Storage Systems
Scalable and Flexible NVMe and Hybrid Storage Architectures

Transform Your Data Center TCO with Supermicro servers based on 2nd Generation Intel® Xeon® Scalable processors.
Industry-leading Petascale Capacity and Density for All-Flash NVMe in 1U

Supermicro 1U Petascale solid-state platforms provide industry-leading density in a 1U profile across a wide choice of NVMe form factors. By offering 32+ hot-pluggable drives, Petabyte-scale capacity can be achieved to enable an unprecedented combination of storage performance, density, efficiency, and enterprise serviceability. This combination optimizes IOPS per watt and data center footprint, which is ideal for transitioning capacity tiers of storage based on legacy HDDs to all-flash NVMe SSDs.

Accelerate Workloads with Ultra-High-Throughput Compute-Optimized Storage

Optimize CPU-to-drive ratios to unlock maximum, balanced bandwidth on the latest U.2 and E1.S NVMe drives with Supermicro Ultra and BigTwin™ systems. All-flash NVMe-based configurations deliver extremely high-performance storage with the highest IOPS per system and per Gigabyte to enable a rich set of data services across your IT infrastructure.

Unparalleled Flexibility, Density, and Adaptable Architecture for the Cloud

The new Supermicro top-loading storage family combines best-in-class cost per Terabyte and a new adaptable dual-node modular design to enable unparalleled system flexibility, serviceability, and cost-optimization for better data center agility, scalability, and storage density in multi-cloud environments.

Application-Optimized Solutions without Compromising Affordability or Performance

Gain freedom by leveraging Supermicro’s unmatched portfolio of resource-saving and enterprise-grade server and storage building blocks to design and build your custom solutions without compromising affordability and performance.
Optimize Your Cloud, AI, and 5G Infrastructure with the Industry’s Broadest Portfolio of All-Flash NVMe, Top-Loading, and High-Density Storage Systems
Ultra High Capacity All-NVMe Storage Systems and JBOFs

Dual Socket SP3, up to 205W TDP
24 DIMM slots DDR4-2933MHz, up to 6TB
Architecture optimized for high bandwidth storage I/O
Up to 1000W/1600W redundant Titanium Level PSUs

Highest Performance Single- and Multi-Node Systems

Dual Socket SP3, up to 205W TDP
24 DIMM slots DDR4-2933MHz, up to 6TB
Flexible onboard networking options
Up to 10 E1.S drives or 24 U.2 drive bays per node
Up to 1000W/1600W redundant Titanium Level PSUs
**Cloud Density Storage**
Adaptable Dense Storage Architectures for Cloud

**Enterprise-Optimized Storage**
Application-optimized Solutions for Best TCO

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**Optimized Cost per Terabyte for Multi-Cloud Environments**
- Dual Socket SP3, up to 205W TDP
- 16 DIMM slots DDR4-2933MHz, up to 4TB
- Flexible networking with dedicated IPMI
- 1U 12x 3.5", 2U 24x 3.5", or 4U 60/90x 3.5" drive bays
- Up to 2000W/2600W redundant Titanium Level PSUs

**Industry Leading Server Building Block Solutions®**
- Barebone systems
- Chassis
- Motherboards
- Storage RAID/HBA cards
- Network switches and NICs
- Power supplies
- Cables
Industry-leading Petascale Capacity and Density for All-Flash NVMe in 1U

Supermicro 1U Petascale SuperStorage platforms provide industry-leading density in a 1U profile across a wide choice of NVMe form factors. By offering 32+ hot-pluggable drives, Petabyte-scale capacity can be achieved in a minimal rack footprint. This next generation storage offers unprecedented storage performance, flash density, and energy efficiency through advancements in thermal design. The EDSFF short solution delivers the best IOPS per Watt performance while the EDSFF long form factor is well positioned to provide the best cost per TB by utilizing QLC and other cost-efficient flash technologies.

