A+ Server Solutions

World’s Most Versatile Portfolio of AMD Processor-Based Systems
Supporting AMD EPYC™ & Ryzen™ Series Processors

Supermicro® H13 and H12 Generation A+ Servers
The Most Comprehensive Portfolio of AMD Processor-Based Systems, now with AMD EPYC™ 9004 Series and Ryzen™ 7000 Series Processors, Including Servers, Storage, GPU-Optimized, Blade, and Multi-Node Solutions to Exactly Match System Requirements to Your Workload

September 2023
INTRODUCING
H13 GENERATION A+ SERVERS

AMD EPYC™ 9004 SERIES
PROCESSORS

- Up to 128 "Zen 4C" cores or 96 "Zen 4" cores per socket with AMD 3D V-Cache™ technology
- Up to 6TB of memory of 12-channel DDR5 with ECC 4800MHz and Advanced Memory Device Correction (AMDC) and now supports 2 DIMMs per channel (2DPC) with single socket
- PCIe 5.0 up to 160 lanes (4U GPU system)
- Next Generation Reliability, Availability, and Serviceability (RAS)

WORKLOAD OPTIMIZED SYSTEMS
WITH OPEN ARCHITECTURES

- Vast I/O, storage, networking and expansion slot options for maximum versatility
- Flexible networking options with Advanced I/O Modules (AIOMs), up to 400Gbps throughput per card and OCP 3.0 support
- Market-leading GPU optimized servers for large scale AI/ML and HPC workloads
- Compute Express Link (CXL 1.1+) peripheral support including memory expansion through PCIe 5.0 lanes

INCREASED OPERATIONAL
EFFICIENCY

- Tool-less chassis design
- Rear and Front I/O options
- Hot-swappable nodes with shared power for multi-node system
- Titanium level redundant power supplies
- Efficient resource-saving multi-node designs with shared power and cooling.

H13 GPU OPTIMIZED SYSTEM
Maximum Acceleration for AI/Deep Learning and HPC

H13 GRANDTWIN™ SYSTEM
Leading Multi-Node Architecture with Front or Rear I/O

H13 FLASH STORAGE SYSTEM
Purpose-built All-Flash E3.S Petascale Storage Solution

H13 WIO SYSTEM
Excellent Density and Energy Efficiency for Intelligent Edge

H13 HYPER SYSTEM
Industry Leading IOPS Servers with Energy Efficiency and Flexibility

H13 SHORT DEPTH FRONT I/O
Compact Front I/O design optimized for Telco deployments

H13 CLOUDDC SYSTEM
All-in-One Servers with Flexible I/O Options for Cloud Scale Data Centers

H13 WORKSTATION SYSTEM
Server-Grade Workstations for High Compute and Graphic Workloads
MAXIMUM ACCELERATION A+ GPU SYSTEMS

Optimized for AI, Deep Learning, and HPC, providing maximum acceleration, flexibility, high-performance and balanced solutions, Supermicro GPU-optimized systems support PCIe 5.0 and HGX accelerators and deliver a multitude of performance gains compared to previous generations.

The H13 GPU-optimized servers deliver unprecedented acceleration at every scale to power the world’s highest performing data centers for AI, data analytics, and HPC applications.
**H13 GrandTwin™ Systems**

Leading Multi-node Architecture with Front or Rear I/O

2U 4-node system optimized for single processor per node performance

Configurable up to six 2.5” drive bays supporting NVMe or SATA per node

Field serviceable from front/cold aisle to reduce downtime for higher availability

Flexible networking options with AIOM / OCP 3.0 support

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**Key Applications**

- HCI
- HPC
- CDN
- Technical Computing (EDA, CFD, FEA)
- Cloud Computing
- Big Data Analytics
- Scale-Out Storage

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**Highly Configurable Single Processor System with Front or Rear I/O**

GrandTwin™ is an all-new multi-node architecture purpose-built for single-processor performance. The design maximizes compute, memory and efficiency to deliver maximum density. Powered by AMD EPYC™ 9004 Series Processors now with AMD 3D V-Cache™ technology, GrandTwin’s flexible modular design can be easily adapted for a wide range of applications, with the ability to add or remove components as required, reducing cost.

For front I/O configurations, all I/O and node trays are fully accessible from the cold aisle, simplifying installation and servicing in space-constrained environments. Flexible storage and networking options are available via front AIOM modules, allowing countless custom configurations.
H13 Hyper Systems
Industry Leading IOPS Rackmount Servers with Energy Efficiency and Flexibility

Dual AMD EPYC™ 9004 Series Processors

3 PCIe 5.0 x16 slots (1U), or up to 4 PCIe 5.0 x16 slots/ 8 PCIe 5.0 x8 slots (2U) and CXL 1.1+ support

Up to 2 AIOM networking slots with OCP 3.0 support

Flexible NVMe and SATA hot-swap drive options

Tool-less design for easy deployment and maintenance

Highest Performance A+ Hyper Servers

The new H13 Hyper series brings next-generation versatility and performance to Supermicro’s range of rackmount servers, built to take on the most demanding workloads along with the storage & I/O flexibility that provide customer fit for a wide range of application needs.

- Uncompromised performance design with 2 CPU sockets and 24 DIMMs optimized for supporting the highest processor TDP
- Best-in-class server features including all NVMe, hybrid storage and low latency optimizations
- Fast PCIe 5.0 expansion slots for accelerators, AIOM/OCP 3.0 networking, and CXL 1.1+ peripheral support including memory expansion.

Key Applications

- Enterprise Server
- Hyperconverged Storage
- Virtualization
- AI Training/Inferencing
- Big Data Analytics
- Cloud Computing
- CDN
- In-Memory Database
H13 HYPER-U SYSTEMS
Enterprise-Focused Servers delivering Memory Density, Flexibility, and Power Efficiency

Single AMD EPYC™ 9004 Series Processor with up to 128 cores

Up to 12-channel 24 DIMMs (2 DIMMs per channel) for up to 6 TB of DDR5 memory in a single-socket platform

Flexible NVMe, SAS, and SATA3 drive options

Configurable PCIe 5.0 expansion capabilities for GPUs and CXL 1.1+ support

**Designed for Enterprise and Cloud Native Workloads**

Supermicro H13 Hyper-U series are the ultimate single processor servers that can offer more cores than most 2 socket servers can, ideal for cloud native workloads, such as virtualization and HCI.

The 1U and 2U Hyper-U systems offer high-performance, density, and power efficiency on the latest AMD processors supporting up to 128 cores and up to 12 channels of DDR5 in 24 DIMMs slots. Additionally, the systems have configurable expansion capabilities such as CLX 1.1+ memory expansion devices, and GPU to support AI inferencing and other accelerated workloads.

**Key Applications**

- Enterprise Server
- Cloud Computing
- Virtualization
- AI Inference and Machine Learning
- Software-Defined Storage
H13 CLOUDDC SYSTEMS
All-in-One Servers with Flexible I/O Options for Cloud-Scale Data Centers

Single AMD EPYC™ 9004 Series Processor
Up to 12 hot-swap NVMe/SATA drives
2 PCIe 5.0 x16 slots (1U) or up to 4 PCIe 5.0 x16 slots (2U)
Flexible networking options with AIOM/OCP 3.0 support
Best-in-class serviceability features with tool-less chassis design

Cost Optimized Versatile Solutions for Rapid Cloud Deployment and Easy Maintenance
Ultimate flexibility on I/O and storage with 2 to 4 PCIe 5.0 slots and dual AIOM slots (PCIe 5.0; OCP 3.0 compliant) for maximum data throughput. Supermicro H13 CloudDC systems offer convenient serviceability with tool-less brackets, hot-swap drive trays and redundant power supplies that ensure a rapid deployment and more efficient maintenance in data centers.

The H13 CloudDC servers are designed for cost-effective service delivery in cloud computing environments, including Internet infrastructure such as web hosting, email services, public and private cloud computing, and content-delivery networks (CDNs).

Key Applications
- Cloud Computing
- Web Server
- Hyper-converged Storage
- Virtualization, File Servers
- Head-node Computing
- Telcom Security Server
- CDN
The Supermicro WIO systems are energy-efficient single socket (SP6) servers that lower the operating costs for data center, enterprise edge, cloud computing and network security applications. The Supermicro WIO with AMD EPYC™ 8004 series processor are designed for impressive performance balanced with cost, power, and flexible I/O options.

Single AMD EPYC™ 8004 Series Processor
6 DIMM slots; Up to 576GB DDR5-4800
Up to 10 SATA/NVMe/SAS (1U)
Up to 12 SATA/SAS or 6 NVMe and SATA/SAS (2U)
Redundant titanium level power supply
Up to 2 PCIe 5.0 x16 FHFL slots and
1 PCIe 5.0 x16 LP (1U), 2 PCIe 5.0 x8 LP (2U)

H13 WIO SYSTEMS
Excellent Density and Energy Efficiency for Intelligent Edge

Key Applications
- Cloud Services
- Enterprise Edge
- Virtualization
- Database Storage
- Web Server
- DNS and Gateway Server

Cost and Energy Efficient for Intelligent Edge and Data Center Application

AS-1115SV-WTNRT
1U single processor server with 6 DIMMs,
supports 10 hot-swap 2.5”
SATA/NVMe/SAS drives

AS-2015SV-WTNRT
2U single processor server with 6 DIMMs,
supports 12 hot-swap 3.5”/2.5”
SATA/NVMe/SAS drives
H13 Short Depth Front I/O
Compact Front I/O design optimized for Telco deployments

Single AMD EPYC™ 8004 Series Processor
6 DIMM slots; Up to 576GB DDR5-4800
Up to 2 2.5” Internal Drives
2 PCIe 5.0 x16 FHFL Slots
Both AC and DC Power Supply Options Available

NEBS Compliant Design Optimized for Edge and Telco Application
The short-depth front I/O system is a compact form factor solutions quieter than traditional servers, ideal for Telco and Edge deployments with space and thermal limitations. Powered by AMD EPYC 8004 series processor supporting operating temperatures of up to 40~55°, depending on the processor core count. The new systems use Platinum power supplies for increased energy efficiency, resulting in higher performance per watt. The H13 Short depth front I/O system offers AC and DC options and features NEBS compliant design required for telco related operations.

Key Applications
- Virtualization
- Edge Cloud AI Computing
- vRAN/O-RAN/NEBS environment
- Telco 5G
- CDN/vCDN/Cloud CDN
**H13 MICROCLOUD SYSTEM**
High Density Multi-Node System for Cloud and Dedicated Hosting

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**8 nodes in 3U system**

Supporting single AMD Ryzen™ 7000 series processor per node

Up to 128GB ECC/non ECC UDIMM; DDR5 5200MHz, in 4 DIMM sockets per node

Single 8-lane PCIe 5.0 low profile slot per node (can be used for GPU accelerator)

8 sets of 2 front NVMe U.2/ SAS/ SATA3 drives w/ optional kits

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**3U 8-Nodes Flexible Architecture for Dedicated Hosting**

Supermicro H13 MicroCloud is a 3U, multi-node server powered by AMD Ryzen™ 7000 series processors with 8 single-processor nodes delivering excellent density and power efficiency.

The MicroCloud system is designed for applications that require large numbers of discrete servers, offering 8 nodes containing up to two front-accessible NVMe U.2, as well as a single 8 lane PCIe 5.0 low profile slot that can be used for GPU accelerators for Web Hosting, Cloud Gaming, Content Creation, and Virtual Private Servers.

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**Key Applications**

- Cloud Computing
- Web Cache, CDN, Video Streaming
- Web Colocation Services
- Social Networking Downloads
- Corporate -WINS, DNS, Print, Login
H13 Mainstream 1U System
Powerful and Economical Server for SMB

Supporting single AMD Ryzen 7000 series processor
Cost-Optimized for SMB
Up to 192GB DDR5 5200MHz
1x PCIe 5.0 x16 (FHHL) slot
668W Platinum certified power supply

Ryzen™ 7000 powered server for Web Hosting and SMB applications
Supermicro H13 1U system offers versatile storage options with 2 PCIe Gen5 M.2 slots and flexible configurations, effortlessly adapting to your growing business needs. This economical server is designed for small and medium businesses, remote offices, and branch offices, delivering unparalleled performance

Key Applications
- Cloud Computing
- Web Hosting, CDN, Video Streaming
- SMB Application
- Email/ Firewall/ Application Server
**H13 MINI TOWER SYSTEM**
Flexible Tower Workstation Optimized for Content Creation

Single AMD Ryzen 7000 series processor
4x DIMM up to 128GB, 4x 32GB DRAM
Up to 192GB DDR5-5200 memory
2x PCIe 5.0 x16 Slots (x16/NA or x8/x8)
668W Platinum level shared power supplies

**Versatile Workstation Solutions for Content Creation and Entry Level Server Applications**

Designed with versatility in mind, the latest mini-tower system based on AMD Ryzen 7000 series processor offers versatile storage options with 2 PCIe Gen5 M.2 slots and a flexible configuration, ensuring it seamlessly adapts to your evolving business requirements.

With remote management features via IPMI, this system can be deployed as an entry level server, workstation or as a desktop. No more settling for one-size-fits-all solutions - this system is ready to be tailored to elevate your IT infrastructure.

**Key Applications**
- 2D/3D Content Creation
- SMB Application
- Email/ Firewall/ Application Server
**H13 All-Flash EDSFF System**

All-Flash EDSFF Petascale for Software-Defined Data Center Workloads

Single 4th Generation AMD EPYC 9004
Scalable processor

24 DIMMs slots; up to 6TB DDR5 4800MHz

Two PCIe 5.0 x16 FHHL Slots, two PCIe 5.0 x16 AIOM Slots (OCP 3.0 SFF compliant)

16 hot-swap EDSFF E3.S (7.5mm) NVMe drive bays

Optional configuration supports 8 E3.S drives and 4 CXL devices in E3.S 2T form factor for memory expansion in 1U

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**Extreme Density, High-Performance All-Flash Servers**

Supermicro H13 All-Flash NVMe storage systems powered by AMD EPYC 9004 series processors are designed with the latest EDSFF and CXL technologies allowing unprecedented capacity and performance to enable today’s data hungry workloads supporting latest software-defined storage and NVMe over fabrics solutions, as well as in-memory databases.

The new all-flash petascale servers take advantage of 128 PCIe 5.0 lanes, supporting up to 32 E3.S (x2) in 2U, and 16 E3.S drives (x4) in 1U, or configured with 8 E3.S (x4) drives and 4 CXL devices in E3.S 2T (x8) form factor allowing memory expansion.

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**Key Applications**

- Software-Defined Storage
- Data Intensive HPC
- Private and Hybrid Cloud
- NVMe Over Fabrics Solution
- In-Memory Computing
**H12 Universal GPU System**

Modular Platform for HPC Applications and Advanced Data Center AI Infrastructure

Dual AMD EPYC™ 7003 series processors

Supports the new AMD Instinct MI250 OAM Accelerator

32 DIMM slots per node supporting DDR4-3200MHz

Flexible Storage configuration with 10 hot-swap 2.5” U.2 NVMe drives

4U with optional 1U extension for a 5U system providing PCIe slots expansion with Supermicro AIOM support.

Supports next-generation GPUs in a variety of form factors

Universal GPU server OCP standards-based design

Modular design for flexibility/future-proofing

Optimized thermal capability for 500W/700W GPUs

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**Open, Modular, Standards Based Universal GPU System**

Supermicro A+ Universal GPU systems are open, modular, standards-based servers which provide superior performance and serviceability with dual AMD EPYC™ 7003 series processors, supporting AMD Instinct MI250 OAM Accelerator and various GPU and accelerator form factors, and featuring a hot-swappable, tool-less design. The system’s “future proofed” design allows to standardize on one GPU platforms with multiple configurations for all data center needs with optimized thermal management.

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**Key Applications**

- AI/ML
- HPC
- Vertical Markets (thermal modeling and other parallel-processing intensive tasks)
- Big Data Analytics
H12 Twin Systems
Leading Multi-node Architectures

Highly configurable 2U 4-node systems
2-socket with 16 DIMMs or
1-socket with 8 DIMMs per node

Flexible storage and I/O options
including NVMe/SATA3 and SIOM networking

NO-COMPROMISE 2U 4-NODE ARCHITECTURE
BigTwin is the 5th generation in the Supermicro® Twin Family with a multitude of innovations and engineering breakthroughs.

