

Maipu MPS2500G2 Storage Datasheet

Overview

Maipu MPS2500G2 series storage, with its leading hardware architecture and rich software functions, can meet a variety of data center application scenarios, such as database, centralized online storage, backup storage, disaster recovery and data migration with increasing high storage requirements, to ensure no data loss and service continuity. MPS2500G2 has high reliability, high performance, high expansion, and high performance, which can better support the rapid development of user services.



Key Features

Flexible choice

MPS2500G2-24A supports 24 Bay. Dual control supports 32-256GB cache configuration.

- ✧ **Flexible Choice of Hard Disk Types:** support SSD, SAS, NL-SAS, and SATA hard disks.
- ✧ **Flexible Networking:** support 1/10/25/40/100Gb/s Ethernet module, 8/16/32Gb/s FC, and other interfaces, which can help users easily build IP SAN, FC SAN and IP/FC hybrid networking environment.
- ✧ **Fully Support IPv6:** It supports IPv4 and IPv6 dual protocol stacks. The host and storage can build an IP SAN storage network through IPv4/v6 protocol, the management terminal and storage can build an out-of-band management network through IPv4/v6 protocol, and the storage and storage can build a data replication network through ipv4/v6 protocol to meet the IP deployment, application and management requirements under different application scenarios; The expanded multi-control storage system can be accessed from any controller without the dual-active function, and can automatically identify the original data, providing users with uninterrupted capacity upgrade and performance upgrade.

Powerful scalability

- ✧ **16-Controller Expansion:** MPS2500G2 adopts horizontal SAN expansion architecture and supports online non-downtime horizontal expansion of 10/25/100GB Ethernet and 16/32G FC network dual protocols. It can expand 16 controllers and 2048Gb cache online at most to meet users' expansion requirements for storage performance.
- ✧ **1200 Hard Disk Expansion:** dual control supports 1200 hard disks, which fully meets the expansion requirements of users' service development for the storage capacity.
- ✧ **34 Host Interface Expansion:** The dual-control system has fixed 1Gb/s Ethernet interfaces and 10Gb/s Ethernet interfaces, which can be expanded to 1/10/25/100Gb/s Ethernet, 8/16/32Gb/s FC by external I/O modules at the same time.

High Reliability

- ✧ **Full Redundancy and Modular Design:** MPS2500G2 adopt full redundancy architecture to ensure system reliability. The main components of the controller, such as chassis, controller, power supply, fan, battery, and host interface card, adopt modular design, and support hot-swap and online replacement of individual components. When some components fail, it can realize rapid fault isolation and component replacement to avoid great impact on the whole system.
- ✧ **CRAID Technology:** The unique IDDC+CRAID technology can realize minute-class rapid reconfiguration of partially damaged hard disks. A single RAID group can tolerate the failure of any three hard disks without data loss. Based on the global load technology, IO is distributed to all hard disks, greatly improving IO concurrency and realizing rapid reconfiguration. The reconfiguration time of 1TB data can be shortened to within 30 minutes, and it allows multiple disks of a RAID group to have media failures without data loss. At the same time, combined with the slow power-on technology of the hard disk of the storage system, avoid the risk of current overload and tripping caused by the simultaneous power on of a large number of hard disks, so as to further ensure the high reliability of the system. In addition, the product supports the mixed insertion, hot –swap, and online replacement of different types of hard disks in the same hard disk cabinet to further ensure data security.
- ✧ **Data Consistency Protection:** It supports data consistency protection based on T10 PI. In the process of data reading and writing, it ensures the data integrity of the whole path from the host port to the hard disk, prevents silent data errors, and ensures the safety of user data.
- ✧ **Cache Freezing Technology:** When the data cannot be written due to flash failure or failure of the data disk, the data in the cache can be frozen. After the data disk is repaired, the frozen cache data will be distributed to the data disk to ensure that the data is not lost.
- ✧ **Controller Self-Healing Technology:** It supports cache mirroring. When two nodes of dual control storage

are abnormal at the same time (crash or software and hardware failure, etc.), the storage operating system can quickly and automatically repair to the normal operation state and ensure that the cache data is not lost and the upper-layer service is not interrupted.

Rich functions

MPS2500G2 provides rich data protection functions, including data snapshot, data replication, data mirroring, symmetric active-active, one-click destruction, distribution and other features. Through these features, it realizes data management and protection from online to offline, from local to remote, and easily provides users with multi-level and cross-regional storage solutions.

