X14 Top-Loading Storage

High-density, cost-effective storage for backup, archive, and data lake applications

More than 2.1PB of storage in 2U

- Single and dual-node architectures supporting single Intel Xeon 6700/6500 series processors with P-cores or 6700 series processors with E-cores
- Up to 90 3.5" SAS/SATA drives with tool-less trays + optional 2 rear 2.5" Gen5 NVMe drives for caching
- Front-access drawer design for easy servicing and maintenance
- Up to 4 PCIe 5.0 slots with tool-less brackets for NICs and xPU acceleration offload

Storage At Scale Made Simple

As the amount of data produced and retained continues to expand exponentially, organizations need storage solutions that can ensure the instant availability of large amounts of data while still controlling cost and physical footprint. Supermicro X14 Top-Loading Storage systems provide economical and reliable large-scale solutions for a range of cold and warm-tier storage requirements in standard rackmount form factors. The high-density configurations can accommodate more than 2PB of storage in a 4U chassis and support both SAS and SATA drive protocols for flexible storage system deployment.

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New Single-Socket Architecture

X14 is the first generation of Top-Loading Storage systems to use a single-socket architecture, supporting Intel Xeon 6700/6500 Series processors with P-cores or 6700 series with E-cores. A single CPU provides the same level of system performance that previously required dual sockets, while reducing acquisition and ongoing operational costs to lower TCO over the life of the deployment. A dual-node architecture is also available, with a single Intel Xeon processor and 45 drives per node. This configuration provides more CPU cores per drive to support erasure coding and can also speed up recovery from failed drives to ensure less downtime.
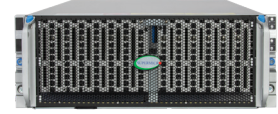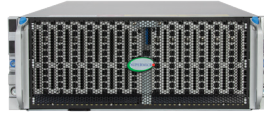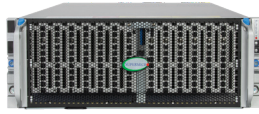
Software Defined Object Storage

The Supermicro X14 Top-Loading platform is designed to integrate with leading software defined storage products for large-scale object storage. Supermicro is able to offer complete SDS solutions thanks to strong partnerships with industry-leading vendors including Quantum, Cloudian, Scality, MinIO, and OSNexus.

Easy Servicing and Maintenance

These systems have been designed to reduce complexity of large-scale deployments and make drive installation and maintenance quick and easy, reducing downtime. The front-accessible drawer design allows quick access to all drives from the cold aisle, and features tool-less brackets, reducing the amount of time and expertise required to replace failed drives. At the rear of the system, tool-less PCIe slot brackets make it easy to install performance-improving accelerator and offload cards such as NICs and xPUs.

Powered by Intel Xeon 6 Processors

The new Intel Xeon 6700/6500 Series processors feature up to 47% more cores than previous generations and improved performance-per-core, increasing storage and I/O capacity on a per-socket basis. Intel Xeon 6 processors with P-cores also include the built-in Intel QuickAssist Technology (QAT) and Intel Data Streaming Accelerator (DSA) accelerators to offload specific tasks from the main CPU cores, improving storge performance and efficiency.

Top-Loading	SSG-542B-E1CR60	SSG-542B-E1CR90	SSG-542B-DE1CR90
Processor Support	Single Intel® Xeon® 6700/6500 series processor P-cores Single Intel® Xeon® 6700 series with E-cores Up to 350W TDP (air cooled)†	Single Intel® Xeon® 6700/6500 series processor P-cores Single Intel® Xeon® 6700 series with E-cores Up to 350W TDP (air cooled)†	Single Intel® Xeon® 6700/6500 series processor P-cores Single Intel® Xeon® 6700 series with E-cores Up to 350W TDP (air cooled)†
Memory Slots & Capacity	16 DIMM slots; Up to 2TB DDR5-6400MT/s Support for MRDIMMs up to 8000MT/s (P-core only)	16 DIMM slots; Up to 2TB DDR5-6400MT/s Support for MRDIMMs up to 8000MT/s (P-core only)	16 DIMM slots per node; Up to 2TB DDR5-6400MT/s Support for MRDIMMs up to 8000MT/s (P-core only)
I/O Ports	1 RJ45 dedicated BMC LAN port 2 USB 3.0 ports (rear) 1 VGA port (rear)	1 RJ45 dedicated IPMI LAN port 2 USB 3.0 ports (rear) 1 VGA port (rear)	1 RJ45 dedicated IPMI LAN port per node 2 USB 3.0 ports (rear) per node 1 VGA port (rear) per node
Motherboard	X14SBSC-P	X14SBSC-P	X14SBSC-P
Form Factor	4U Rackmount Enclosure: 780mm/30.7" depth	4U Rackmount Enclosure: 773.25mm/30.4" depth	4U Rackmount Enclosure: 773.25mm/30.4" depth
Expansion Slots	1 PCIe 5.0 x8 (in x8) HHHL slot 3 PCIe 5.0 x16 (in x16) HHHL slots	1 PCIe 5.0 x8 (in x8) HHHL slot 3 PCIe 5.0 x16 (in x16) HHHL slots	1 PCIe 5.0 x8 (in x8) HHHL slot per node 3 PCIe 5.0 x16 (in x16) HHHL slots per node
Drive Bays	Default 60 top-loading hot-swap 3.5"/2.5" SAS/SATA drive bays Option A 4 rear hot-swap 2.5" PCIe 4.0 x4 NVMe drive bays Option B 2 internal fixed 2.5" PCIe 5.0 x4 NVMe drive bays	Default 90 top-loading hot-swap 3.5"/2.5" SAS/SATA drive bays Option A 4 rear hot-swap 2.5" PCIe 5.0 x4 NVMe drive bays Option B 2 internal fixed 2.5" PCIe 5.0 x4 NVMe drive bays	Default 90 top-loading hot-swap 3.5"/2.5" SAS/SATA drive bays Option A 2 internal fixed 2.5" PCIe 5.0 x4 NVMe drive bays
M.2 Slots	2 M.2 PCIe 4.0 x2 NVMe slots (M-key 2280/22110)	2 M.2 PCIe 4.0 x2 NVMe slots (M-key 2280/22110)	2 M.2 PCIe 4.0 x2 NVMe slots (M-key 2280/22110) per node
Cooling	2 M.2 PCIe 4.0 x2 NVMe slots (M-key 2280/22110)	1 counter-rotating 6cm fan 6 heavy duty 8cm fans	1 counter-rotating 6cm fan 6 heavy duty 8cm fans
Power	Redundant 2000W Titanium level (96%)	Redundant 2600W Titanium level (96%)	Redundant 2600W Titanium level (96%)

†CPUs with high TDP supported under specific conditions. Contact Technical Support for details.

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