TwinPro systems are designed for simplified deployment and maintenance, and assembled with the highest quality to ensure continuous operation even at maximum capacity.

With AMD EPYC™ 7003 Series Processors with AMD 3D V-Cache™ Technology, customers in high-end enterprise, data center, HPC and Cloud Computing environments receive the greatest competitive advantage from data center resources with the Supermicro® TwinPro.

Key Applications
- HCI
- HPC
- CDN
- 5G UPF
- Technical Computing (EDA, CFD, FEA)
- Cloud Computing
- Big Data Analytics
- Back-up and Recovery
- Scale-Out Storage

A+ BigTwin® (2U4N)
**H12 ULTRA SYSTEMS**  
Industry Leading IOPS, Energy Efficiency, and Flexibility

Optimized for highest processor TDPs

Up to 24x Hybrid NVMe/SAS/SATA drive bays

Up to 3 double width GPUs

**HIGHEST PERFORMANCE A+ ULTRA SERVERS**

Supermicro® A+ Ultra system are designed to deliver the highest performance, flexibility, scalability and serviceability to demanding IT environments, and to power mission-critical Enterprise workloads, including support for dual AMD EPYC™ 7003/7002 Series Processors* and 32 DIMMs of DDR4-3200MHz memory for up to 8TB of capacity.

- Uncompromised performance design with 2 CPU sockets and 32 DIMMs optimized for supporting the highest processor TDPs
- Best-in-class server features including all NVMe, hybrid storage and low latency optimizations
- Vast networking and expansion possibilities with Ultra Riser cards

* AMD EPYC™ 7003 Series Processor with AMD 3D V-Cache™ Technology requires BIOS version 2.3 or newer.

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Key Applications

- Enterprise Server
- Hyperconverged Storage
- Virtualization
- AI Training/Inferencing
- Big Data Analytics
- Cloud Computing
- CDN
- In-Memory Database
H12 FatTwin®
Advanced 4U Twin Architecture with 8 and 4 Nodes

Highly modular multi-node (4U 8-Node or 4U 4-Node) systems with tool-less design and independent backplanes built-in per node to eliminate a single point of failure

Front or Rear I/O accessible service design depending on data center environments

All-hybrid drive bays - NVMe, SAS, or SATA

FRONT OR REAR I/O TWIN ARCHITECTURE TO MAXIMIZE SERVICEABILITY AND RELIABILITY

The innovative FatTwin architecture provides flexibility and system accessibility for unique datacenter requirements with front or rear I/O, as well as electrically isolated, modularized left/right nodes with redundant power supplies for maximum reliability.

- Single AMD EPYC™ 7003/7002 Series Processor* (TDP up to 280W) per node
- Flexible AIOM networking
- Electrically isolated Redundant Titanium Level power supplies per side (2 left, 2 right)

Key Applications
- Hyperscale / Hyperconverged
- HPC and Big Data
- Data Center Enterprise Applications
- Scale Out Storage
- Telco Data Center & Virtualization Server

FatTwin® - Front I/O 8 UP Nodes
AS-F1114S-FT
4U Front I/O System with 8 Hot-pluggable Single-Processor Server Nodes with 2-4x 2.5” SATA3/NVMe drives per node

FatTwin® - Rear I/O 4 UP Nodes
AS-F2014S-RNTR
4U Rear I/O System with 4 Hot-pluggable Single-Processor Server Nodes with 8x 3.5” drives and 4x M.2 per node

FatTwin® - Rear I/O 8 UP Nodes
AS-F1114S-RNTR
4U Rear I/O System with 8 Hot-pluggable Single-Processor Server Nodes with 6x 2.5” drives and 4x M.2 per node
H12 SuperBlade®
Performance and Density Optimized Resource Saving Architecture

Up to 20 hot-pluggable nodes in 8U

Highest density GPU platform for AI and Deep Learning

Integrated HPC network fabrics for up to 200G HDR InfiniBand with 100% non-blocking switch

**RESOURCE SAVING ARCHITECTURE**

SuperBlade with AMD EPYC™ 7003 Series Processors with AMD 3D V-Cache is an ideal choice for modern technical computing workloads including EDA.

The system can contain up to 20 CPUs in an 8U chassis, including a network switch built into the chassis. A shared cooling, power and networking infrastructure is key to the high density and server efficiency offered by blade solutions. Supermicro’s high performance, density optimized, and energy-efficient SuperBlade® can significantly reduce initial capital and operational expenses for many organizations.

In particular, Supermicro’s new generation blade product portfolio has been designed to optimize the TCO of key components for today’s datacenters, such as free-air cooling, power efficiency, node density and networking management.

* AMD EPYC™ 7003 Series Processor with AMD 3D V-Cache™ Technology requires BIOS version 2.3 or newer.

**Key Applications**
- EDA
- HPC
- AI/ML/DL
- Hybrid Cloud
- Virtualization
- Health
- Financial Services
Cost saving single-socket I/O configurability with up to 64 cores, 8 or 16 DIMMs

Up to 10x (1U) or 24x (2U) U.2 NVMe and dual onboard 10G

Redundant high-efficiency 750W Platinum Level or 1200W Titanium power supplies

**COST AND ENERGY EFFICIENCY FOR DATA CENTER ENVIRONMENTS**

Supermicro® A+ WIO systems offer a wide range of I/O options to deliver truly optimized systems for specific requirements. Users can optimize the storage and networking alternatives to accelerate performance, increase efficiency and find the perfect fit for their applications.

In addition to enabling customizable configurations and optimization for multiple application requirements, A+ WIO servers also provide attractive cost advantages and investment protection.

**Key Applications**

- Enterprise Mission-critical Applications
- Data Center Cloud Computing
- Virtualization
- Big Data
- Financial Analysis
H12 MAINSTREAM & TOWER
Versatile Entry Level and Volume Servers for Enterprise Server Applications

Highly versatile servers to enable a wide variety of enterprise server applications

Choices of multiple form factors including rackmount, short-depth rackmount and tower

A rich selection of storage options, AOCs, CPU TDP and memory speed support

MAINSTREAM APPLICATION OPTIMIZED
The A+ H12 Mainstream Application Optimized product family from Supermicro® is a series of servers designed for entry level or volume selections. Enterprise IT managers can choose the exact model for their applications, with a precise set of integrated features needed for their applications.

These powerful yet cost-effective systems provide excellent flexibility and value at entry-level price points.

Key Applications
- SMB
- Virtualization
- Web Server
- AI – Inferencing
- Cloud Computing
- Head-node Computing
## H13 GPU-OPTIMIZED

(For Complete System Only)

### 8U Universal GPU

### 4U 8-GPU with PCIe

### 4U 10-GPU with PCIe

### 4U 10-GPU with PCIe

### MODEL | AS-8125GS-TNHR | AS-4125GS-TNRT | AS-4125GS-TNRT1 | AS-4125GS-TNRT2
---|---|---|---|---
**Processor Support** | AMD EPYC™ 9004 Series Processors Dual Socket (Socket SP5) | AMD EPYC™ 9004 Series Processors Dual Socket (Socket SP5) | AMD EPYC™ 9004 Series Processors Dual Socket (Socket SP5) | AMD EPYC™ 9004 Series Processors Dual Socket (Socket SP5)
**Outstanding Features** | • High density 8U system with NVIDIA® HGX™ H100 8-GPU • Highest performance GPU communication using NVIDIA® NVLink™ + NVIDIA® NVSwitch™ • 8 NIC for GPU direct RDMA (1:1 GPU Ratio) • 8 NVMe for GPU direct storage • 1 M.2 NVMe for boot drive | • Drive configurations for 2x 2.5” hot-swap SATA and up to 4x 2.5” hot-swap NVMe bays • Up to 10 PCIe 5.0 slots for up to 8 direct-attached double-width, full length, enterprise-level GPUs • Flexible GPU support: active and passive GPUs • Dual onboard 10GbE ports with up to 1 AIO/M/OCP 3.0 slot • 1 M.2 slot onboard • 8 hot-swap cooling fans | • Drive configurations for 2x 2.5” hot-swap SATA and up to 8x 2.5” hot-swap NVMe bays • Single root architecture with PCIe switch for up to 10 double width, full length enterprise-level GPUs • Flexible GPU support: active and passive GPUs • Dual onboard 10GbE ports with up to 1 AIO/M/OCP 3.0 slot • 1 M.2 slot onboard • 8 hot-swap cooling fans
**Serverboard** | SUPER® H13DSG-O-CPU-D | SUPER® H13DSG-O-CPU-T | SUPER® H13DSG-O-CPU | SUPER® H13DSG-O-CPU
**Chipset** | System on Chip | System on Chip | System on Chip | System on Chip
**System Memory** | Up to 6TB 3DS ECC RDIMM DDR5-4800 MHz in 24 DIMMs | Up to 6TB 3DS ECC RDIMM DDR5-4800 MHz in 24 DIMMs | Up to 6TB 3DS ECC RDIMM DDR5-4800 MHz in 24 DIMMs | Up to 6TB 3DS ECC RDIMM DDR5-4800 MHz in 24 DIMMs
**Expansion Slots** | 8 PCIe 5.0 x16 LP; 2 FHFL PCIe 5.0 x16 Slots | 9 PCIe 5.0 X16 Slots | 12 PCIe 5.0 X16 Slots | 12 PCIe 5.0 X16 Slots
**Onboard Storage Controller** | AMD SP5 | AMD SP5 | AMD SP5 | AMD SP5
**Connectivity** | Optional FHFL x16 NIC for node management | 2x 10GbE RJ45 port(s) with Intel® Ethernet Controller X710 | 2x 10GbE RJ45 port(s) with Intel® Ethernet Controller X710 | 2x 10GbE RJ45 port(s) with Intel® Ethernet Controller X710
**VGA/Audio** | 1 VGA port | 1 VGA port | 1 VGA port | 1 VGA port
**Management** | IPMI 2.0; KVM with dedicated LAN; NMI; OOB Management Package (SFT-OOB-LIC); Redfish API; SPM; SSM; SUM; SuperDoctor® 5; Watch Dog | IPMI 2.0; KVM with dedicated LAN; NMI; OOB Management Package (SFT-OOB-LIC); Redfish API; SPM; SSM; SUM; SuperDoctor® 5; Watch Dog | IPMI 2.0; KVM with dedicated LAN; NMI; OOB Management Package (SFT-OOB-LIC); Redfish API; SPM; SSM; SUM; SuperDoctor® 5; Watch Dog | IPMI 2.0; KVM with dedicated LAN; NMI; OOB Management Package (SFT-OOB-LIC); Redfish API; SPM; SSM; SUM; SuperDoctor® 5; Watch Dog
**Drive Bays** | 14x 2.5” hot-swap NVMe/SATA drive bays (12x 2.5” NVMe, 2x 2.5” SATA) | 24x 2.5” hot-swap drive bays (up to 4x 2.5” NVMe dedicated) | 24x 2.5” hot-swap drive bays (up to 8x 2.5” NVMe dedicated) | 24x 2.5” hot-swap drive bays (up to 8x 2.5” NVMe dedicated)
**Power Supply** | Redundant 9000W Titanium level (96%) with option to increase to 12KW redundant power | Redundant 4000W Titanium level (96%) | Redundant 4000W Titanium level (96%) | Redundant 4000W Titanium level (96%)
**Cooling System** | 8U Rackmount Enclosure: 437 x 355.6 x 843.28mm (17.2” x 14” x 33.2”) Package: 698 x 750 x 1300mm (27.5” x 29.5” x 51.2”) | 4U Rackmount Enclosure: 437 x 178 x 737mm (17.2” x 7” x 29”) Package: (27” x 26.57” x 41”) | 4U Rackmount Enclosure: 437 x 178 x 737mm (17.2” x 7” x 29”) Package: (27” x 26.57” x 41”) | 4U Rackmount Enclosure: 437 x 178 x 737mm (17.2” x 7” x 29”) Package: (27” x 26.57” x 41”)
**Form Factor** | | | | |
**H12 GPU-OPTIMIZED**
*(For Complete System Only)*

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<th>MODEL</th>
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<th>AS -2114GT-DNR</th>
<th>AS -4124GO-NART</th>
<th>AS -2124GQ-NART</th>
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<td>Processor Support</td>
<td>Dual AMD EPYC™ 7003/7002 Series Processors*</td>
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<td>Key Applications</td>
<td>• HPC</td>
<td>• Cloud Gaming</td>
<td>• AI Compute / Model Training / Deep Learning</td>
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<td>• Cloud Gaming</td>
<td>• AI Inference and Machine Learning</td>
<td>• System for All AI Workload</td>
<td>• High-density 2U with 4 GPU peer-to-peer communication</td>
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<td>• Highest 8 GPU communication using NVIDIA NVLink and NVSwitch</td>
<td>• Directly attached GPUs for low latency</td>
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<td>Outstanding Features</td>
<td>• 160 PCIe lanes</td>
<td>• 4 NVMe for GPUDirect Storage</td>
<td>• Up to 8 NVMe for GPUDirect RDMA (1:1 GPU Ratio)</td>
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<td>• 8 direct attached GPUs</td>
<td>• Up to 8 DIMMs per node</td>
<td>• Up to 8 NVMe for GPUDirect Storage with optional backplane</td>
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<td>PCIe 4.0</td>
<td>• M.2 Support</td>
<td>• Supports 6 PCIe and 1 Mezzanine card</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Flexible architecture</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>AOI support</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Serverboard</td>
<td>SUPER® H12DSG-O-CPU</td>
<td>SUPER® H12SSG-AN6</td>
<td>SUPER® H12DGO-6</td>
<td>SUPER® H12DSG-Q-CP6</td>
</tr>
<tr>
<td>System Memory (Max.)</td>
<td>Up to 8TB ECC DDR4 3200MHz SDRAM in 32 DIMMs</td>
<td>Up to 2TB ECC DDR4 3200MHz SDRAM in 8 DIMMs</td>
<td>Up to 8TB ECC DDR4 3200MHz SDRAM in 32 DIMMs</td>
<td>Up to 8TB ECC DDR4 3200MHz SDRAM in 32 DIMMs</td>
</tr>
<tr>
<td>Expansion Slots</td>
<td>9 PCIe 4.0 x16 (Option: 10 PCIe 4.0 x16 slots without NVMe devices) 6 PCIe 4.0 x16 (4 Internal and 2 external); 1 AOM card support; 2 M.2 PCIe 4.0 x4 slots 2280/22110; M-key</td>
<td>8 PCIe 4.0 x16 (LP) slots from PCIe Switch; 1 PCIe 4.0 x16 (LP); 1 PCIe 4.0 x8 slot from CPUs</td>
<td>4 PCIe 4.0 x16 (LP) slots; 1 PCIe 4.0 x8 (LP) slot</td>
<td></td>
</tr>
<tr>
<td>Onboard Storage Controller</td>
<td>2x 2.5&quot; SATA in RAID 1 via onboard Marvell 9230</td>
<td>AMD SP3</td>
<td>SATA3, PCIe 4.0 U.2 NVMe and PCIe 4.0 M.2 NVMe</td>
<td>SATA/NVMe Hybrid or SAS with optional HBA</td>
</tr>
<tr>
<td>Connectivity</td>
<td>2 GbE LAN ports (rear)</td>
<td>AOM Network Card For Flexible Networking Options (not included)</td>
<td>OCP 3.0 / AOM NIC</td>
<td>Dual RJ45 10GbE-aggregate host LAN, RJ45 1GbE IPMI</td>
</tr>
<tr>
<td>VGA/Audio</td>
<td>Aspeed AST2500 BMC</td>
<td>Aspeed AST2600 BMC</td>
<td>Aspeed AST2600 BMC</td>
<td>Aspeed AST2600 BMC</td>
</tr>
<tr>
<td>Management</td>
<td>IPMI2.0 with virtual media over LAN and KVM-over-LAN support</td>
<td>IPMI 2.0 with dedicated LAN; SPM; SSM; SUM; SuperDoctor® S; Watchdog</td>
<td>IPMI 2.0 with Virtual Media over LAN and KVM-over-LAN support. Dedicated IPMI LAN port</td>
<td>IPMI 2.0 with Virtual Media over LAN and KVM-over-LAN support. Dedicated IPMI LAN port</td>
</tr>
<tr>
<td>Drive Bays</td>
<td>Up to 24x 2.5&quot; SAS/SATA drive bays 2 Front Hot-swap U.2 NVMe Gen4 drive bays per node</td>
<td></td>
<td>4x hot-swap 2.5&quot; drive bays (SATA/ NVMe Hybrid or SAS with optional HBA) Up to 10x hot-swap 2.5&quot; drive bays with optional backplane, 2 NVMe M.2 (Internal)</td>
<td>4x hot-swap 2.5&quot; drive bays (SATA/ NVMe Hybrid or SAS with optional HBA)</td>
</tr>
<tr>
<td>Power Supply</td>
<td>2000W (2x2) Redundant Titanium Level (96%+) power supplies</td>
<td>Redundant 1 + 1 2600W Titanium Level (96%) (Full redundancy based on configuration and application load)</td>
<td>Four 2200W high-efficiency Platinum Level power supplies</td>
<td>Two 2200W high-efficiency Platinum Level power supplies</td>
</tr>
<tr>
<td>Cooling System</td>
<td>8x hot-swap heavy duty PWM fans 4x 80mm heavy duty PWM fans</td>
<td>4x hot-swap heavy duty PWM fans 4x hot-swap heavy duty PWM fans</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Form Factor</td>
<td>4U Rackmount 178 x 437 x 737mm (7.0&quot; x 17.2&quot; x 29&quot;) 2U (2-node) Rackmount 447 x 88 x 760mm (17.6&quot; x 3.47&quot; x 29.9&quot;)</td>
<td>4U Rackmount 446 x 174 x 900mm (17.6&quot; x 6.9&quot; x 35.4&quot;) 4U Rackmount 437 x 89 x 823mm (17.2&quot; x 3.5&quot; x 32.4&quot;)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* AMD EPYC™ 7003 Series Processor with AMD 3D V-Cache™ Technology requires BIOS version 2.3 or newer.
** Can be sold as barebone system
### H13 GrandTwin™

