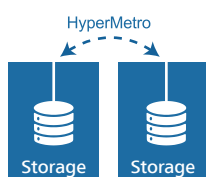
The flash storage system has been hardened at both the hardware and software layers. At the hardware layer, the full-redundancy architecture supports the hot plugging of ports and NVMe SSDs to eliminate single points of failure. Having passed the magnitude-9 earthquake resistance test of the China Telecommunication Technology Labs, Dorado V3 can tolerate vibrations in device transport and installation. At the software layer, Dorado V3 incorporates the RAID-TP technology, which can tolerate the simultaneous failure of three SSDs, guaranteeing the highest level of reliability in the industry. In addition, RAID-TP shortens the reconstruction time for 1 TB data to 30 minutes, effectively protecting data from the reliability risk posed by large-capacity disks. Customers can enjoy the benefits of large-capacity disks without worrying about risks to data reliability. The system also supports cascaded snapshot, multiple snapshot copies, scheduled automatic snapshot, and writable clone functions, reinforcing the data protection reliability. The automatic snapshot period can be set to seconds.



Hyper Series Data Protection Software

## Gateway-free active-active solution

Flash storage is designed for mission-critical businesses that cannot tolerate any loss or interruption, and the active-active solution is the inevitable choice. The gateway-free design of the solution simplifies deployment and reduces the total number of possible points of failure. The solution balances the load between active-active mirrors and permits non-disruptive cross-site takeover. The system supports two physical quorum servers to prevent single points of failure. The active-active solution can smoothly upgrade to 3DC solution without gateways, which ensures 99.9999% availability and protects core applications from breakdown.



HyperMetro Gateway-free Active-Active Solution

## Convergence and High Efficiency

The core mission of any IT system is to help enterprises improve their efficiency, and this mission is now more critical than ever. The transition to flash-oriented IT architecture helps enterprises increase their revenue and decrease their expenditures at the same time with increased value and simplified management.

## Data reduction

Inline deduplication and compression technologies release the storage capacity occupied by redundant data. This effectively improves utilization and reduces power consumption, cooling, and maintenance fees, cutting end-to-end OPEX by 75%. For customers who buy OceanStor Dorado V3 all-flash storage, Huawei guarantees a 3:1 data reduction ratio, helping them lower their investment while achieving higher ROI. Deduplication and compression can be separately enabled and disabled to better suite specific application requirements.



Inline Deduplication and Compression



## Interconnection

Deploying all-flash systems at both active and passive sites increases costs for data centers. To solve this problem, the Dorado V3 can interconnect with OceanStor all series converged storage, helping users build cost-effective disaster recovery protection schemes and protecting their investment.

## Wide compatibility

Upgrading existing storage systems to all-flash storage involves migrating data between different storage models using different operating systems and application software. This brings critical challenges to the system compatibility. The Dorado V3 is compatible with over 300 mainstream storage systems and 98% of IT infrastructures, enabling smooth upgrades that do not affect business and helping data centers transition easily to flash.

## Technical Specifications

Model	OceanStor Dorado5000 V3		OceanStor Dorado6000 V3	OceanStor Dorado18000 V3
<b>Hardware Specifications</b>				
Maximum number of controllers	16*			
System cache (dual-controller, expanding with the number of controllers)	512GB to 4TB	256GB to 4TB	512GB to 16TB	512GB to 16TB
Supported storage protocols	FC, iSCSI, InfiniBand			
Type of front-end ports	8Gbps/16Gbps FC, 10GE iSCSI/FCoE, 56Gbps InfiniBand			
Type of back-end ports	PCIe 3.0	SAS3.0	SAS3.0	SAS3.0
Maximum number of SSDs	200 (9,600*)	1,400 (9,600*)	2,400 (9,600*)	3,200 (9,600*)
Supported SSDs	1 TB/2 TB/4 TB NVMe SSD	600GB/900 GB /1.8 TB/3.6 TB /7.68 TB SAS SSD	600GB/900 GB/1.8 TB/3.6 TB/7.68 TB SAS SSD	600GB/900 GB/1.8 TB/3.6 TB/7.68 TB SAS SSD
<b>Software Specifications</b>				
Supported RAID levels	RAID5, RAID6, and RAID-TP (tolerating simultaneous failure of 3 SSDs)			
Maximum number of hosts	8,192			
Maximum number of LUNs	16,384	16,384	32,768	65,536
Value-added features	SmartDedupe (intelligent inline deduplication) SmartThin (intelligent thin provisioning) SmartMigration (intelligent LUN migration) HyperSnap (snapshot) HyperReplication (remote replication)		SmartCompression (intelligent inline compression) SmartVirtualization (intelligent heterogeneous virtualization) SmartQoS (intelligent QoS control) HyperClone (LUN Clone) HyperMetro (gateway-free active-active solution)	

# Technical Specifications

Model	OceanStor Dorado5000 V3	OceanStor Dorado6000 V3	OceanStor Dorado18000 V3
<b>Software Specifications</b>			
Storage management software	DeviceManager (device management) eService (remote maintenance and management)		UltraPath (multi-path management)
Operating system compatibility	AIX, HP-UX, Solaris, Linux, Windows		
Supported virtualization environment software	Virtualization platforms: Huawei FusionSphere, VMware, XenServer, and Hyper-V Value-added features: VMware VAAI/VASA/SRM/VVOL, and Hyper-V Integration with VMware vSphere and vCenter		
<b>Physical Specifications</b>			
Power supply	AC: 100 V to 240 V DC: 192 V to 288 V or -48 V to -60 V	AC: 200 V to 240 V DC: 192 V to 288 V or -48 V to -60 V	AC: 200 V to 240 V DC: 192 V to 288 V
Power consumption	Controller enclosure (NVMe): ≤ 700 W Controller enclosure (SAS): ≤ 716 W Disk enclosure: ≤ 240 W	Controller enclosure: ≤ 1002 W Disk enclosure: ≤ 240 W	Controller enclosure: ≤ 1761 W Disk enclosure: ≤ 240 W
Dimensions (H x W x D)	Controller enclosure: 86.1 mm×447 mm×748 mm Disk enclosure: 86.1 mm×447 mm×488 mm	Controller enclosure: 130.5 mm×447 mm×750 mm Disk enclosure: 86.1 mm×447 mm×488 mm	Controller enclosure: 263.9 mm×447 mm×750 mm Disk enclosure: 86.1 mm×447 mm×488 mm
Weight	Controller enclosure ≤ 40 kg Disk enclosure ≤ 20 kg	Controller enclosure ≤ 60 kg Disk enclosure ≤ 20 kg	Controller enclosure ≤ 96 kg Disk enclosure ≤ 20 kg
Operating temperature	5 °C to 40 °C (altitude: < 1800 m), 5 °C to 35 °C (altitude: 1800 m to 3000 m)		
Operating humidity (relative humidity)	5% RH to 95% RH		

If there are any \* marked requirements, please contact Huawei sales.

## For More Information

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



Huawei Enterprise APP



Huawei IT



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HUAWEI TECHNOLOGIES CO., LTD.  
Address: Huawei Industrial Base Bantian, Longgang Shenzhen, PRC  
Tel: (0755) 28780808  
Zip code: 518129  
[www.huawei.com](http://www.huawei.com)