- ✧ **Leading Symmetrical Dual-Active Scheme:** Without introducing any third-party software and hardware, directly realize the dual-active operation of two storages through two MPS2500G2 series storage arrays, which are redundant to each other. When one storage fails, the other storage can take over the service in real time, realizing zero RPO and RTO. The dual-active link between devices supports 10/25/100GE Ethernet and 16/32G FC.
- ✧ **Data Snapshot:** It supports continuous data snapshot function and can create up to 2048 incremental historical time point copies for a single data volume. When data "soft" failures occur, such as data damage, virus damage, accidental deletion caused by software programs, data can be quickly recovered by "rolling back" the appropriate time point mark. This function is especially suitable for continuous data protection of critical services.
- ✧ **Data Replication:** It can provide the data replication function of 1:2, continuous hop, 64-to-1 points, support the graphical management interface to customize the remote data transmission time interval (the adjustable asynchronous transmission time interval is less than 10s), provide users with flexible data replication policies, realize the remote backup of data, and can quickly recover data in case of unexpected disasters, so as to ensure the services continuity of users. The replication link supports 10/25/100GE Ethernet and 16/32G FC. For the IP link, it can be seamlessly docked with the replication link of the WAN through the replication interface, realizing long-distance data disaster recovery across the WAN without protocol conversion, and effectively reducing the cost of the disaster recovery link.
- ✧ **Local Cloning:** The local cloning function can online provide highly available and flexible data copies that are completely consistent with the production volume at a certain time and can continuously protect the data. In case of failure, it can ensure that the data is not lost, and independently provide the cloned volume to the front-end services for use. It is suitable for application scenarios that often analyze or test the generated data.
- ✧ **Data Mirroring:** The data mirroring function saves a fully synchronized real-time mirror of the main data by establishing mirrored data between two hard disk arrays. Each written IO will be saved to the primary storage and the mirrored storage at the same time. When the primary storage fails, the mirrored storage can provide storage services.
- ✧ **Non-Interrupt Data Migration (NDM):** The NDM technology can realize data migration within a single device and across devices, without front-end perception and service interruption during the migration process. Hybrid arrays can realize non-interrupt data migration between the NDM technology and full flash arrays.
- ✧ **SAN/NAS integration:** In the same set of hardware equipment, both SAN and NAS services are provided at the same time, without configuring additional NAS gateway equipment, reducing equipment investment, shortening data access paths, and effectively reducing the complexity of deployment and operation and maintenance.
- ✧ **Availability:** The storage products are mature and stable, and support 100% system availability. The point-to-point direct interconnection between controllers is realized through PCI-E bus, and each controller is configured with ≥ 2 storage processors (SAS control, BMC, Expander, etc.). It provides up to 50 inspection items, including five parts: system, hardware, basic functions, advanced functions, and inspection item statistics, covering all sub items in storage devices such as hardware, disk, RAID, LUN, IT connection, replication, snapshot, and dual-active, and comprehensively inspecting the storage devices.
- ✧ **Distributed Feature:** It supports fully symmetric distributed file system software, and metadata is distributed on all nodes, allowing 1/2 nodes to fail, without data loss and service interruption. Support horizontal expansion and ensure the year-on-year growth of performance and capacity based on ensuring a unified

namespace.

- ✧ **One-Key Destroy:** One button can erase the confidential data on the user's storage media, fully ensuring the security of the data.
- ✧ **Auto Layering:** Realize the free flow of data on different hard disk medias according to the access frequency of data.
- ✧ **Intelligent Cache Scheduling:** Adopt asymmetric cache scheduling technology to dynamically adjust the size of read and write cache according to the actual situation, to meet the real-time changing performance requirements of LUN and realize QoS requirements.
- ✧ **Dynamic Load Balancing:** Support dynamic load balancing between controllers, adjust workload between controllers without interruption, eliminate performance bottlenecks, and achieve strict service-class goals.
- ✧ **Thin Provisioning:** ICMT-based thin provisioning technology, the system automatically identifies front-end service IO and dynamically allocates storage resources, which can greatly reduce the difficulty of capacity planning for system administrators.
- ✧ **Quality of Service Control QoS:** Integrate and pool storage resources such as CPU, memory, bandwidth, and give priority to service requests with higher priority according to the importance of the service, so as to make the system resource allocation more reasonable.

Flash-oriented smart storage platform

The high performance of flash disk has been unanimously recognized in the industry. With the help of MPSP storage operating system, MPS2500G2 series storage integrates this leading hard disk technology into its high-performance architecture to provide the ultimate flash converged solution.

- ✧ **Intelligent Media Identification Realizes Extreme Performance:** MPSP storage operating system can intelligently identify the back-end storage media, automatically execute flash optimization algorithm for flash disk, reduce the operation frequency of hard disk, shorten the IO path, and provide extreme performance.
- ✧ **Global Wear Balance Improves The Service Life Of Flash:** Based on CRAID3.0 and integrating the characteristics of flash memory, the CRAID3.0 flash memory optimization technology can cut each flash disk into several small blocks to form a global resource pool, and then intelligently distribute IO to all small blocks through a certain discrete algorithm, to achieve global wear balance and greatly improve the service life of flash memory.