*(For Complete System Only)*

#### 2U 4-Node Rear I/O

#### 2U 4-Node Front I/O

<table>
<thead>
<tr>
<th>MODEL</th>
<th>AS-2115GT-HNTR</th>
<th>AS-2115GT-HNTF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor Support</td>
<td>AMD EPYC™ 9004 Series Processors Single Socket (Socket SP5)</td>
<td>AMD EPYC™ 9004 Series Processors Single Socket (Socket SP5)</td>
</tr>
<tr>
<td>Key Applications</td>
<td>• HPC • Mission Critical Web Applications • EDA (Electric Design Automation) • Telco Edge Cloud • High-availability Cache Cluster • Multi-Purpose CDN • MEC (Multi-Access Edge Computing) • Cloud Gaming</td>
<td>• HPC • Mission Critical Web Applications • EDA (Electric Design Automation) • Telco Edge Cloud • High-availability Cache Cluster • Multi-Purpose CDN • MEC (Multi-Access Edge Computing) • Cloud Gaming</td>
</tr>
<tr>
<td>Outstanding Features</td>
<td>• Up to 6 2.5&quot; hot-swap NVMe/SATA drives per node • 2x AIOM / OCP 3.0 slots per node • 2x M.2 NVMe/SATA slots per node • Front access node trays for easy serviceability and maintenance</td>
<td>• Up to 4 2.5&quot; hot-swap NVMe/SATA drives per node or • up to 1x AIOM / OCP 3.0 slots per node • 2x M.2 NVMe/SATA slots per node • GrandTwin I/O for flexible networking options • Front access node trays for easy serviceability and maintenance</td>
</tr>
<tr>
<td>Serverboard</td>
<td>SUPER® H13SST-G</td>
<td>SUPER® H13SST-G</td>
</tr>
<tr>
<td>Chipset</td>
<td>System on Chip</td>
<td>System on Chip</td>
</tr>
<tr>
<td>System Memory (Max.)</td>
<td>Up to 3TB 3DS ECC RDIMM DDR5-4800MHz in 12 DIMMs</td>
<td>Up to 3TB 3DS ECC RDIMM DDR5-4800MHz in 12 DIMMs</td>
</tr>
<tr>
<td>Expansion Slots</td>
<td>2 AIOM/OCP 3.0 slots per node</td>
<td>1 PCIe 4.0 x16 LP slot optional, internal only</td>
</tr>
<tr>
<td>Onboard Storage Controller</td>
<td>AMD SP5</td>
<td>AMD SP5</td>
</tr>
<tr>
<td>Connectivity</td>
<td>via AIOM and onboard dedicated BMC port</td>
<td>via AIOM and GrandTwin I/O Module</td>
</tr>
<tr>
<td>VGA/Audio</td>
<td>1 VGA port</td>
<td>1 VGA port</td>
</tr>
<tr>
<td>Management</td>
<td>SuperCloud Composer; SuperDoctor® 5 (SDS); Supermicro Diagnostics Offline (SDO); Supermicro Intelligent Mgmt (BMC Resources); Supermicro IPMI Utilities; Supermicro Power Manager (SPMI); Supermicro Server Manager (SSM); Supermicro Server Mgmt (Redfish® API); Supermicro Thin-Agent Service (TAS); Supermicro Update Manager (SUM)</td>
<td>SuperCloud Composer; SuperDoctor® 5 (SDS); Supermicro Diagnostics Offline (SDO); Supermicro Intelligent Mgmt (BMC Resources); Supermicro IPMI Utilities; Supermicro Power Manager (SPMI); Supermicro Server Manager (SSM); Supermicro Server Mgmt (Redfish® API); Supermicro Thin-Agent Service (TAS); Supermicro Update Manager (SUM)</td>
</tr>
<tr>
<td>Drive Bays</td>
<td>6x 2.5&quot; hot-swap NVMe/SATA drive bays</td>
<td>4x 2.5&quot; hot-swap NVMe/SATA drive bays</td>
</tr>
<tr>
<td>Power Supply</td>
<td>Redundant 2200W Titanium level (96%)</td>
<td>Redundant 2200W Titanium level (96%)</td>
</tr>
<tr>
<td>Cooling System</td>
<td>2x 8cm heavy duty fans</td>
<td>2x 8cm heavy duty fans</td>
</tr>
</tbody>
</table>
| Form Factor | 2U Rackmount
Enclosure: 449 x 88 x 711.2mm (17.67" x 3.46" x 28")
Package: 626 x 248 x 1150mm (24.65" x 9.76" x 45.28") | 2U Rackmount
Enclosure: 449 x 88 x 711.2mm (17.67" x 3.46" x 28")
Package: 626 x 248 x 1150mm (24.65" x 9.76" x 45.28") |

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H13 GrandTwin™ (For Complete System Only)
## H13 MicroCloud

(For Complete System Only)

## H13 Mainstream

(For Complete System Only)

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor Support</td>
<td>AMD Ryzen™ Zen4 7000 series Processors supported</td>
<td>Single Socket supported</td>
<td>Single Socket supported</td>
</tr>
<tr>
<td>Key Applications</td>
<td>• Corporate - WINS, DNS, Print, Login</td>
<td>• Designed for small and medium businesses</td>
<td>• Designed for small and medium businesses</td>
</tr>
<tr>
<td></td>
<td>• Social Networking, Downloads</td>
<td>• Email/Firewall/Application Server</td>
<td>• Email/Firewall/Application Server</td>
</tr>
<tr>
<td></td>
<td>• Web Cache, CDN, Video Streaming</td>
<td>• Web/Hosting Application</td>
<td>• 2D/3D Content Creation</td>
</tr>
<tr>
<td></td>
<td>• Web/Collocation Services</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Cloud Computing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outstanding Features</td>
<td>• Up to 8x hot-pluggable node in 3U chassis</td>
<td>• High density, Enterprise performance, Cost effective, Multi-node UP server</td>
<td>• Remote management via IPMI with dedicated IPMI LAN port</td>
</tr>
<tr>
<td></td>
<td>• UID LED</td>
<td>• 1+1 Redundant 2200W Titanium Level high-efficiency power supplies</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Hot-swappable SAS/SATA3(Limited Support) HDDs</td>
<td>• 1 PCIe 5.0 (x8) Low-profile expansion slot per node</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• High density, Enterprise performance, Cost effective, Multi-node UP server</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Up to 8x hot-pluggable node in 3U chassis</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>• UID LED</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Hot-swappable SAS/SATA3(Limited Support) HDDs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Serverboard</td>
<td>SUPER® H13SRD-F</td>
<td>SUPER® H13SAE-MF</td>
<td>SUPER® H13SAE-MF</td>
</tr>
<tr>
<td>Chipset</td>
<td>AMD Knoll - Integrated I/O Controller Hub</td>
<td>AMD B650</td>
<td>AMD B650</td>
</tr>
<tr>
<td>System Memory</td>
<td>4 DIMM slots</td>
<td>4 DIMM slots</td>
<td>4 DIMM slots</td>
</tr>
<tr>
<td>(Max.)</td>
<td>Up to 128 ECC UDIMM, DDR5-5200MHz</td>
<td>Up to 192GB: 4x 48GB DRAM</td>
<td>Up to 128GB: 4x 32GB DRAM</td>
</tr>
<tr>
<td>Expansion Slots</td>
<td>PCIe 5.0 x16 slot(s)</td>
<td>PCIe 5.0 x16 slot(s)</td>
<td>2 PCIe 5.0 x16 slot(s)</td>
</tr>
<tr>
<td></td>
<td>PCIe 5.0 x8 MLP slot(s)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Onboard Storage</td>
<td>AMD AMS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Controller</td>
<td>1x 1GbE RJ45 port(s) with Realtek RTL8211F PHY (dedicated IPMI)&lt;br&gt; 2x 1GbE RJ45</td>
<td>1x 1GbE RJ45 port(s) with Realtek RTL8211F PHY (dedicated IPMI)&lt;br&gt; 2x 1GbE RJ45</td>
<td>1x 1GbE RJ45 port(s) with Realtek RTL8211F PHY (dedicated IPMI)&lt;br&gt; 2x 1GbE RJ45</td>
</tr>
<tr>
<td>Connectivity</td>
<td>PCle 5.0 MicroLP interfaces</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 VGA port</td>
<td>1 VGA port</td>
<td>1 VGA port</td>
</tr>
<tr>
<td>Management</td>
<td>Intel Node Manager; IPMI 2.0; KVM with dedicated LAN; SPM; SSM; SUM; SuperDoctor®</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drive Bays</td>
<td>2x 3.5&quot; hot-swap NVMe/SAS/SATA drive bays;</td>
<td>1x 3.5&quot; SATA drive bays;</td>
<td>4x 3.5&quot; SATA drive bays;</td>
</tr>
<tr>
<td>Power Supply</td>
<td>Redundant 2200W Titanium level (80%)</td>
<td>1000W Redundant Power Supplies with PMBus</td>
<td></td>
</tr>
<tr>
<td>Cooling System</td>
<td>4x 8cm heavy duty fan(s)</td>
<td>6x 40mm heavy duty fan(s)</td>
<td>2x 9cm heavy duty fan(s)</td>
</tr>
<tr>
<td>Form Factor</td>
<td>3U Rackmount&lt;br&gt; Enclosure: 439 x 132 x 589mm (17.26&quot; x 5.21&quot; x 23.2&quot;)&lt;br&gt; Package: 667 x 295.91 x 863.66mm (26.26&quot; x 11.65&quot; x 34&quot;)</td>
<td>1U Rackmount&lt;br&gt; Enclosure: 437 x 43 x 429mm (17.2&quot; x 1.7&quot; x 16.9&quot;)&lt;br&gt; Package: 686 x 203 x 610mm (27&quot; x 8&quot; x 24&quot;)</td>
<td>Mini-Tower Rackmount&lt;br&gt; Enclosure: 184 x 362 x 425mm (7.25&quot; x 14.25&quot; x 16.75&quot;)&lt;br&gt; Package: 279 x 508 x 533mm (11&quot; x 20&quot; x 21&quot;)</td>
</tr>
</tbody>
</table>

For Complete System Only
### H12 Twin Systems

#### TwinPro® - 2U 4 UP Nodes

**Model**: AS-2014TP-HTR

- **Processor Support**: Single AMD EPYC™ 7003/7002 Series Processor
- **Key Applications**: Hyperscale and Hyperconverged Solutions, Compute Intensive Application, Enterprise Server, Data Center, HPC
- **Outstanding Features**:
  - Up to 3.5" SATA drives per node
  - Up to 8 DIMMs per node
  - Flexible SIOM options
  - M.2 support
  - 2 PCIe add-on cards per node
- **Serverboard**: SUPER® H12SST-PS
- **System Memory (Max.)**: Up to 2TB ECC 3DS LRDIMM, up to DDR4-3200MHz, 8 DIMM slots
- **Expansion Slots**:
  - 2 PCIe 4.0 X16 (LP)
  - 1 SIOM card support
  - 4 M.2 SATA/PCIe slots 22110/2280/2260/2242 M-key
- **Onboard Storage Controller**: SATA3
- **Connectivity**: SIOM Network Card For Flexible Networking Options (not included, must add 1 per node)
- **VGA/Audio**: Aspeed AST2500 BMC
- **Management**: IPMI2.0; KVM with dedicated LAN; SPM; SSM; SUM; SuperDoctor® 5; Watchdog
- **Drive Bays**: 3 Hot-swap 3.5" SATA drive bays per node
- **Power Supply**: Redundant 2000W Titanium Level (96%) (Full redundancy based on configuration and application load)
- **Cooling System**: 4x 80mm heavy duty PWM fans
- **Form Factor**: 2U (4-Node) Rackmount 438 x 88 x 724mm (17.25" x 3.47" x 28.5")

#### BigTwin® - 2U 4 DP Nodes

**Model**: AS-2124BT-HNTR**

- **Processor Support**: Dual AMD EPYC™ 7003/7002 Series Processors
- **Key Applications**: Hyperscale and Hyperconverged Solutions, Compute Intensive Application, Enterprise Server, Data Center, HPC
- **Outstanding Features**:
  - Up to 6.25" drives per node (4 NVMe + 2 SATA) or (6 SATA)
  - Up to 16 DIMMs per node
  - Flexible SIOM options
  - M.2 support
  - 2 PCIe add-on cards per node
- **Serverboard**: SUPER® H12DST-B
- **System Memory (Max.)**: Up to 4TB ECC 3DS LRDIMM, up to DDR4-3200MHz, 16 DIMM slots
- **Expansion Slots**:
  - 2 PCIe 4.0 X16 (LP)
  - 1 SIOM card support
  - 1 M.2 SATA/PCIe slot 2280/2210 M-key
- **Onboard Storage Controller**: NVMe and SATA3
- **Connectivity**: SIOM Network Card For Flexible Networking Options (not included, must add 1 per node)
- **VGA/Audio**: Aspeed AST2500 BMC
- **Management**: IPMI2.0; KVM with dedicated LAN; SPM; SSM; SUM; SuperDoctor® 5; Watchdog
- **Drive Bays**: 6 hot-swap 2.5" SATA drive bays per node (4 NVMe + 2 SATA) or (6 SATA)
- **Power Supply**: Redundant 2200W Titanium Level (96%) (Full redundancy based on configuration and application load)
- **Cooling System**: 4x 80mm heavy duty PWM fans
- **Form Factor**: 2U (4-Node) Rackmount 447 x 88 x 730mm (17.6" x 3.47" x 28.75")