The latest Petascale systems offer choice in SSD form-factor with one system supporting 32 E1.L drives with the largest capacity options in front loading storage. The E1.S system offers 32 drives with the thermal efficiency to support the highest TDP Intel® Xeon® Scalable processors. The U.2 based system uniquely enables 32 industry-standard hot-pluggable NVMe drives made accessible through front-mounted dual-drive trays.
1U 32x NVMe U.2 (JBOF)

SSG-136R-N32JBF
4 External PCI-E 3.0 Ports
2 PCI-E x16 Slots
1000W Redundant

Optimized for Data Center SSDs

E1.L NVMe (EDSFF Long)
Highest Capacity and Hot-Pluggable

E1.S NVMe (EDSFF Short)
Density-Optimized and Hot-Pluggable

U.2 NVMe
Best Flexibility and Hot-Pluggable

M.2 NVMe
Better Versatility and Non-Hotplug

1U 32x NVMe E1.S (JBOF)

SSG-136R-NEL32JBF
4 External PCI-E 3.0 Ports
2 PCI-E x16 Slots
1000W Redundant

TECHNICAL SPECIFICATIONS

Form Factor
• 1U rackmount all-NVMe SuperServer and SuperStorage [Systems]
• 1U rackmount all-NVMe storage enclosures [JBOFs]

Processors
• Dual Socket P (LGA 3647) supporting 2nd Gen Intel® Xeon® Scalable processors (Cascade Lake/ Skylake)†
• Up to 205W TDP
• 3UPIs, 28 cores / 56 threads per socket

Memory
• 32 hot-pluggable 2.5" NVMe drive bays on two trays [N32R/N32JBF]
• 32 hot-pluggable EDSFF Long 9.5mm drive slots [NEL32R/NEL32JBF]
• 32 hot-pluggable PCI-E E1.S or M.2 drive bays [NES32R]
(M.2 support: 22x42/60/80/110 form factors; non-hotplug; E1.S to M.2 conversion tray is required for each M.2 SSD)

Drives
• Onboard dual 10GBase-T LAN ports via Intel® X550 [Systems]
• 1 RJ45 dedicated IPMI LAN ports [Systems]
• 2 RJ45 dedicated IPMI LAN ports [JBOFs]

Networking
• 2 PCI-E 3.0 x16 (LP) slots [N32R/NEL32R]
• 2 PCI-E 3.0 x16 (FHHL) slots and 1 PCI-E 3.0 x4 (LP) slot [NEL32R]
• 2 PCI-E 3.0 x16 for NVMe-oF Add-in Cards, or up to 4 hosts with direct attachment with native PCI-E 3.0 x16 [JBOFs]

Input/Output

Power
• 1600W redundant Titanium Level power supplies [Systems]
• 1000W redundant Titanium Level power supplies [JBOFs]

† BIOS version 3.2 or above is required to support 2nd Gen Intel® Xeon® Scalable processors (codenamed Cascade Lake-R)
† 2933MHz in two DIMMs per channel can be achieved by using memory purchased from Supermicro
†† Cascade Lake only. Contact your Supermicro sales rep for more info.
Accelerate Workloads with Ultra-High-Throughput HCI Platforms

Supermicro Storage Servers share one thing in common: they offer the most powerful compute platforms available in the storage industry. Whether serving high-performance scale-out storage environments or high density VM populations, Supermicro systems offer the capability for flexible software-defined deployment and flexible re-assignment to meet changing business requirements.

Lower CPU-to-drive ratios are favorable where mission-critical workloads demand high-performance NVMe SSDs to perform at the lowest latencies possible. Engineered to host the most computationally-demanding storage applications, Supermicro’s flagship Ultra SuperServers and BigTwin™ multi-node systems enable a wide range of CPU-to-drive ratios to achieve the most optimized balance between performance, storage capacity, bandwidth, and cost-effectiveness.
Supermicro Ultra SuperServers are designed to deliver the highest performance, flexibility, scalability and serviceability to demanding IT environments, and to power mission-critical Enterprise workloads.

Ultra is the perfect fit for diverse workloads and applications and can be easily reconfigured for multiple Enterprise and Data Center applications in Virtualization, Big Data, Analytics, and Cloud Computing.