Cost-effective

- ✧ **High Performance:** With flexible configuration choice, it can at least meet the disclosed budget needs at the initial stage of enterprise information construction.
- ✧ **Unified Management interface:** Adopt the wizard configuration, and the administrator can complete the relevant configuration with a simple click of the mouse. Multiple devices can be managed at the same time on one management interface, which simplifies complexity and is suitable for management under large-scale deployment.
- ✧ **MPSP Unified Software Platform:** MPS2500G2 adopts MPSP unified software platform and has advanced data management functions.
- ✧ **Smooth upgrade:** Maipu storage management platform (MPSP) can manage a full range of hybrid array products. It can be smoothly upgraded to a higher product series by replacing the hybrid array controller. There is no need for data migration during the upgrade process, which effectively protects user investment.

Technical Specifications

Item	MPS2500G2-24A
General Specification	
Processor	Intel multi-core processor
Max. Controllers	16
Height (Number of Bays)	4U (24*3.5/2.5-inch)
Max. Cache Capacity (Each dual-control)	256GB
Level-2 Cache (Max.)	6.4TB (expand with the controller)
Front-End Port Type	8/16/32Gb/s FC, 1/10/25/100Gb/s iSCSI
Hard Disk Type	SSD, SAS, NL-SAS, SATA and so on (Support mixed insertion of different types of hard disks)
Expand Hard Disk Cabinet Type	4U hard disk cabinet: 24 Bays, supporting 2.5/3.5-inch hard disk drive
	2U hard disk cabinet: 25 Bays, supporting 2.5-inch hard disk drive
Max. Hard Disks (Per dual-control)	1200
Max. Number of Hard Disks Configured with Full Flash Memory (per dual control)	250
Storage Pools (per dual control)	60
LUNs Supported by Each Pool (per dual control)	1024
Hard Disk Detection and Diagnosis	Support periodic hard disk detection and intelligent dynamic adjustment of hard disk detection speed
RAID Class and Hot Backup Feature	RAID/CRAID(CRAID3.0) 0, 1, 3, 4, 5, 6, 10, 50, 60, x0 and so on, support dedicated hot backup, global hot backup, and hot backup of idle hard disk
CRAID Feature	CRAID group allows media errors in multiple hard disks, tolerates physical failures in any three disks, and supports normal reconstruction, local reconstruction, and fast reconstruction
LUN Synchronization Feature	Support asynchronization, check synchronization, and fast synchronization
OS Supporting	AIX, HP-UX, Solaris, Windows, Linux and so on
Virtualization Platform Supporting	VMware, Citrix, Hyper-V, OpenStack, KVM, XEN and so on
Basic Management Software	Management Suite, including basic storage management, CRAID, system monitoring, log and alarm functions
Management Mode	Support graphical, CLI interface, provide Webservice access interface, provide SMI-S, Cinder management interface
Advanced Features	Thin provisioning, intelligent tiered storage, non-interrupt data migration (NDM), performance monitoring, data snapshots, data replication, data mirroring, local cloning, local mirroring, symmetric dual-active, quality of service control (QoS), multi-tenant etc.

Max. IOPS	300 thousand, access delay $\leq 0.5\text{ms}$ (Spc-1 test model)
NAS Features	Support CIFS, NFS, HTTP, FTP, and other protocols, Support quota, authority and other features
Distributed File Features	Max. nodes: 512
	Max. capacity: 256PB
	Max. capacity of single file: 16TB~256TB
	Max. files: 10 billion
	Max. clients: 65536
Hardware Specification	
Number of SPs	2
Number of Fan Modules	2
Number of Battery Modules	2
Number of Power Supply Modules	2
Number of Onboard Front-End Ports/SP	7*GE ports (including a console ETH port), 2*10GE ports
Number of Front-End IO Card Slots/SP	1 (Optional)
Number of Onboard SAS Ports/SP	2*48Gbps Mini SAS HD ports
Number of Disk Module Slots	24
Disk Types Supported	2.5-inch disk and 3.5-inch disk
Dimension (H×W×L)	175mm(4U)×446mm×650mm
Bare Weight	$\leq 42\text{kg}$
Full Weight	$\leq 68\text{kg}$
Power Supply	AC input: 200V to 240V, 50/60Hz, DC input: 240V
Average Power Consumption with Full Configuration	580W
Peak Power Consumption with Full Configuration	600W
Power Input	100V-127V AC/200V-240V; 60Hz/50Hz; 240V HVDC
Temperature	Work temperature: 0° C -40° C; recommended 10° C -35° C
	Non-work temperature: -20° C -60° C
Humidity	Working humidity: 10%-85%, no-condensing; 20% - 80% recommended, no condensing
	Non-work humidity: 0%-90%, non-condensing

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