#### BigTwin® - 2U 4 DP Nodes

**Model**: AS-2124BT-HTR**

- **Processor Support**: Dual AMD EPYC™ 7003/7002 Series Processors
- **Key Applications**: Hyperscale and Hyperconverged Solutions, Compute Intensive Application, Enterprise Server, Data Center, HPC
- **Outstanding Features**:
  - Up to 6 2.5" SATA drives per node
  - Up to 16 DIMMs per node
  - Flexible SIOM options
  - M.2 Support
  - 2 PCIe add-on cards per node
- **Serverboard**: SUPER® H12DST-B
- **System Memory (Max.)**: Up to 4TB ECC 3DS LRDIMM, up to DDR4-3200MHz, 16 DIMM slots
- **Expansion Slots**:
  - 2 PCIe 4.0 x16 (LP)
  - 1 SIOM card support
  - 1 M.2 SATA/PCIe slot 2280/2210 M-key
- **Onboard Storage Controller**: SATA3
- **Connectivity**: SIOM Network Card For Flexible Networking Options (not included, must add 1 per node)
- **VGA/Audio**: Aspeed AST2500 BMC
- **Management**: IPMI2.0; KVM with dedicated LAN; SPM; SSM; SUM; SuperDoctor® 5; Watchdog
- **Drive Bays**: 6 hot-swap 2.5" SATA drive bays per node
- **Power Supply**: Redundant 2200W Titanium Level (96%) (Full redundancy based on configuration and application load)
- **Cooling System**: 4x 80mm heavy duty PWM fans
- **Form Factor**: 2U (4-Node) Rackmount 447 x 88 x 730mm (17.6" x 3.47" x 28.75")

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* AMD EPYC™ 7003 Series Processor with AMD 3D V-Cache™ Technology requires BIOS version 2.3 or newer.
** For complete system only and AMD EPYC™ 7003 Series Processor with AMD 3D V-Cache Technology requires liquid cooling.
### Key Applications
- Hyperscale and Hyperconverged Solutions
- Cloud Computing
- Cluster Node
- Data Center
- HPC cluster computer nodes

### Outstanding Features
- 8 nodes in a 4U system
- Supports up to 64 cores
- 2x LP PCIe x16 slots; 1x AIOM PCIe x16 slot per node
- Up to 8 DIMMs per node

### Serverboard
- Super H12SSF-AN6

### System Memory (Max.)
- Up to 4TB ECC 3DS LRDIMM, up to DDR4-3200MHz; 16 DIMP slots
- Up to 2TB ECC 3DS LRDIMM, up to DDR4-3200MHz; 8 DIMP slots

### Expansion Slots
- 1 PCIe 4.0 x16 (AIOM)
- 2 PCIe 4.0 x16 (LP) per node

### Onboard Storage Controller
- NVMe and SATA3

### Connectivity
- AIOM Network Card For Flexible Networking Options (not included, must 1 per Node)

### VGA/Audio
- 1 VGA, Aspeed AST2600 BMC per node

### Management
- IPMI 2.0, KVM with dedicated LAN, SSM, SUM
- SuperDoctor® 5, Watch Dog

### Drive Bays
- 2x 2.5" SATA3/NVMe drive bays per node
- 4 hot-swap 2.5" SATA with 2 hot-swap 2.5" SATA/NVMe drive bays per node

### Power Supply
- 2000W or above Redundant Power Supplies with PMBus
- Redundant 2200W Titanium Level (96%) power supplies (Full redundancy based on configuration and application load)

### Cooling System
- 8x 8cm 13.5K RPM rear fans per enclosure
- 2x 80mm heavy duty PWM fans

### Form Factor
- 4U (8-node) Rackmount
- 4U (8-node) Rackmount
- 4U (4-node) Rackmount

### Processor Support
- Single AMD EPYC™ 7003/7002 Series Processor*
- Single AMD EPYC™ 7003/7002 Series Processor*
- Single AMD EPYC™ 7003/7002 Series Processor*

### Note
* AMD EPYC™ 7003 Series Processor with AMD 3D V-Cache™ Technology requires BIOS version 2.3 or newer.
## 1U Hyper

**AS-1125HS-TNR**
- **Processor Support**: AMD EPYC™ 9004 Series Processors Dual Socket (Socket SP5)
- **Key Applications**: Software-defined Storage, Virtualization, Enterprise Server, Cloud Computing, AI Inference and Machine Learning
- **Outstanding Features**: Tool-less system design for easy maintenance
- **Serverboard**: SUPER® H13DSH
- **System Memory**: Up to 6TB 3DS ECC RDIMM DDR5-4800MHz in 24 DIMMs
- **Expansion Slots**: 2 PCIe 5.0 x16 FH, 10.5"L and 1 PCIe 5.0 x16, FH, 6.6"L
- **Onboard Storage Controller**: AMD SP5
- **Connectivity**: AIOM / OCP 3.0
- **VGA/Audio**: 1 VGA port
- **Management**: IPMI_CFG; IPMIView for Linux/ Windows; IPMI 2.0; KVM with dedicated LAN; NMI; Redfish API; SPM; SUM; SuperDoctor® 5; Watch Dog
- **Drive Bays**: 8x 2.5" hot-swap NVMe/SAS/SATA drives bays (Option for up to 12 drives); Optional RAID support via RAID Controller AOC
- **Power Supply**: Redundant 1200W Titanium level (96%)
- **Cooling System**: 8x heavy-duty fans w/ Optimal Fan Speed Control
- **Form Factor**: 1U Rackmount Enclosure: 437 x 43 x 747mm (17.2" x 1.7" x 29.4") Package: 605 x 206 x 1032mm (23.8" x 8.1" x 40.6")

## 2U Hyper

**AS-2025HS-TNR**
- **Processor Support**: AMD EPYC™ 9004 Series Processors Dual Socket (Socket SP5)
- **Key Applications**: Software-defined Storage, Virtualization, Enterprise Server, Cloud Computing, AI Inference and Machine Learning
- **Outstanding Features**: Tool-less system design for easy maintenance
- **Serverboard**: SUPER® H13DSH
- **System Memory**: Up to 6TB 3DS ECC RDIMM DDR5-4800MHz in 24 DIMMs
- **Expansion Slots**: 2 PCIe 5.0 x16 FH, 10.5"L and 1 PCIe 5.0 x16, FH, 6.6"L
- **Onboard Storage Controller**: AMD SP5
- **Connectivity**: AIOM / OCP 3.0
- **VGA/Audio**: 1 VGA port
- **Management**: IPMI_CFG; IPMIView for Linux/ Windows; IPMI 2.0; KVM with dedicated LAN; NMI; Redfish API; SPM; SUM; SuperDoctor® 5; Watch Dog
- **Drive Bays**: 12x 3.5" hot-swap NVMe/SATA/SAS drive bays; Optional RAID support via RAID Controller AOC
- **Power Supply**: Redundant 1600W Titanium level (96%)
- **Cooling System**: 8x heavy-duty fans w/ Optimal Fan Speed Control
- **Form Factor**: 2U Rackmount Enclosure: 437 x 88.9 x 803mm (17.2" x 3.5" x 31.6") Package: 605 x 263 x 1107mm (23.8" x 10.4" x 43.6")

## 2U Hyper

**AS-2125HS-TNR**
- **Processor Support**: AMD EPYC™ 9004 Series Processors Dual Socket (Socket SP5)
- **Key Applications**: Software-defined Storage, Virtualization, Enterprise Server, Cloud Computing, AI Inference and Machine Learning
- **Outstanding Features**: Tool-less system design for easy maintenance
- **Serverboard**: SUPER® H13DSH
- **System Memory**: Up to 6TB 3DS ECC RDIMM DDR5-4800MHz in 24 DIMMs
- **Expansion Slots**: Configurable PCIe slot options up to 8 PCIe 5.0 x8 or 4 PCIe 5.0 x16 FH, 10.5"L
- **Onboard Storage Controller**: AMD SP5
- **Connectivity**: AIOM / OCP 3.0
- **VGA/Audio**: 1 VGA port
- **Management**: IPMI_CFG; IPMIView for Linux/ Windows; IPMI 2.0; KVM with dedicated LAN; NMI; Redfish API; SPM; SUM; SuperDoctor® 5; Watch Dog
- **Drive Bays**: Configurable PCIe slot options up to 8 PCIe 5.0 x8 or 4 PCIe 5.0 x16 FH, 10.5"L
- **Power Supply**: Redundant 1600W Titanium level (96%)
- **Cooling System**: 8x heavy-duty fans w/ Optimal Fan Speed Control
- **Form Factor**: 2U Rackmount Enclosure: 437 x 88.9 x 760mm (17.2" x 3.5" x 29.9") Package: 605 x 263 x 1107mm (23.8" x 10.4" x 43.6")

### H13 HYPER
(For Complete System Only)
## H13 HYPER-U

**For Complete System Only**

### 1U Hyper

- **AS-1115HS-TNR**
  - Processor Support: AMD EPYC™ 9004 Series Processor
    - Single Socket (Socket SP5) supported 4 UPI
  - Key Applications:
    - Software-defined Storage
    - Virtualization
    - Enterprise Server
    - Cloud Computing
    - AI Inference and Machine Learning
  - Outstanding Features:
    - Tool-less system design for easy maintenance
  - Serverboard: SUPER® H13SSH
  - Chipset: System On Chip
  - System Memory (Max.):
    - 24 DIMM slots
    - Up to 3TB: DDR5-4800MHz (12 DIMM slots, 1DPC)
    - Up to 6TB: DDR5-4000MHz/ 3600MHz (24 DIMM slots, 2DPC)
  - Expansion Slots:
    - 2 PCIe 5.0 x16 FH, 10.5”L and 1 PCIe 5.0 x16, FH, 6.6”L
  - Onboard Storage Controller: AMD SP5
  - Connectivity: via AIOM
  - VGA/Audio: 1 VGA port
  - Management: IPMI CFG; IPMIView for Linux/ Windows; SPM; SUM; SuperDoctor® 5; Watch Dog
  - Drive Bays:
    - 8x 2.5” hot-swap NVMe/SATA/SAS drive bays; Optional RAID support via RAID Controller AOC
  - Power Supply: Redundant 1200W Titanium level (96%)
  - Cooling System: 8x 4cm heavy duty fan(s)
  - Form Factor: 1U Rackmount
    - Enclosure: 437 x 43 x 747mm (17.2” x 1.7” x 29.4”)
    - Package: 605 x 206 x 1032mm (23.8” x 8.1” x 40.6”)

### 2U Hyper

- **AS-2015HS-TNR**
  - Processor Support: AMD EPYC™ 9004 Series Processor
    - Single Socket (Socket SP5) supported 4 UPI
  - Key Applications:
    - Software-defined Storage
    - Virtualization
    - Enterprise Server
    - Cloud Computing
    - AI Inference and Machine Learning
  - Outstanding Features:
    - Tool-less system design for easy maintenance
  - Serverboard: SUPER® H13SSH
  - Chipset: System On Chip
  - System Memory (Max.):
    - 24 DIMM slots
    - Up to 3TB: DDR5-4800MHz (12 DIMM slots, 1DPC)
    - Up to 6TB: DDR5-4000MHz/ 3600MHz (24 DIMM slots, 2DPC)
  - Expansion Slots:
    - Configurable PCIe slot options up to 8 PCIe 5.0 x8 or 4 PCIe 5.0 x16 FH, 10.5”L
  - Onboard Storage Controller: AMD SP5
  - Connectivity: via AIOM
  - VGA/Audio: 1 VGA port
  - Management: IPMI CFG; IPMIView for Linux/ Windows; SPM; SUM; SuperDoctor® 5; Watch Dog
  - Drive Bays:
    - 12x 3.5” hot-swap NVMe/SATA/SAS drive bays; Optional RAID support via RAID Controller AOC
  - Power Supply: Redundant 1600W Titanium level (96%)
  - Cooling System: 4x 8cm heavy duty fan(s)
  - Form Factor: 2U Rackmount
    - Enclosure: 437 x 88.9 x 803mm (17.2” x 3.5” x 29.9”)
    - Package: 605 x 263 x 1107mm (23.8” x 10.4” x 43.6”)

- **AS-2115HS-TNR**
  - Processor Support: AMD EPYC™ 9004 Series Processor
    - Single Socket (Socket SP5) supported 4 UPI
  - Key Applications:
    - Software-defined Storage
    - Virtualization
    - Enterprise Server
    - Cloud Computing
    - AI Inference and Machine Learning
  - Outstanding Features:
    - Tool-less system design for easy maintenance
  - Serverboard: SUPER® H13SSH
  - Chipset: System On Chip
  - System Memory (Max.):
    - 24 DIMM slots
    - Up to 3TB: DDR5-4800MHz (12 DIMM slots, 1DPC)
    - Up to 6TB: DDR5-4000MHz/ 3600MHz (24 DIMM slots, 2DPC)
  - Expansion Slots:
    - Configurable PCIe slot options up to 8 PCIe 5.0 x8 or 4 PCIe 5.0 x16 FH, 10.5”L
  - Onboard Storage Controller: AMD SP5
  - Connectivity: via AIOM
  - VGA/Audio: 1 VGA port
  - Management: IPMI CFG; IPMIView for Linux/ Windows; SPM; SUM; SuperDoctor® 5; Watch Dog
  - Drive Bays:
    - 24x 2.5” hot-swap NVMe/SATA/SAS drive bays; Optional RAID support via RAID Controller AOC
  - Power Supply: Redundant 1600W Titanium level (96%)
  - Cooling System: 4x 8cm heavy duty fan(s)
  - Form Factor: 2U Rackmount
    - Enclosure: 437 x 88.9 x 760mm (17.2” x 3.5” x 29.9”)
    - Package: 605 x 263 x 1107mm (23.8” x 10.4” x 43.6”)

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**Table:**

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<td>Processor Support</td>
<td>AMD EPYC™ 9004 Series Processor</td>
<td>AMD EPYC™ 9004 Series Processor</td>
<td>AMD EPYC™ 9004 Series Processor</td>
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<td>Single Socket (Socket SP5) supported 4 UPI</td>
<td>Single Socket (Socket SP5) supported 4 UPI</td>
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</table>
| Key Applications | • Software-defined Storage  
  • Virtualization  
  • Enterprise Server  
  • Cloud Computing  
  • AI Inference and Machine Learning | • Software-defined Storage  
  • Virtualization  
  • Enterprise Server  
  • Cloud Computing  
  • AI Inference and Machine Learning | • Software-defined Storage  
  • Virtualization  
  • Enterprise Server  
  • Cloud Computing  
  • AI Inference and Machine Learning |
| Outstanding Features | • Tool-less system design for easy maintenance | • Tool-less system design for easy maintenance | • Tool-less system design for easy maintenance |
| Serverboard | SUPER® H13SSH | SUPER® H13SSH | SUPER® H13SSH |
| Chipset | System On Chip | System On Chip | System On Chip |
| System Memory (Max.) | 24 DIMM slots  
  Up to 3TB: DDR5-4800MHz (12 DIMM slots, 1DPC)  
  Up to 6TB: DDR5-4000MHz/ 3600MHz (24 DIMM slots, 2DPC) | 24 DIMM slots  
  Up to 3TB: DDR5-4800MHz (12 DIMM slots, 1DPC)  
  Up to 6TB: DDR5-4000MHz/ 3600MHz (24 DIMM slots, 2DPC) | 24 DIMM slots  
  Up to 3TB: DDR5-4800MHz (12 DIMM slots, 1DPC)  
  Up to 6TB: DDR5-4000MHz/ 3600MHz (24 DIMM slots, 2DPC) |
| Expansion Slots | 2 PCIe 5.0 x16 FH, 10.5”L and 1 PCIe 5.0 x16, FH, 6.6”L | Configurable PCIe slot options up to 8 PCIe 5.0 x8 or 4 PCIe 5.0 x16 FH, 10.5”L | Configurable PCIe slot options up to 8 PCIe 5.0 x8 or 4 PCIe 5.0 x16 FH, 10.5”L |
| Onboard Storage Controller | AMD SP5 | AMD SP5 | AMD SP5 |
| Connectivity | via AIOM | via AIOM | via AIOM |
| VGA/Audio | 1 VGA port | 1 VGA port | 1 VGA port |
| Management | IPMI CFG; IPMIView for Linux/ Windows; SPM; SUM; SuperDoctor® 5; Watch Dog | IPMI CFG; IPMIView for Linux/ Windows; SPM; SUM; SuperDoctor® 5; Watch Dog | IPMI CFG; IPMIView for Linux/ Windows; SPM; SUM; SuperDoctor® 5; Watch Dog |
| Drive Bays | 8x 2.5” hot-swap NVMe/SATA/SAS drive bays; Optional RAID support via RAID Controller AOC | 12x 3.5” hot-swap NVMe/SATA/SAS drive bays; Optional RAID support via RAID Controller AOC | 24x 2.5” hot-swap NVMe/SATA/SAS drive bays; Optional RAID support via RAID Controller AOC |
| Power Supply | Redundant 1200W Titanium level (96%) | Redundant 1600W Titanium level (96%) | Redundant 1600W Titanium level (96%) |
| Cooling System | 8x 4cm heavy duty fan(s) | 4x 8cm heavy duty fan(s) | 4x 8cm heavy duty fan(s) |
| Form Factor | 1U Rackmount  
  Enclosure: 437 x 43 x 747mm (17.2” x 1.7” x 29.4”)  
  Package: 605 x 206 x 1032mm (23.8” x 8.1” x 40.6”) | 2U Rackmount  
  Enclosure: 437 x 88.9 x 803mm (17.2” x 3.5” x 31.6”)  
  Package: 605 x 263 x 1107mm (23.8” x 10.4” x 43.6”) | 2U Rackmount  
  Enclosure: 437 x 88.9 x 760mm (17.2” x 3.5” x 29.9”)  
  Package: 605 x 263 x 1107mm (23.8” x 10.4” x 43.6”) |
## H12 Ultra

