

X14 Petascale All-Flash

The Future for Low-Latency, High-Throughput Storage



Up to 1.92PB of flash storage in 2U

- Dual socket Intel® Xeon® 6700/6500 series processors with P-cores or 6700 series processors with E-cores
- 32 DIMM slots per node supporting DDR5-6400 and support for MRDIMMs up to 8000MT/s (P-core only)
- Up to 2 PCIe Gen 5 AIOM slots and 3 PCIe Gen 5 slots
- Support for the latest industry standard EDSFF E3.S drive form factors and Gen5 drives from all major SSD vendors
- Optional CXL support to provide up to 2TB of additional memory
- Optional double-width GPU support up to 300W TDP
- Engineered to minimize latency and maximize airflow over critical components

Designed for the Most Demanding Storage Workloads

The AI revolution is using and generating massive amounts of data and these workloads require application-specific architectures at every stage of the data pipeline. Supermicro's flagship X14 Petascale storage platform offers the best architecture to drive large-scale, data-intensive AI and HPC workloads, offering industry-leading memory bandwidth using up to eight Type 3 CXL 2.0 modules. With up to 32 E3.S drives in 2U and unprecedented end-to-end PCIe Gen 5 performance, new X14 Petascale systems can help organizations to reach their performance and capacity goals with greater rack density than ever before.

Revolutionary Storage Architecture

The Supermicro X14 Petascale family has been designed to maximize the performance of the latest generation CPUs and storage components. The symmetrical dual-CPU architecture not only balances resources, but also reduces latency by minimizing the length of data paths and maximizing airflow over critical components for optimal thermal performance.

The Future of Flash, Memory, and Beyond

Get ahead of the competition with the latest industry-standard EDSFF E3.S form factors designed specifically for high performance solid-state media, facilitating maximum performance from the X14 range's PCIe Gen 5 interconnects and ensuring compatibility with future iterations of the PCIe protocol. These systems support the new Gen 5 drives from all major SSD vendors up to 60TB per drive, giving end-users the freedom to choose the best components for their specific application. Embracing the future, Supermicro X14 Petascale systems also support the industry's first CXL expansion modules, which can add up to 2TB of DDR memory to the already powerful 32-DIMM solution. This emerging CXL technology is now available to add capacity and bandwidth for memory-bound applications.

High-Speed Networking

High performance storage of this caliber is nothing without the networking to match. Supermicro X14 Petascale systems feature dual PCIe Gen 5 AIOM slots for high-speed networking cards, as well as flexible PCIe Gen 5 expansion slots with auxiliary power to support the most powerful I/O devices such as I/O Accelerators & DPUs with offload engines.

Powered by Intel Xeon 6 Processors

The new Intel Xeon 6 processors support the latest PCIe Gen 5 standard to handle the high throughput of a large number of NVMe drives and get the maximum performance out of the new PCIe Gen 5 E3.S drives, as well as CXL 2.0 on all device types to maximize memory capacity for in-memory database applications..



Petascale	SSG-222B-NE3X24R	SSG-122B-NE316R
Processor Support	Dual Intel® Xeon® 6700/6500 series processors with P-cores Dual Intel® Xeon® 6700 series processors with E-cores Up to 350W TDP (air cooled) [†]	Dual Intel® Xeon® 6700/6500 series processors with P-cores Dual Intel® Xeon® 6700 series processors with E-cores Up to 300W TDP (air cooled) [†]
Memory Slots & Capacity	32 DIMM slots; Up to 8TB DDR5-6400MT/s Support for MRDIMMs up to 8000MT/s (P-core only)	32 DIMM slots; Up to 8TB DDR5-6400MT/s Support for MRDIMMs up to 8000MT/s (P-core only)
I/O Ports	1 RJ45 dedicated IPMI LAN port 2 USB 3.0 ports (rear) 1 VGA port (rear) Networking via AIOM	1 RJ45 dedicated IPMI LAN port 2 USB 3.0 ports (rear) 1 VGA port (rear)
Motherboard	X14DBHM	X14DBHM
Form Factor	2U Rackmount Enclosure: 780mm/30.7" depth	1U Rackmount Enclosure: 773.25mm/30.4" depth
Expansion Slots	Default 2 PCIe 5.0 x16 FHFL double-width slots 2 PCIe 5.0 x16 AIOM slots (OCP 3.0) 1 PCIe 5.0 x8 FHFL double-width slot Option A 1 PCIe 5.0 x8 FHFL double-width slot 2 PCIe 5.0 x16 AIOM slots (OCP 3.0) Option B 1 PCIe 5.0 x8 FHFL double-width slot 2 PCIe 5.0 x16 AIOM slots (OCP 3.0) Option C 2 PCIe 5.0 x16 FHFL double-width slots 2 PCIe 5.0 x16 AIOM slot(s) (OCP 3.0) 1 PCIe 5.0 x8 FHFL double-width slot	2 PCIe 5.0 x16 FHHL slots 2 PCIe 5.0 x16 AIOM slots (OCP 3.0)
GPU Support	Up to 2 double-width GPUs	Up to 2 single-width GPUs
Drive Bays	Default 24 front hot-swap E3.S 1T PCIe 5.0 x4 NVMe drive bays Option A 32 front hot-swap E3.S 1T PCIe 5.0 x4 NVMe drive bays Option B 16 front hot-swap E3.S 1T PCIe 5.0 x4 NVMe drive bays 8 front fixed E3.S 2T PCIe 5.0 x8 CXL Type 3 drive bays Option C 8 front hot-swap E3.S 1T PCIe 5.0 x4 NVMe drive bays 8 front fixed E3.S 2T PCIe 5.0 x8 CXL Type 3 drive bays Maximum storage capacity: Up to 1.92PB	16 front hot-swap E3.S 1T NVMe drive bays Maximum storage capacity: Up to 960TB
M.2 Slots	2 PCIe 5.0 x2 NVMe M.2 Slots (M-Key 2280/22110)	2 PCIe 5.0 x2 NVMe M.2 Slots (M-Key 2280/22110)
Cooling	4 heavy duty 8cm fans	8 heavy duty 4cm fans
Power	Redundant 2000W Titanium level (96%)	Redundant 2000W Titanium level (96%)

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