The Supermicro BigTwin™ represents an innovative, no-compromise multi-node system with up to 4 nodes in a 2U form factor which is ideal for HCI architectures. BigTwin provides the ultimate in multi-node performance with the highest TDP processors and balanced bandwidth to NVMe drives. NVMe-based configurations optimize the highest IOPS per node in a multi-node system, providing maximum IOPS per Gigabyte.
Unparalleled Flexibility, Capacity, and Density for the Cloud

The next generation Supermicro Top-loading Storage family combines best-in-class TCO featuring a new modular design to enable unprecedented levels of flexibility, serviceability, and cost-optimization for improving data center agility, scalability, and storage density in use cases like Backup and Recovery, Deep Archive and Active Archive, Big Data & Analytic, Data Lake, HPC and AI/ML workloads, and Content Repositories.

NEW GENERATION 4U 60-BAY

SSG-6049SP-E1CR60 (single-node)
SSG-6049SP-DE1CR60 (dual-node)
SSG-6049SP-DE2CR60 (HA)

- 2 CPUs (up to 205W TDP)
- 16 DIMMs DDR4-2933
- Flexible networking w/ dedicated IPMI
- Choice of IT Mode / HW RAID
- 2000W/2600W Redundant

NEW GENERATION 4U 90-BAY

SSG-6049SP-E1CR90 (single-node)
SSG-6049SP-DE1CR90 (dual-node)
SSG-6049SP-DE2CR90 (HA)

- 2 CPUs (up to 205W TDP)
- 16 DIMMs DDR4-2933
- Flexible networking w/ dedicated IPMI
- Choice of IT Mode / HW RAID
- 2000W/2600W Redundant

BEST CAPACITY: Single-Node

Each node controls 60 or 90 drives
Rear 4x NVMe (optional) optimized for caching
Rear 2x 2.5" SATA3 RAID 0/1 for OS or logs

TWIN STORAGE: Dual-Node

Two independent compute nodes: each controls 30 or 45 drives

HIGH AVAILABILITY: Storage Bridge Bay (SBB)

Each dual-port drive is accessed by two independent nodes simultaneously*

JBOD Enclosures

60 or 90x 3.5" drive bays with single- or dual-expander options

*Compatible software solution required to enable HA features
TECHNICAL SPECIFICATIONS

Form Factor
- 1U rackmount 12-Bay SuperStorage: 17.6 x 1.7 x 37.4”
- 2U rackmount 24-Bay SimplyDouble: 17.2 x 3.5 x 34”
- 4U rackmount 60-Bay Top-Loading SuperStorage: 17.6 x 6.9 x 34.1”
- 4U rackmount 90-Bay Top-Loading SuperStorage: 17.6 x 6.9 x 42.9”

Processors
- Dual Socket P (LGA 3647) supporting 2nd Gen Intel® Xeon® Scalable processors (Cascade Lake/Skylake)†
- Up to 3 UPIs, up to 205W TDP

Memory
- 12 DIMM slots, up to 3TB ECC DDR4-2933MHz [12-Bay]
- 16 DIMM slots per node, up to 4TB ECC DDR4-2933MHz [60/90-Bay]
- 24 DIMM slots per node, up to 6TB ECC DDR4-2933MHz [24-Bay]
- Support Intel® Optane™ Persistent Memory††

Drives
- 12x 3.5” SATA3 and 4x 2.5” (7mm) U.2 NVMe hot-plug drive bays [12-Bay]
- 24x 3.5” SAS3/SATA3 and 2x 2.5” SATA3 hot-plug drive bays [24-Bay]
- 60/90x 3.5” SAS3/SATA3 drive bays [60/90-Bay]
  - 2 onboard M.2 PCI-E 3.0 x2 slots, up to 22x110mm NVMe SSDs
  - SAS3008 / SAS3616 (IT Mode, L-series) or SAS3916 (HW RAID, H-series)
  - 4 hot-plug 2.5” NVMe (rear) drive bays for caching (optional)
  - 2 hot-plug 2.5” SATA3 (rear) drive bays for OS, RAID 0/1

Networking
- Onboard dual 10GBase-T LAN ports via Intel® X550 [12/60/90-Bay]
- Flexible networking options with SIOM [24-Bay]
- 1 RJ45 dedicated IPMI LAN port (per node)