**Model**: 1U Ultra, 8TB DDR4  
**Capacity**: 1U Ultra, 12 NVMe

### Processor Support
- **Dual AMD EPYC™ 7003/7002 Series Processors**
- **Virtualization**
- **Cloud Computing**
- **High End Enterprise Server**
- **AMD EPYC™ 7003 Series Processor with AMD 3D V-Cache™ Technology requires BIOS version 2.3 or newer.**

### Outstanding Features
- **32 DIMMs**
- **3+1 PCIe add-on cards**
- **12-Port NVMe Gen 4.0/3.0 support**
- **280W CPU support**
- **Redundant Titanium Level (96%) power supplies**
- **Maximum IO output in 1U platform**

### System Memory
- **Up to 8TB ECC DDR4 3200MHz SDRAM in 32 DIMMs**
- **Up to 8TB ECC DDR4 3200MHz SDRAM in 32 DIMMs**

### Expansion Slots
- **2 PCIe x16 (FH /9.5”L) slots**
- **1 PCIe x16 slot (LP)**
- **1 PCIe x16 slot (internal LP)**
- **2 PCIe x16 (FH /9.5”L) slots**
- **1 PCIe x16 slot (LP)**
- **1 PCIe x16 slot (internal LP)**

### Onboard Storage Controller
- **4 SATA3 (6 Gbps) ports; Optional 4 SAS3 drives support VS additional option parts or, Optional 4 NVMe drives support vs addition NVMe trays required.**
- **12 hot-Swappable U.2 drives support; Optional 12 SAS3 /12SATA support with additional SAS/SATA Kit**

### Connectivity
- **Dual 10GBase-T RJ45 LAN ports via Intel Carlsville X710-AT2; 3 USB 3.0 ports (2 rear, 1 Type A)**
- **Dual port 10G RJ45 & dual port 10G SFP+, Intel Carlsville X710-TM4; 4 USB 3.0 ports (1 front, 2 rear, 1 Type A)**

### Management
- **Built-in Server management tool (IPMI 2.0, KVM/media over LAN) with dedicated LAN port**
- **Built-in Server management tool (IPMI 2.0, KVM/media over LAN) with dedicated LAN port**

### Drive Bays
- **4x hot-swap 3.5" drive bays support**
- **12x hot-swap 2.5" drives support**

### Power Supply
- **1000W Redundant Titanium Level (96%+) power supplies (Full redundancy based on configuration and application load)**
- **1200W Redundant Titanium Level (96%) power supplies (Full redundancy based on configuration and application load)**

### Cooling System
- **8 heavy-duty fans w/ Optimal Fan Speed Control**
- **8 heavy-duty fans w/ optimal Fan Speed Control**

### Form Factor
- **437 x 43 x 754mm (17.2" x 1.7" x 29.7")**
- **1U Rackmount 437 x 43 x 724mm (17.2" x 1.7" x 28.5")**

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**AS-1024US-TRT**  
**AS-1124US-TNRP**
## H12 Ultra

(For Complete System Only)

### Model Options

<table>
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<tr>
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<tbody>
<tr>
<td><strong>Processor Support</strong></td>
<td>Dual AMD EPYC™ 7003/7002 Series Processors*</td>
<td>Dual AMD EPYC™ 7003/7002 Series Processors*</td>
</tr>
</tbody>
</table>
| **Key Applications** | • Virtualization  
• Cloud Computing  
• High End Enterprise Server  
• Hyperconverge Storage | • Virtualization  
• Cloud Computing  
• High End Enterprise Server  
• Hyperconverge Storage |
| **Outstanding Features** | - 32 DIMMs  
- 5+1 PCIe add-on cards  
- 12x 3.5" SATA/SAS (SAS via AOC)/support up to 4 NVMe  
- 280W CPU support  
- 1600W redundant Titanium Level (96%) power supplies  
- Maximum IO output in 2U platform | - 1 PCIe add-on cards  
- 24x 2.5" hot-swap NVMe drive bays  
- 280W CPU support  
- 1600W redundant Titanium Level (96%) power supplies  
- Maximum IO output in 2U platform |
| **Serverboard** | SUPER® H12DSU-iN | SUPER® H12DSU-iN |
| **System Memory** (Max.) | Up to 8TB ECC DDR4 3200MHz SDRAM in 32 DIMMs | Up to 8TB ECC DDR4 3200MHz SDRAM in 32 DIMMs |
| **Expansion Slots** | 2 PCIe 4.0 x16 slots (FH, 10.5" L)  
1 PCIe 4.0 x16 slot (FH, 9.5" L)  
1 PCIe 4.0 x16 slot (LP)  
1 PCIe 4.0 x8 slot (FH, 9.5" L, in x16 slot)  
1 PCIe 4.0 x8 slot (internal LP, in x16 slot) | 1 PCIe 4.0 x16 slot (FH, 9.5" L) |
| **Onboard Storage Controller** | 8 SATA3 (6 Gbps) ports + 4 hybrid SATA/NVMe function ready for HDD slots 0–3 with additional NVMe HDD trays for NVMe drives; Optional 12 SAS3 drive support VS SAS card with cables | 24x Hot-Swappable U.2 drive bays support with optional up to 24x SAS3 drive bays support VS SAS card and cables |
| **Connectivity** | Dual port 10G RJ45, Intel Carlsville X710-AT2; 3 USB 3.0 ports (2 rear + 1 Type A) | Dual 10G RJ45 & Dual 10G SFP+ ports, Intel Carlsville X710-TM4 3 USB 3.0 ports (2 rear, 1 Type A) |
| **VGA/Audio** | 1 VGA; 1 ASPEED AST2500 BMC | 1 VGA; 1 ASPEED AST2500 BMC |
| **Management** | Built-in Server management tool (IPMI 2.0, KVM/media over LAN) with dedicated LAN port | Built-in Server management tool (IPMI 2.0, KVM/media over LAN) with dedicated LAN port |
| **Drive Bays** | 12x hot-swap 3.5" drive bays support | 24x hot-swap 2.5" drive bays support |
| **Peripheral Bays** | 2x 2.5" peripheral drive bays with additional rear drive bay kits + cable | N/A |
| **Power Supply** | 1600W redundant Titanium Level (96%) power supplies (Full redundancy based on configuration and application load) | 1600W redundant Titanium Level (96%) power supplies (Full redundancy based on configuration and application load) |
| **Cooling System** | 4x heavy-duty fans w/ optimal Fan Speed Control | 4x heavy-duty fans w/ optimal Fan Speed Control |
| **Form Factor** | 437 x 89 x 723mm (17.2" x 3.5" x 28.46") | 2U Rackmount 437 x 89 x 723mm (17.2" x 3.5" x 28.46") |

* AMD EPYC™ 7003 Series Processor with AMD 3D V-Cache™ Technology requires BIOS version 2.3 or newer.
# H13 CloudDC

(For Complete System Only)

## 1U CloudDC

### Model
- **AS-1015CS-TNR**
- **AS-1115CS-TNR**
- **AS-2015CS-TNR**

### Processor Support
- AMD EPYC™ 9004 Series Processors
  - Single Socket (Socket SP5)

### Key Applications
- CDN, Edge Nodes
- DNS & Gateway Servers, Firewall Application
- Cloud Computing, Compact Server
- Data Center Optimized, Value IaaS
- Web Server, Firewall Application

### Outstanding Features
- Up to 4x SATA/SAS/NVMe tool-less drive bays
- 3.5" tool-less drive trays also support 2.5" drives
- Dual AIOM slots for flexible networking (OCP3.0)
- Compact server with tool-less drive trays
- Balanced architecture in compact chassis (25.6")
- 2 On-board Gen 3 M.2 NVMe 80mm/110mm (Boot)

### Serverboard
- **SUPER® H13SSW**

### Chipset
- System on Chip

### System Memory (Max.)
- Up to 3TB 3DS ECC RDIMM DDR5-4800MHz in 12 DIMMs

### Expansion Slots
- 2 Gen5 x16 FHHL slots

### Onboard Storage Controller
- AMD SP5

### Connectivity
- Dual AIOM/ OCP3.0, 2 USB 3.0 ports (2 rear)

### VGA/Audio
- 1 VGA; 1 ASPEED AST2600 BMC

### Management
- IPMI 2.0; KVM with dedicated LAN; NMI; Redfish API; SPM; SSM; SUM; SuperDoctor® 5; Watch Dog
- 4x 3.5" hot-swap NVMe/SATA/SAS hybrid drive bays;
  - Optional RAID support via RAID controller AOC

### Drive Bays
- 2x 2.5" (optional)

### Peripheral Bays
- N/A

### Power Supply
- Redundant 860W Platinum level (94%)

### Cooling System
- 6x 4cm heavy duty fans

### Form Factor
- 1U Rackmount
  - Enclosure: 437 x 43 x 650mm (17.2" x 1.7" x 25.6")
  - Package: 605 x 197 x 878mm (23.8" x 7.8" x 34.6")

## 1U CloudDC

### Model
- **AS-1015CS-TNR**
- **AS-1115CS-TNR**
- **AS-2015CS-TNR**

### Processor Support
- AMD EPYC™ 9004 Series Processors
  - Single Socket (Socket SP5)

### Key Applications
- CDN, Edge Nodes
- DNS & Gateway Servers, Firewall Application
- Cloud Computing, Compact Server
- Data Center Optimized, Value IaaS
- Web Server, Firewall Application

### Outstanding Features
- Up to 10x NVMe/SATA/SAS hybrid tool-less drive bays
- Dual AIOM slots for flexible networking (OCP3.0)
- Compact server with tool-less drive trays
- Balanced architecture in compact chassis (23.5")
- 2 On-board Gen 3 M.2 NVMe 80mm/110mm (Boot)

### Serverboard
- **SUPER® H13SSW**

### Chipset
- System on Chip

### System Memory (Max.)
- Up to 3TB 3DS ECC RDIMM DDR5-4800MHz in 12 DIMMs

### Expansion Slots
- 2 Gen5 x16 FHHL slots

### Onboard Storage Controller
- AMD SP5

### Connectivity
- Dual AIOM/ OCP3.0, 2 USB 3.0 ports (2 rear)

### VGA/Audio
- 1 VGA; 1 ASPEED AST2600 BMC

### Management
- IPMI 2.0; KVM with dedicated LAN; NMI; Redfish API; SPM; SSM; SUM; SuperDoctor® 5; Watch Dog
- 10x 2.5" hot-swap NVMe/SATA/SAS hybrid drive bays;
  - Optional RAID support via RAID controller AOC

### Drive Bays
- Optional RAID support via RAID controller AOC

### Peripheral Bays
- N/A

### Power Supply
- Redundant 860W Platinum level (94%)

### Cooling System
- 6x 4cm heavy duty fans

### Form Factor
- 1U Rackmount
  - Enclosure: 437 x 43 x 650mm (17.2" x 1.7" x 25.6")
  - Package: 605 x 197 x 878mm (23.8" x 7.8" x 34.6")
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<td>Single AMD EPYC™ 7003/7002 Series Processor*</td>
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<td>Key Applications</td>
<td>• Financial Services</td>
<td>• Financial Services</td>
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<td></td>
<td>• Cloud Computing</td>
<td>• Cloud Computing</td>
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<td>• Network Appliance</td>
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<td>• Content Delivery Network (CDN)</td>
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<td></td>
<td>• Deep Learning Inferencing</td>
<td>• Deep Learning Inferencing</td>
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<tr>
<td>Outstanding Features</td>
<td>• Dual AIOM slots for flexible networking</td>
<td>• Dual AIOM slots for flexible networking</td>
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<td></td>
<td>• 2x PCIe 4.0 x16 FH/HL slots</td>
<td>• 4x PCIe 4.0 x16 (2 FH, 10.5”L) or 2x PCIe 4.0 x16 FH/HL + 4x PCIe 4.0 x8 FH/HL slots</td>
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<td></td>
<td>• 860W redundant Platinum Level power supplies</td>
<td>• 920W redundant Platinum Level high-efficiency power supplies</td>
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<td></td>
<td>• Tool-less drive trays and tool-less brackets</td>
<td>• Tool-less drive trays and tool-less brackets</td>
</tr>
<tr>
<td></td>
<td>• 280W CPU support</td>
<td>• 280W CPU support</td>
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<td>• 16 DIMMs</td>
<td>• 16 DIMMs</td>
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<tr>
<td>Serverboard</td>
<td>SUPER® H12SSW-AN6</td>
<td>SUPER® H12SSW-AN6</td>
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<tr>
<td>System Memory (Max.)</td>
<td>Up to 4TB 3DS ECC DDR4-3200MHz RDIMM/LRDIMM, in 16 DIMMs slot</td>
<td>Up to 4TB 3DS ECC DDR4-3200MHz RDIMM/LRDIMM, in 16 DIMMs slot</td>
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<tr>
<td>Expansion Slots</td>
<td>2 PCIe 4.0 x16 (FH/HL)</td>
<td>4 PCIe 4.0 x16 (2 FH, 10.5”L) or, 2 PCIe 4.0 x16 (FH/HL) + 4 PCIe 4.0 x8 FH/HL, 2 FH/HL</td>
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<tr>
<td>Onboard Storage Controller</td>
<td>10x hot-swappable SATA drives support; Optional 10x SAS3/ NVMe support with additional SAS/NVMe kit</td>
<td>12x 3.5” SATA /SAS (SAS via AOC) /NVMe drive bays with optional kit + 2x 2.5” (with optional kit)</td>
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<tr>
<td>Connectivity</td>
<td>Dual AIOM slots, 2 USB 3.0 ports (2 rear)</td>
<td>Dual AIOM slots, 2 USB 3.0 ports (2 rear)</td>
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<td>VGA/Audio</td>
<td>1 VGA; 1 ASPEED AST2600 BMC</td>
<td>1 VGA; 1 ASPEED AST2600 BMC</td>
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<tr>
<td>Management</td>
<td>Built-in Server management tool (IPMI 2.0, KVM/media over LAN) with dedicated LAN port</td>
<td>Built-in Server management tool (IPMI 2.0, KVM/media over LAN) with dedicated LAN port</td>
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<tr>
<td>Drive Bays</td>
<td>10x hot-swap 2.5” drive bays support</td>
<td>12x hot-swap 3.5” drive bays support</td>
</tr>
<tr>
<td>Peripheral Bays</td>
<td>N/A</td>
<td>2x 2.5” Peripheral drive bays with additional rear drive bay kits + cable</td>
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<td>Power Supply</td>
<td>860W redundant Platinum Level high-efficiency power supplies</td>
<td>920W redundant Platinum Level high-efficiency power supplies</td>
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<tr>
<td>Cooling System</td>
<td>6x 40x40x56mm counter-rotation PWM fans</td>
<td>3x 80x80x38mm middle cooling fans</td>
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<tr>
<td>Form Factor</td>
<td>1U Rackmount 437 x 43 x 597mm (17.2” x 1.7” x 23.5”)</td>
<td>2U Rackmount 437 x 89 x 648mm (17.2” x 3.5” x 25.5”)</td>
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</tbody>
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* AMD EPYC™ 7003 Series Processor with AMD 3D V-Cache™ Technology requires BIOS version 2.3 or newer.
# H13 Storage Servers
(For Complete System Only)

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<th>ASG-1115S-NE316R</th>
<th>ASG-2115S-NE332R</th>
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<tbody>
<tr>
<td><strong>Processor Support</strong></td>
<td>AMD EPYC™ 9004 Series Processor (the latest AMD EPYC™ 9004 Series Processor with AMD 3D V-Cache™ Technology) Single Socket (Socket SP5) supported TDP up to 300W; 4UPI</td>
<td>AMD EPYC™ 9004 Series Processor (the latest AMD EPYC™ 9004 Series Processor with AMD 3D V-Cache™ Technology) Single Socket (Socket SP5) supported TDP up to 300W; 4UPI</td>
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<tr>
<td><strong>Key Applications</strong></td>
<td>• In-Memory Computing • Software-defined Storage • NVMe Over Fabrics Solution • Private &amp; Hybrid Cloud • Data Intensive HPC</td>
<td>• In-Memory Computing • Software-defined Storage • NVMe Over Fabrics Solution • Private &amp; Hybrid Cloud • Data Intensive HPC</td>
</tr>
<tr>
<td><strong>Outstanding Features</strong></td>
<td>• Two PCIe 5.0 x16 slots &amp; two AIOM connectors (OCP 3.0 SFF compliant) • Supports 24 DIMMs with 2DPC, up to 6TB memory capacity with 24 DIMMs of 256GB 3DS RDIMM/RDIMM DDR5 ECC memory • Single Socket SP5 4th Generation AMD EPYC 9004 Scalable processors. Up to 300W TDP. • Redundant Titanium 1600W Power Supplies • Composable Infrastructure Platform</td>
<td>• Two PCIe 5.0 x16 slots &amp; two AIOM connectors (OCP 3.0 SFF compliant) • Supports 24 DIMMs with 2DPC, up to 6TB memory capacity with 24 DIMMs of 256GB 3DS RDIMM/RDIMM DDR5 ECC memory • Single Socket SP5 4th Generation AMD EPYC 9004 Scalable processors. Up to 300W TDP. • Redundant Titanium 2000W Power Supplies • Composable Infrastructure Platform</td>
</tr>
</tbody>
</table>

**Serverboard**

- **SUPER® H13SSF**

**Chipset**

- AMD SPS

**System Memory (Max.)**

- 24 DIMMs slots
- Up to 6TB: 24x 256 GB DRAM 4800MHz ECC DDR5 RDIMM/LRDIMM

**Expansion Slots**

- 2 PCIe 5.0 x16 AIOM slot(s)
- 2 PCIe 5.0 x16 FH slot(s)

**Onboard Storage Controller**

- N/A

**Connectivity**

- via AIOM

**VGA/Audio**

- 1 VGA port

**Management**

- IPMI 2.0; NMI; SUM; SuperDoctor® 5; Watch Dog

**Drive Bays**

- 16x E3.S Hot-swap NVMe (1T/2T) drive slots

**Power Supply**

- Redundant 1600W Titanium level (96%)
- Redundant 2000W Titanium level (96%)

**Cooling System**

- 8x 4cm heavy duty fan(s)
- 4x 8cm heavy duty fan(s)

**Form Factor**

- 1U Rackmount
  - Enclosure: 438.4 x 43.6 x 773.25mm (17.2" x 1.7" x 30.4")
  - Package: 604.774 x 199.898 x 1029.97mm (23.81" x 7.87" x 40.55")
- 2U Rackmount
  - Enclosure: 438.4 x 89.8 x 789.9mm (17.2" x 3.5" x 30.8")
# H13 Short-Depth Front I/O

(For Complete System Only)

## H13 SHOrt-dePtH FrOnt i/O

### Short-Depth AC

### Short-Depth DC

## Model Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>AS-1115S-FWTRT</th>
<th>AS-1115S-FDWTRT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Processor Support</strong></td>
<td>Single Socket AMD EPYC™ 8004 Series Processor up to 225W</td>
<td>Single Socket AMD EPYC™ 8004 Series Processor up to 225W</td>
</tr>
</tbody>
</table>
| **Key Applications** | • Virtualization  
• Edge Cloud AI Computing  
• vRAN/O-RAN/NEBS environment  
• Telco 5G  
• CDN/vCDN/Cloud CDN  | • Virtualization  
• Edge Cloud AI Computing  
• vRAN/O-RAN/NEBS environment  
• Telco 5G  
• CDN/vCDN/Cloud CDN  |
| **Outstanding Features** | • NEBS compliant design  
• 3 PCIe 5.0 x16 expansion slots  
• Supports double width GPU  
• 2 On-board PCIe 3.0 x4 M.2 NVMe 80mm/110mm (Boot) | • NEBS compliant design  
• 3 PCIe 5.0 x16 expansion slots  
• Supports double width GPU  
• 2 On-board PCIe 3.0 x4 M.2 NVMe 80mm/110mm (Boot) |
| **Serverboard** | SUPER® S13SVW-NT | SUPER® S13SVW-NT |
| **System Memory (Max.)** | 6 DIMM slots, DDR5-4800MHz memory, support up to 576GB | 6 DIMM slots, DDR5-4800MHz memory, support up to 576GB |
| **Expansion Slots** | Slot 1: PCIe 5.0 x16 FHFL  
Slot 2: PCIe 5.0 x16 FHFL  
Slot 3: PCIe 5.0 x16 LP | Slot 1: PCIe 5.0 x16 FHFL  
Slot 2: PCIe 5.0 x16 FHFL  
Slot 3: PCIe 5.0 x16 LP |
| **Onboard Storage Controller** | System on Chip | System on Chip |
| **Connectivity** | 2x 10Gb RJ45 port(s) with Broadcom BCM57416 via AIOM | 2x 10Gb RJ45 port(s) with Broadcom BCM57416 via AIOM |
| **VGA/Audio** | 1 onboard VGA port | 1 onboard VGA port |
| **Management** | Built-in Server management tool (IPMI 2.0, KVM/media over LAN) with dedicated LAN port | Built-in Server management tool (IPMI 2.0, KVM/media over LAN) with dedicated LAN port |
| **Drive Bays** | 2x 2.5" SATA/SAS/NVMe drive bays; 2x 2.5" NVMe hybrid; | 2x 2.5" SATA/SAS/NVMe drive bays; 2x 2.5" NVMe hybrid; |
| **Power Supply** | 2x 800W Redundant AC Platinum Level power supplies | 2x 600W Redundant DC power supplies |
| **Cooling System** | 6x (40cm x 40cm x 56 mmcm) heavy duty fan(s) | 6x (40cm x 40cm x 56 mmcm) heavy duty fan(s) |
| **Form Factor** | 1U Rackmount  
Enclosure: 436.88 x 44.5 x 429.3mm (17.2” x 1.7” x 16.9”)  
Package: 685 x 203 x 609mm (27” x 8” x 24”) | 1U Rackmount  
Enclosure: 436.88 x 44.5 x 429.3mm (17.2” x 1.7” x 16.9”)  
Package: 685 x 203 x 609mm (27” x 8” x 24”) |

---

*Note: For complete system only.*
## H12 WIO / STORAGE

(For Complete System Only)

### 2U UP WIO

#### Key Applications
- **Virtualization**
- **Hyperconverge Storage**
- **Cloud Computing**
- **All Flash Storage**

#### Outstanding Features
- 24-Port NVMe SSD Support
- Up to 4TB DDR4 ECC RDIMM
- Dual 10GBaseT LAN Ports
- 2x M.2 Support by default
- 2 SATA DOMs Support with Embedded Power

### Serverboard
- SUPER® H12SSW-NTR

### System Memory (Max.)
- Up to 4TB 3DS ECC RDIMM/LRDIMM; DDR4 up to 3200MHz, in 16 DIMM slots

### Expansion Slots
- 1 PCIe 4.0 x16 (FH/HL)

### Onboard Storage Controller
- 24 Hot-Swappable U.2 NVMe drive support

### Connectivity
- 2 10GBase-T Ethernet via Broadcom BCM57416 Controller;
- 5 USB 3.0 ports (4 rear, 1 Type A)

### VGA/Audio
- 1 VGA 1 Aspeed AST2500 BMC

### Management
- Built-in Server management tool (IPMI 2.0, KVM/media over LAN) with dedicated LAN port

### Drive Bays
- 24 Hot-Swappable U.2 NVMe drive support

### Power Supply
- 1200W Redundant Power Supplies Titanium Level (96%) (Full redundancy based on configuration and application load)

### Cooling System
- 3 heavy duty fans w/ Optimal Fan Speed Control

### Form Factor
- 437 x 89 x 630mm (17.2” x 3.5” x 24.8”)

### ASG-1014S-ACR12N4H

#### Key Applications
- **Object Storage**
- **Scale-Out Density**
- **Database Applications**
- **Hadoop & Ceph storage solutions**

#### Outstanding Features
- Up to 4TB ECC DDR4
- 4x 2.5” 7mm hot-swap NVMe drive bays
- 3x PCIe 4.0 x16 slots (1x slot occupied by storage controller)
- Pull-out drawer storage bay w/ internal cable arm design

### Serverboard
- SUPER® H12SSW-NTR

### System Memory (Max.)
- Up to 4TB 3DS ECC RDIMM/LRDIMM; DDR4 up to 3200MHz, in 16 DIMMs

### Expansion Slots
- 2 PCIe 4.0 x16 (FHHL); 1 PCIe 4.0 x8 (LP)

### Onboard Storage Controller
- NVMe drive bays via CPU SAS3/SATA3 drive bays via Broadcom 3916 RAID controller

### Connectivity
- 2 10GBase-T Ethernet via Broadcom BCM57416 Controller;
- 2 USB 2.0 port(s) (2 Front_USB)
- 4 USB 3.0 port(s) (4 Rear_USB)

### VGA/Audio
- 1 VGA; 1 ASPEED AST2500 BMC

### Management
- Built-in Server management tool (IPMI 2.0, KVM/media over LAN) with dedicated LAN port

### Drive Bays
- 12x 3.5” SAS/SATA drive bays;
- 4x 2.5” 7mm NVMe drive bays

### Power Supply
- 800W redundant Platinum Level high-efficiency power supplies

### Cooling System
- 6x 40x40x56mm counter-rotation PWM fans

### Form Factor
- 447 x 43 x 940mm (17.6” x 1.7” x 37”)

---

* AMD EPYC™ 7003 Series Processor with AMD 3D V-Cache™ Technology requires BIOS version 2.3 or newer.
<table>
<thead>
<tr>
<th>MODEL</th>
<th>SBA-4114S-C2N</th>
<th>SBA-4114S-T2N</th>
<th>SBA-4119SG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor Support</td>
<td>Single AMD EPYC™ 7003/7002 Series Processor*; TDP up to 280W</td>
<td>Single AMD EPYC™ 7003/7002 Series Processor*; TDP up to 280W</td>
<td>Single AMD EPYC™ 7003/7002 Series Processor*; TDP up to 280W</td>
</tr>
</tbody>
</table>
| Key Applications | • Resource saving and high density  
• Data center  
• HPC  
• EDA | • Resource saving and high density  
• Data center  
• HPC  
• EDA | • Resource saving and high density  
• Data center  
• HPC  
• Cloud Gaming, Inference |
| Outstanding Features | • 2x hot-plug 2.5" NVMe/SAS3/SATA3 drive bays  
• 2 NVMe/SATA M.2  
• 2x 25G on board  
• Flexible AIOM module per node | • 2x hot-plug 2.5" NVMe/SATA3 drive bays  
• 2 NVMe/SATA M.2  
• 2x 25G on board  
• Flexible AIOM module per node | • 1 NVMe/SATA M.2  
• 2 PCIe 4.0 x16 slots  
• 2x 25G on board |
| System Memory (Max.) | Up to 2TB DDR4-3200MHz RDIMM | Up to 2TB DDR4-3200MHz RDIMM | Up to 2TB DDR4-3200MHz RDIMM |
| Expansion Slots | N/A | N/A | 2 PCIe 4.0 x16 |
| Onboard Storage Controller | Broadcom 3108 | AMD SP3 | AMD SP3 |
| Connectivity | 25G Ethernet/100G EDR/200G HDR; Optional AIOM Network Card | 25G Ethernet/100G EDR/200G HDR; Optional AIOM Network Card | 25G Ethernet/100G EDR/200G HDR |
| VGA/Audio | N/A | N/A | N/A |
| Management | IPMI 2.0, KVM over IP, Virtual Media over LAN | IPMI 2.0, KVM over IP, Virtual Media over LAN | IPMI 2.0, KVM over IP, Virtual Media over LAN |
| Drive Bays | 2x hot-plug 2.5" NVMe/SAS3/SATA3 drive bays; 2x M.2 NVMe/SATA3 | 2x hot-plug 2.5" NVMe/SATA3 drive bays; 2x M.2 NVMe/SATA3 | 1x M.2 NVMe/SATA3 |
| Power Supply | N/A | N/A | N/A |
| Cooling System | Passive HS for CPU | Passive HS for CPU | Passive HS for CPU |
| SuperBlade Enclosures | 820C  
820H  
820J  
820L | 820C  
820H  
820J  
820L | 820C  
820H  
820J  
820L |

* AMD EPYC™ 7003 Series Processor with AMD 3D V-Cache™ Technology requires BIOS version 2.3 or newer.
<table>
<thead>
<tr>
<th>MODEL</th>
<th>SBE-820C</th>
<th>SBE-820J</th>
</tr>
</thead>
<tbody>
<tr>
<td>Server Blade</td>
<td>Up to 20 hot-plug server blades</td>
<td>Up to 20 hot-plug server blades</td>
</tr>
<tr>
<td>Module Support</td>
<td>Supports:</td>
<td>Supports:</td>
</tr>
<tr>
<td></td>
<td>• SBA-4114S-C2N</td>
<td>• SBA-4114S-C2N</td>
</tr>
<tr>
<td></td>
<td>• SBA-4114S-T2N</td>
<td>• SBA-4114S-T2N</td>
</tr>
<tr>
<td></td>
<td>• SBA-41195G</td>
<td>• SBA-41195G</td>
</tr>
<tr>
<td>LED</td>
<td>• Fault LED</td>
<td>• Fault LED</td>
</tr>
<tr>
<td></td>
<td>• Power LED</td>
<td>• Power LED</td>
</tr>
<tr>
<td>InfiniBand Switch</td>
<td>1x 100G EDR IB or OPA switch</td>
<td>N/A</td>
</tr>
<tr>
<td>Gigabit Ethernet Switch</td>
<td>Up to 2 hot-plug 25G Ethernet Switch</td>
<td>Up to 4 hot plug 25G Ethernet switch</td>
</tr>
<tr>
<td>Management Module</td>
<td>1 hot-plug management module providing remote KVM and IPMI 2.0 functionalities</td>
<td>2 hot-plug management modules providing remote KVM and IPMI 2.0 functionalities</td>
</tr>
<tr>
<td>Power Supply</td>
<td>4/6/8 hot-swap 2200W power supplies, up to N+N redundancy, 4 pcs of 1200W BBP, 3 optional cooling fan modules(PWS-DF005-2F)</td>
<td>4/6/8 hot-swap 2200W power supplies, up to N+N redundancy, 4 pcs of 1200W BBP, 3 optional cooling fan modules(PWS-DF005-2F)</td>
</tr>
<tr>
<td>Cooling Design</td>
<td>Front to back</td>
<td>Front to back</td>
</tr>
<tr>
<td>Dimensions (HxWxD)</td>
<td>356 x 447 x 812.8mm (14” x 17.6” x 32”)</td>
<td>356 x 447 x 812.8mm (14” x 17.6” x 32”)</td>
</tr>
</tbody>
</table>