Input/Output
- 3 PCI-E 3.0 x16 slots [12-Bay]
- 2 PCI-E 3.0 x16 and 1 PCI-E 3.0 x8 slots [24-Bay]
- 2 PCI-E 3.0 x16 and 1 PCI-E 3.0 x8 slots [60/90-Bay]

Power
- 800W redundant Platinum Level power supplies [12-Bay]
- 1600W redundant Titanium Level (96%) power supplies [24-Bay]
- 2000W redundant for single-node, 2600W redundant for dual-node; Titanium Level power supplies [60/90-Bay]

The additional drive bays located in the center of the 2U Simply Double SuperStorage offer up to twice the storage capacity and IOPS in the same amount of rackmount space with our patented Riser Bay that is easy to access and service.

The 1U dual-processor high-density storage server has a top-loading storage drawer design that can support 12x 3.5” HDDs with additional 4 front hot-pluggable 2.5” U.2 drive bays for a variety of SDS applications.
Enterprise-Optimized Storage

Application-optimized Solutions with Uncompromising Affordability and Performance

Leverage the industry’s broadest Server Building Block Solutions® to design and build your application-optimized configurations, for both scale-up and scale-out deployment strategies without compromising affordability or performance.

Enterprise Storage Systems are our most popular configurations that serve as a solid foundation to meet diverse application requirements with 2U, 3U and 4U form factors with 2.5” or 3.5” drive bays.
Design Yours with Supermicro Building Block Solutions®

Design your own customized storage server or a complete rack infrastructure with our award-winning Server Building Block Solutions® to achieve the most application-optimized ROI.

Supermicro helps customers design tailored storage solutions from component design, to configuration validation, to deployments at a data center scale.
Supermicro Software-Defined Storage Solutions

The storage landscape is evolving from premium priced proprietary hardware and software solutions to open industry standard hardware and the benefits are significant: reduced vendor lock-in, significantly open innovation with new technologies like all NVMe solutions. Supermicro storage systems are the platform of choice for leading storage vendors and major hyperscale datacenters.

Supermicro delivers significant benefits to Software-Defined Storage Solutions:

- **Maximum Efficiency** – High capacity 1U-4U form factors. Leading the industry with up 95% efficient Platinum level power supplies
- **Maximum Performance and expandability** – All NVMe support with hybrid expander and delivering up to 20 GB/s throughput
- **Mission Critical Reliability** – Capable of fully redundant and fault-tolerant operation with redundant power supplies, fans, and serverboards with remote management
- **Proven Compatibility** – Deploy validated reference architectures for optimal application performance
Supermicro’s 1U Petascale JBOF architectures are ideal for building state-of-the-art, disaggregated, and composable data centers with all-NVMe SSDs.

1U 32-bay JBOF enclosures support either PCI-E directly-attached for lowest latency and simplified deployment, or network fabric-attached (NVMe-oF) for the best agility on popular network fabrics, and advanced virtualized workloads.

SSG-136R-N32JBF
1U 32x U.2 JBOF

Build your scale-out data infrastructure with the compact 1U 12-bay SuperStorage system. Each one can support up to 12x 3.5" or 24x 2.5" hot-pluggable drives.

The additional four front-loading 2.5" U.2 drive bays may serve as a dedicated facility for caching or OS hosting.

Scale-out Storage Optimized

1U 12-Bay
SSG-6019P-ACR12L+

All HDD

Mixed HDD/SSD

Front-loading Bays
Multi-purpose front hot-plug NVMe drive bays

Top-loading Bays
An internal drawer supports 12 large capacity drives

Composable Infrastructure with JBOF Enclosures

GPU Systems

JBOFs

Direct-Attached

NVMe-oF™

(RDMA Optimized)
Supermicro®, the leading innovator in high-performance, high-efficiency server technology is a premier provider of advanced server Building Block Solutions® for Data Center, Cloud Computing, Enterprise IT, Hadoop/Big Data, HPC and Embedded Systems worldwide. Supermicro is committed to protecting the environment through its We Keep IT Green™ initiative and provides customers with the most energy-efficient, environmentally-friendly solutions available on the market.

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