* AMD EPYC™ 7003 Series Processor with AMD 3D V-Cache™ Technology requires BIOS version 2.3 or newer.
## MODEL | SBE-820L | SBE-820H
---|---|---
Server Blade | Up to 20 hot-plug server blades | Up to 20 hot-plug server blades
Module Support | Supports: • SBA-4114S-C2N • SBA-4114S-T2N • SBA-4119SG | Supports: • SBA-4114S-C2N • SBA-4114S-T2N • SBA-4119SG
LED | • Fault LED • Power LED | • Fault LED • Power LED
InfiniBand Switch | N/A | 1x 200G HDR IB switch
Gigabit Ethernet Switch | Up to 2 hot-plug 10G Ethernet Switches | Up to 2 hot-plug 25G Ethernet Switches
Management Module | 1 hot-plug CMM (Central Management Modules) providing remote KVM and IPMI 2.0 functionalities | 1 hot-plug management modules providing remote KVM and IPMI 2.0 functionalities
Power Supply | 4/6/8pcs hot-swap 2200W power supplies, up to N+N redundancy, 3 optional cooling fan modules (PWS-DF005-2F) | 4/6/8 hot-swap 2200W power supplies, up to N+N redundancy, 4 pcs of 1200W BBP, 3 optional cooling fan modules (PWS-DF005-2F)
Cooling Design | Front to back | Front to back
Dimensions (HxWxD) | 356 x 447 x 812.8mm (14” x 17.6” x 32”) | 356 x 447 x 812.8mm (14” x 17.6” x 32”)

* AMD EPYC™ 7003 Series Processor with AMD 3D V-Cache™ Technology requires BIOS version 2.3 or newer.
## Outstanding Features

<table>
<thead>
<tr>
<th>Processor Support</th>
<th>Single AMD EPYC™ 7003/7002 Series Processors; TDP up to 280W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key Applications</td>
<td>• Backup storage</td>
</tr>
<tr>
<td></td>
<td>• Data processing &amp; Storage</td>
</tr>
<tr>
<td></td>
<td>• Cloud Computing</td>
</tr>
<tr>
<td></td>
<td>• Hosting &amp; Application delivery</td>
</tr>
<tr>
<td></td>
<td>• Cloud and Virtualization needs</td>
</tr>
<tr>
<td></td>
<td>• Content Delivery Network (CDN)</td>
</tr>
<tr>
<td></td>
<td>• 6 PCIe Gen4 expansion slots for next generation AOC</td>
</tr>
<tr>
<td></td>
<td>• Tool-less Drive Trays and Tool-less Brackets</td>
</tr>
<tr>
<td></td>
<td>• 920W Redundant Platinum Level High-Efficiency Power Supplies</td>
</tr>
<tr>
<td></td>
<td>• 12x 3.5/2.5&quot; Hot-swap drive bays with NVMe support</td>
</tr>
<tr>
<td>Serverboard</td>
<td>SUPER® H12SSL-i</td>
</tr>
<tr>
<td>Chipset</td>
<td>System on Chip (SoC)</td>
</tr>
<tr>
<td>System Memory</td>
<td>Up to 2TB 3DS ECC DDR4-3200MHz RDIMM/LRDIMM in 8 DIMM slots</td>
</tr>
<tr>
<td>Expansion Slots</td>
<td>5 PCIe 4.0 x16 LP slots</td>
</tr>
<tr>
<td></td>
<td>2 PCIe 4.0 x8 LP slots</td>
</tr>
<tr>
<td>Onboard Storage</td>
<td>Dual Gigabit Ethernet via Broadcom BCM5720 Controller; 5 USB 3.0 ports (4 rear, 2 via header)</td>
</tr>
<tr>
<td>Connectivity</td>
<td>Dual Gigabit Ethernet via Broadcom BCM5720 Controller; 2 USB 2.0 and 2 USB 3.0 ports in the rear</td>
</tr>
<tr>
<td>VGA/Audio</td>
<td>1 VGA; 1 ASPEED AST2500 BMC</td>
</tr>
<tr>
<td>Management</td>
<td>Built-in Server management tool (IPMI 2.0, KVM/media over LAN)</td>
</tr>
<tr>
<td></td>
<td>with dedicated LAN port</td>
</tr>
<tr>
<td></td>
<td>12 Hot-Swappable 3.5&quot;/2.5&quot; SATA/NVMe drive bays; Optional 2x 2.5&quot; SATA/NVMe drive support with optional kits</td>
</tr>
<tr>
<td>Drive Bays</td>
<td>920W Redundant Power Supplies Platinum Level (94%) (Full redundancy based on configuration and application load)</td>
</tr>
<tr>
<td>Power Supply</td>
<td>920W redundant Platinum Level High-Efficiency power supplies</td>
</tr>
<tr>
<td>Cooling System</td>
<td>3 heavy duty fans w/ Optimal Fan Speed Control</td>
</tr>
<tr>
<td>Form Factor</td>
<td>437 x 89 x 648mm (17.2&quot; x 3.5&quot; x 25.5&quot;)</td>
</tr>
</tbody>
</table>

### Processor Support

- Dual AMD EPYC™ 7003/7002 Series Processors

### Key Applications

- Data processing & Storage
- Cloud Computing
- Hosting & Application delivery
- Cloud and Virtualization needs
- Content Delivery Network (CDN)
- 6 PCIe Gen4 expansion slots for next generation AOC
- Tool-less Drive Trays and Tool-less Brackets
- 920W Redundant Platinum Level High-Efficiency Power Supplies
- 12x 3.5/2.5" Hot-swap drive bays with NVMe support

### Serverboard

- SUPER® H12SSL-i
- SUPER® H12DSi-N6
- SUPER® H12SSL-i
- SUPER® M12SWA-TF

###Chipset

- System on Chip (SoC)

### System Memory

- Up to 2TB 3DS ECC DDR4-3200MHz RDIMM/LRDIMM in 8 DIMM slots

### Expansion Slots

- 5 PCIe 4.0 x16 LP slots
- 2 PCIe 4.0 x8 LP slots

### Onboard Storage Controller

- Dual Gigabit Ethernet via Broadcom BCM5720 Controller; 5 USB 3.0 ports (4 rear, 2 via header)

### Connectivity

- Dual Gigabit Ethernet via Broadcom BCM5720 Controller; 2 USB 2.0 and 2 USB 3.0 ports in the rear

### VGA/Audio

- 1 VGA; 1 ASPEED AST2600 BMC

### Management

- Built-in Server management tool (IPMI 2.0, KVM/media over LAN) with dedicated LAN port

### Drive Bays

- 12x hot-swap 3.5"/2.5" SATA/NVMe drive bays
- 4 NVMe and 8 SATA default configuration

### Power Supply

- 920W redundant Platinum Level High-Efficiency power supplies

### Cooling System

- 3 heavy duty fans w/ Optimal Fan Speed Control

### Form Factor

- 437 x 89 x 648mm (17.2" x 3.5" x 25.5")

*AMD EPYC™ 7003 Series Processor with AMD 3D V-Cache™ Technology requires BIOS version 2.3 or newer.*
## H13 WIO

### Key Applications
- Virtualization
- Edge/Cloud Computing Services
- Database/Storage
- Firewall Applications
- Data Center Optimized

### Outstanding Features
- PCIe 5.0 NVMe drives supported
- Maximum I/O. Support 3 x16 expansion slots in 1U form factor
- Flexible I/O expansion
- Cost optimized H13 solution

### Model Comparison

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor Support</td>
<td>AMD EPYC™ 8004 series Processors Single Socket SP6 supported</td>
<td>AMD EPYC™ 8004 series Processors Single Socket SP6 supported</td>
<td>AMD EPYC™ 8004 series Processors Single Socket SP6 supported</td>
</tr>
</tbody>
</table>
| Key Applications | • Virtualization  
  • Edge/Cloud Computing Services  
  • Database/Storage  
  • Firewall Applications  
  • Data Center Optimized | • Virtualization  
  • Edge/Cloud Computing Services  
  • Database/Storage  
  • Firewall Applications  
  • Data Center Optimized | • Virtualization  
  • Edge/Cloud Computing Services  
  • Database/Storage  
  • Firewall Applications  
  • Data Center Optimized |
| Outstanding Features | • PCIe 5.0 NVMe drives supported  
  • Maximum I/O. Support 3 x16 expansion slots in 1U form factor  
  • Flexible I/O expansion  
  • Cost optimized H13 solution | • PCIe 5.0 NVMe drives supported  
  • Maximum I/O. Support 3 x16 expansion slots in 1U form factor  
  • Flexible I/O expansion  
  • Cost optimized H13 solution | • PCIe 5.0 NVMe drives supported  
  • Maximum I/O. Support up to 2 PCIe Gen 5 x16 expansion slots, and 2 PCIe Gen 5 x8 expansion slots  
  • Flexible I/O expansion  
  • Cost optimized H13 solution |
| Serverboard | SUPER® H13SVW-NT | SUPER® H13SVW-NT | SUPER® H13SVW-NT |
| System Memory (Max.) | System On Chip | System On Chip | System On Chip |
| Expansion Slots | Slot 1: PCIe 5.0 x16 FHFL  
  Slot 2: PCIe 5.0 x16 FHFL  
  Slot 3: PCIe 5.0 x16 LP | Slot 1: PCIe 5.0 x16 FHFL  
  Slot 2: PCIe 5.0 x16 FHFL  
  Slot 3: PCIe 5.0 x16 LP | 2 PCIe 5.0 x16 FHFL slot(s)  
  2 PCIe 5.0 x8 LP slot(s) |
| Onboard Storage Controller | Broadcom BCM57416 via AIOM | Broadcom BCM57416 via AIOM | Broadcom BCM57416 via AIOM |
| Connectivity | 2x 10Gb RJ45 port(s) with Broadcom BCM57416 via AIOM | 2x 10Gb RJ45 port(s) with Broadcom BCM57416 via AIOM | 2x 10Gb RJ45 port(s) with Broadcom BCM57416 via AIOM |
| VGA/Audio | 1 onboard VGA port | 1 onboard VGA port | 1 onboard VGA port |
| Management | | | |
| Drive Bays | 4x 3.5" hot-swap SATA/SAS/NVMe drive bays; 6x 2.5" NVMe hybrid | 10x 2.5" hot-swap SATA/SAS/NVMe drive bays; 6x 2.5" NVMe hybrid; | 12x 3.5" hot-swap SATA/SAS/NVMe drive bays; 6x 3.5" NVMe hybrid; |
| Peripheral Bays | | | |
| Power Supply | None | None | None |
| Cooling System | 6x (40cm x 40cm x 56 mmccm) heavy duty fan(s) | 6x (40cm x 40cm x 56 mmccm) heavy duty fan(s) | 3x (80cm x 80cm x 38 mmccm) heavy duty fan(s) |
| Form Factor | 1U Rackmount Enclosure: 437 x 43 x 650mm (17.2" x 1.7" x 25.6")  
  Package: 597 x 216 x 856mm (23.5" x 8.5" x 33.7") | 1U Rackmount Enclosure: 437 x 43 x 597mm (17.2" x 1.7" x 23.5")  
  Package: 597 x 197 x 800mm (23.5" x 7.75" x 31.5") | 2U Rackmount Enclosure: 437 x 89 x 650mm (17.2" x 3.5" x 25.6")  
  Package: 673 x 292 x 864mm (26.5" x 11.5" x 34") |

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**WIO-1U**

**WIO-1U**

**WIO-2U**
<table>
<thead>
<tr>
<th>MODEL</th>
<th>AS -1014S-WTRT</th>
<th>AS -1114S-WN10RT**</th>
<th>AS -1114S-WTRT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor Support</td>
<td>Single AMD EPYC™ 7003/7002 Series Processor* TDP up to 240W</td>
<td>Single AMD EPYC™ 7003/7002 Series Processor* TDP up to 280W</td>
<td>Single AMD EPYC™ 7003/7002 Series Processor* TDP up to 240W</td>
</tr>
<tr>
<td>Key Applications</td>
<td>• Database Processing &amp; Storage</td>
<td>• Virtualization</td>
<td>• Database Processing &amp; Storage</td>
</tr>
<tr>
<td></td>
<td>• Data Center</td>
<td>• Cloud Computing</td>
<td>• Data Center</td>
</tr>
<tr>
<td></td>
<td>• FireWall Applications</td>
<td>• All Flash Storage</td>
<td>• FireWall Applications</td>
</tr>
<tr>
<td>Outstanding Features</td>
<td>• Support up to 3 PCIe cards</td>
<td>• 10-Port NVMe SSD support</td>
<td>• Support up to 3 PCIe cards</td>
</tr>
<tr>
<td></td>
<td>• Up to 2TB DDR4 ECC RDIMM</td>
<td>• Up to 4TB DDR4 ECC RDIMM</td>
<td>• Up to 2TB DDR4 ECC RDIMM</td>
</tr>
<tr>
<td></td>
<td>• Dual 10GBaseT LAN ports</td>
<td>• Dual 10GBaseT LAN ports</td>
<td>• Dual 10GBaseT LAN Ports</td>
</tr>
<tr>
<td></td>
<td>• 2x M.2 support by default</td>
<td>• 2x M.2 Support by default</td>
<td>• 2x M.2 Support by default</td>
</tr>
<tr>
<td></td>
<td>• 2 SATA DOMs support with embedded power</td>
<td>• 2 SATA DOMs support with embedded power</td>
<td>• 2 SATA DOMs Support with Embedded Power</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 10 Gen4/ Gen3 U.2 NVMe SSD support</td>
<td></td>
</tr>
<tr>
<td>Serverboard</td>
<td>• SUPER® H12SSW-NT</td>
<td>SUPER® H12SSW-NTR</td>
<td>• SUPER® H12SSW-NT</td>
</tr>
<tr>
<td>System Memory (Max.)</td>
<td>Up to 2TB 3DS ECC DDR4-3200MHz RDIMM/LRDIMM, in 8 DIMM slots</td>
<td>Up to 2TB 3DS ECC RDIMM/LRDIMM; DDR4 up to 3200MHz, in 16 DIMM slots</td>
<td>Up to 2TB 3DS ECC RDIMM/LRDIMM; DDR4 up to 3200MHz, in 8 DIMM slots</td>
</tr>
<tr>
<td>Expansion Slots</td>
<td>2 PCIe 4.0 x16 (FH/HL) slots, 1 PCIe 4.0 x16 (LP) slot</td>
<td>2 PCIe 4.0 x16 (FH/HL) slots, 1 PCIe 4.0 x16 (LP) slot</td>
<td>2 PCIe 4.0 x16 (FH/HL) slots, 1 PCIe 4.0 x16 (LP) slot</td>
</tr>
<tr>
<td>Onboard Storage Controller</td>
<td>4 Hot-Swappable 3.5&quot; SATA drive support; Optional 4 U.2 NVMe (PCIe Gen 3) drive support vs additional NVMe cables required</td>
<td>10 Hot-Swappable U.2 NVMe drive support; Optional 10 SATA3 drive support vs additional SATA cables required</td>
<td>10 Hot-Swappable U.2 NVMe drive support; Optional 2 U.2 NVMe (PCIe Gen 3) drive support vs additional NVMe cables required</td>
</tr>
<tr>
<td>Connectivity</td>
<td>2 10GBase-T Ethernet via Broadcom BCM57416 Controller; 7 USB 3.0 ports (4 rear, 2 front, 1 Type A)</td>
<td>2 10GBase-T Ethernet via Broadcom BCM57416 Controller; 7 USB 3.0 ports (4 rear, 2 front, 1 Type A)</td>
<td>2 10GBase-T Ethernet via Broadcom BCM57416 Controller; 7 USB 3.0 ports (4 rear, 2 front, 1 Type A)</td>
</tr>
<tr>
<td>VGA/Audio</td>
<td>1 VGA 1 Aspeed AST2500 BMC</td>
<td>1 VGA 1 Aspeed AST2500 BMC</td>
<td>1 VGA 1 Aspeed AST2500 BMC</td>
</tr>
<tr>
<td>Management</td>
<td>Built-in Server management tool (IPMI 2.0, KVM/media over LAN) with dedicated LAN port; Software Out of Band License key (SFT-OOB-LIC) included for OOB BIOS management</td>
<td>Built-in Server management tool (IPMI 2.0, KVM/media over LAN) with dedicated LAN port</td>
<td>Built-in Server management tool (IPMI 2.0, KVM/media over LAN) with dedicated LAN port; Software Out of Band License key (SFT-OOB-LIC) included for OOB BIOS management</td>
</tr>
<tr>
<td>Drive Bays</td>
<td>4 Hot-Swappable 3.5&quot; SATA drive support; Optional 4 U.2 NVMe (PCIe Gen 3) drive support vs additional NVMe cables required</td>
<td>10 Hot-Swappable U.2 NVMe drive support; Optional 10 SATA3 drive support vs additional SATA cables required</td>
<td>10 Hot-Swappable U.2 NVMe drive support; Optional 2 U.2 NVMe (PCIe Gen 3) drive support vs additional NVMe cables required</td>
</tr>
<tr>
<td>Peripheral Bays</td>
<td>Optional to support 1x Slim DVD-ROM Drive</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Power Supply</td>
<td>500W Redundant Power Supplies Platinum Level (94%) (Full redundancy based on configuration and application load)</td>
<td>750W Redundant Power Supplies Platinum Level (94%) (Full redundancy based on configuration and application load)</td>
<td>500W Redundant Power Supplies Platinum Level (94%) (Full redundancy based on configuration and application load)</td>
</tr>
<tr>
<td>Cooling System</td>
<td>4 heavy duty fans w/ Optimal Fan Speed Control, Additional 1 heavy duty fan support w/ Optimal Fan Speed Control</td>
<td>6 heavy duty fans w/ Optimal Fan Speed Control</td>
<td>4 heavy duty fans w/ Optimal Fan Speed Control, Additional 1 heavy duty fan support w/ Optimal Fan Speed Control</td>
</tr>
<tr>
<td>Form Factor</td>
<td>1U Rackmount 437 x 43 x 650mm (17.2&quot; x 1.7&quot; x 25.6&quot;)</td>
<td>437 x 43 x 597mm (17.2&quot; x 1.7&quot; x 23.5&quot;)</td>
<td>437 x 43 x 597mm (17.2&quot; x 1.7&quot; x 23.5&quot;)</td>
</tr>
</tbody>
</table>

* AMD EPYC™ 7003 Series Processor with AMD 3D V-Cache™ Technology requires BIOS version 2.3 or newer.  
** For complete system only
# H13 Motherboards

<table>
<thead>
<tr>
<th>Model</th>
<th>H13DSH</th>
<th>H13DSG-O-CPU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>AMD EPYC™ 9004 Series Processors</td>
<td>AMD EPYC™ 9004 Series Processors</td>
</tr>
<tr>
<td>Chipset</td>
<td>System on Chip</td>
<td>System on Chip</td>
</tr>
<tr>
<td>Form Factor</td>
<td>Proprietary, 17” x 11.5” (43.18cm x 29.21cm)</td>
<td>Proprietary, 17” x 14.7” (43.18cm x 37.34cm)</td>
</tr>
<tr>
<td>Memory Capacity &amp; Slots</td>
<td>Up to 6TB 3DS ECC RDIMM DDR5-4800MHz in 24 DIMMs</td>
<td>Up to 6TB 3DS ECC RDIMM DDR5-4800MHz in 24 DIMMs</td>
</tr>
<tr>
<td>Expansion Slots</td>
<td>1 PCIe 5.0 x16 AIOM / OCP 3.0 2 PCIe 5.0 x16 (in x16 slot) M.2 Interface: 2 PCIe 3.0 x4 Form Factor: 2280/22110 M.2 Key: M-Key</td>
<td>1 PCIe 5.0 x16 AIOM / OCP 3.0 M.2 Interface: 1 PCIe 3.0 x4 Form Factor: 2280/22110 M.2 Key: M-Key</td>
</tr>
<tr>
<td>Onboard Storage Controller</td>
<td>N/A</td>
<td>Asmedia ASM1061</td>
</tr>
<tr>
<td>Onboard LAN</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Onboard VGA</td>
<td>1 Aspeed AST2600 BMC port(s)</td>
<td>N/A</td>
</tr>
<tr>
<td>USB Ports</td>
<td>2 USB 3.1 Gen1 ports via header</td>
<td>1 USB 2.0 port via header</td>
</tr>
<tr>
<td>Other Onboard I/O Devices</td>
<td>TPM 2.0 header 4 MCI0 (PCIe 5.0 x8/SATA3) ports 6 MCI0 (PCIe 5.0 x8) ports</td>
<td>TPM 2.0 header 20 MCI0 (PCIe 5.0 x8) ports</td>
</tr>
<tr>
<td>Manageability</td>
<td>SuperDoctorR 5, SPM, SUM, SSM, Watchdog, IPMIConfig, IPMIView for Linux/Windows, SMCIIPMITOOL, IPM1 2.0, KVM with dedicated LAN</td>
<td>SuperDoctorR 5, SPM, SUM, SSM, Watchdog, IPMIConfig, IPMIView for Linux/Windows, SMCIIPMITOOL, IPM1 2.0, KVM with dedicated LAN</td>
</tr>
<tr>
<td>PC Health Monitoring</td>
<td>VBAT, Memory temperature, CPU temperature, 3.3V standby, +5V standby, +3.3V, +12V, VRM temperature, CPU thermal trip support, 1.8V standby</td>
<td>VBAT, Memory temperature, CPU temperature, 3.3V standby, +5V standby, +3.3V, +12V, VRM temperature, CPU thermal trip support, 1.8V standby</td>
</tr>
<tr>
<td>Thermal Control</td>
<td>8x 6-pin fan headers (up to 8 fans)</td>
<td>10x 4-pin fan headers (up to 10 fans)</td>
</tr>
<tr>
<td>Other Features</td>
<td>RoT</td>
<td>RoT</td>
</tr>
<tr>
<td>BIOS</td>
<td>AMI 32MB SPI Flash EEPROM</td>
<td>AMI 32MB SPI Flash EEPROM</td>
</tr>
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</table>
# H13 Motherboards

<table>
<thead>
<tr>
<th>MODEL</th>
<th>H13SST-G</th>
<th>H13SST-GC</th>
<th>H13SSW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>AMD EPYC™ 9004 Series Processors</td>
<td>AMD EPYC™ 9004 Series Processors</td>
<td></td>
</tr>
<tr>
<td>Chipset</td>
<td>System on Chip</td>
<td>System on Chip</td>
<td></td>
</tr>
<tr>
<td>Form Factor</td>
<td>Proprietary GrandTwin, 8.53” x 12.42” (21.67cm x 31.55cm)</td>
<td>Proprietary, 12.29” x 13.4” (31.22cm x 34.04cm)</td>
<td></td>
</tr>
<tr>
<td>Memory Capacity &amp; Slots</td>
<td>Up to 3TB 3DS ECC RDIMM DDR5-4800MHz in 12 DIMMs</td>
<td>Up to 3TB 3DS ECC RDIMM DDR5-4800MHz in 12 DIMMs</td>
<td></td>
</tr>
<tr>
<td>Expansion Slots</td>
<td>M.2 Interface: 2 SATA/PCIe 5.0 x4 Form Factor: 2280 M.2 Key: M-Key</td>
<td>1 PCIe 5.0 x16 Right Riser Slot 1 PCIe 5.0 x16 Left Riser Slot 2 PCIe 5.0 x16 AIO/M / OCP 3.0 M.2 Interface: 2 PCIe 3.0 x2 Form Factor: 2280/22110 M.2 Key: M-Key</td>
<td></td>
</tr>
<tr>
<td>Onboard Storage Controller</td>
<td>-GC: Broadcom 3808 SAS3 (12 Gbps) controller for 8 SAS3 (12 Gbps) ports</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Onboard LAN</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Onboard VGA</td>
<td>1 Aspeed AST2600 BMC port(s)</td>
<td>1 VGA port(s) 1 Aspeed AST2600 BMC port(s)</td>
<td></td>
</tr>
<tr>
<td>USB Ports</td>
<td>N/A</td>
<td>2 USB 2.0 port(s) via header 2 USB 3.1 Gen1 ports</td>
<td></td>
</tr>
<tr>
<td>Other Onboard I/O Devices</td>
<td>1 MCIO (PCIe 5.0 x8/SATA3) ports 4 MCIO (PCIe 5.0 x8) ports -GC: 8 SAS3 ports via SlimSAS</td>
<td>1 COM Port (1 Serial Port) TPM 2.0 header 2 MCIO (PCIe 5.0 x8/SATA3) ports 6 MCIO (PCIe 5.0 x8) ports</td>
<td></td>
</tr>
<tr>
<td>Manageability</td>
<td>SuperDoctor® 5, SPM, SUM, SSM, Watchdog, IPMICFG, IPMIView for Linux/Windows, SMCIPMITool, IPMI 2.0, KVM with dedicated LAN</td>
<td>SuperDoctor® 5, SPM, SUM, SSM, Watchdog, IPMICFG, IPMIView for Linux/Windows, SMCIPMITool, IPMI 2.0, KVM with dedicated LAN</td>
<td></td>
</tr>
<tr>
<td>PC Health Monitoring</td>
<td>VBAT, Memory temperature, CPU temperature, 3.3V standby, +5V standby, +3.3V, +12V, VRM temperature, CPU thermal trip support, 1.8V standby</td>
<td>VBAT, Memory temperature, CPU temperature, 3.3V standby, +5V standby, +3.3V, +12V, VRM temperature, CPU thermal trip support, 1.8V standby</td>
<td></td>
</tr>
<tr>
<td>Thermal Control</td>
<td>1x 4-pin fan header (up to 1 fan)</td>
<td>6x 4-pin fan headers (up to 6 fans)</td>
<td></td>
</tr>
<tr>
<td>Other Features</td>
<td>RoT</td>
<td>RoT</td>
<td></td>
</tr>
<tr>
<td>BIOS</td>
<td>AMI 32MB SPI Flash EEPROM</td>
<td>AMI 32MB SPI Flash EEPROM</td>
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</table>
# H12 Motherboards

## ATX Mainstream

<table>
<thead>
<tr>
<th>MODEL</th>
<th>H12SSL-i</th>
<th>H12SSL-C</th>
<th>H12SSL-CT</th>
<th>H12SSL-NT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>Single AMD EPYC™ 7003/7002 Series Processor*</td>
<td>Dual AMD EPYC™ 7003/7002 Series Processors*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chipset</td>
<td>System on Chip</td>
<td>System on Chip</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Form Factor</td>
<td>ATX 12” x 9.6”</td>
<td>EATX 12” x 13.05”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Memory Capacity &amp; Slots</td>
<td>2TB ECC Registered, DDR4-3200MHz SDRAM in 8 DIMMs</td>
<td>4TB ECC Registered, DDR4-3200MHz SDRAM in 16 DIMMs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expansion Slots</td>
<td>5 PCIe 4.0 x16, 2 PCIe 4.0 x8, M.2 Interface: 2 PCIe 4.0 x4, M.2 Form Factor: 22110, 2280, M.2 Key: M-Key</td>
<td>3 PCIe 4.0 x16, 3 PCIe 4.0 x8, M.2 Interface: 1 PCIe 4.0 x4, M.2 Form Factor: 22110, 2280, M.2 Key: M-Key</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Onboard Storage Controller</td>
<td>-i: Broadcom 3008 SAS3 (12 Gbps) controller for 8 SAS3 (12 Gbps) ports; RAID 0,1,10</td>
<td>-NT: Dual LAN with Broadcom BCM57416 10GBase-T Ethernet Controller</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Onboard LAN</td>
<td>-i: Dual LAN with Broadcom BCM5720L Gigabit Ethernet Controller</td>
<td>-NT: Dual LAN with Broadcom BCM57416 10GBase-T Ethernet Controller</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Onboard VGA</td>
<td>1 VGA; Aspeed AST2500 BMC</td>
<td>1 VGA; Aspeed AST2600 BMC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>USB Ports</td>
<td>6 USB 3.0 ports (4 rear + 2 headers)</td>
<td>2 USB 2.0 ports (2 rear) + 4 USB 3.0 ports (2 rear + 2 headers)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Onboard I/O Devices</td>
<td>1 COM Ports, SATA DOM power connector, TPM 1.2/2.0 header, -i: 1 PCIe 4.0 NVMe x4 Internal Port, -NT: 2 PCIe 4.0 NVMe x4 Internal Ports</td>
<td>1 COM Ports, SATA DOM power connector, TPM 1.2/2.0 header, 4 PCIe 4.0 NVMe x4 Internal Ports</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manageability</td>
<td>IPMI (Intelligent Platform Management Interface) v2.0 with KVM support, IPMI2.0, KVM with dedicated LAN, SPM, SSM, SUM, SuperDoctor® 5, Watchdog</td>
<td>IPMI (Intelligent Platform Management Interface) v2.0 with KVM support, IPMI2.0, KVM with dedicated LAN, SPM, SSM, SUM, SuperDoctor® 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PC Health Monitoring</td>
<td>+3.3V, +5V, +5V standby, 3.3V standby, Monitors CPU voltages, Supports system management utility, VBAT</td>
<td>+12V, +3.3V, +5V, +5V standby, Chassis intrusion header, CPU temperature, LAN temperature, Memory temperature, Memory Voltages, Monitors CPU voltages</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thermal Control</td>
<td>7x fan header, 4-pin type of fan header, 7 fans with tachometer status monitoring, Dual Cooling Zone, Pulse Width Modulated (PWM) fan connectors, Status monitoring for speed control</td>
<td>8x fan header, 4-pin type of fan header, Dual Cooling Zone, Fan speed control, Overheat LED indication, PWM fan speed control</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Features</td>
<td>ACPI power management, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, UID</td>
<td>ACPI power management, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, UID, WOL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOS</td>
<td>AMI 256Mb Flash EEPROM</td>
<td>AMI 256Mb Flash EEPROM</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* AMD EPYC™ 7003 Series Processor with AMD 3D V-Cache™ Technology requires BIOS version 2.3 or newer.
**SYSTEM MANAGEMENT SOFTWARE**

Leverage Supermicro’s Management Software Suite to Meet Your IT Infrastructure Challenges

With a comprehensive range of high-end software solutions, Supermicro gives IT administrators the tools to optimize the management of IT systems and increase the utilization of computing and storage infrastructure. Whether you are looking to manage individual systems, optimize server lifecycle processes, or streamline operations for an entire data center, Supermicro has the right software to help you accomplish your goals.

**System Management Software Suite Bundles**

Supermicro’s System Management Software Suite consists of a set of specialized applications. These are available in the following bundles.

<table>
<thead>
<tr>
<th>Suite Bundle</th>
<th>Standard</th>
<th>Basic</th>
<th>Advanced</th>
<th>Enterprise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Covers all core functionality to effectively set up, manage, and monitor your Supermicro systems. These features are available to all Supermicro users.</td>
<td>Extends the core functionality and makes system management easier with additional features, such as remote BIOS management and system updates.</td>
<td>Delivers a broad set of tools to help administrators improve the performance, up-time, and monitoring of Supermicro systems.</td>
<td>Offers an extensive platform to manage large data centers and coordinate automated lifecycle management, software-defined infrastructure, and more in a single pane of glass.</td>
</tr>
<tr>
<td>License</td>
<td>No license required</td>
<td>SFT-OOB-LIC</td>
<td>SFT-DCMS-SINGLE</td>
<td>SFT-DCMS-SINGLE + SFT-SDDC-SINGLE</td>
</tr>
<tr>
<td>Key Features*</td>
<td>Secure remote console (KVM/HTML5) • System temperature monitoring • System power thresholds &amp; alerts • Component monitoring • Email alerting • Remote configuration • Offline diagnostics • Crash dump • License management</td>
<td>Remote BMC management • Remote BIOS management • Out-of-Band systems checks • TPM Provisioning • Mount/Unmount ISO images from Samba/HTTP • Basic Redfish APIs • CIM management • SysLog</td>
<td>Remote OS deployment • Auto-discovery • Power capping • RAID monitoring and configuration • HDD monitoring • Advanced Redfish APIs • FW update policy • System lock down • Crash screen/video capture</td>
<td>3rd Party vendor support • POD &amp; Rack-level management • SDI Lifecycle management • Manage Composable Dissagregated Infrastructure • Zero-touch provisioning for network configuration • Single pane of glass for data center deployment • Rich analytics &amp; telemetry • User defined role-based access control</td>
</tr>
</tbody>
</table>

* For detailed information, please check with your Supermicro sales representative or refer to Supermicro website: https://www.supermicro.com/en/solutions/management-software
World Class Total IT Solutions
Rack Plug and Play

Rack Scale Solutions/Design/Production/Validation/Logistics and Service, The capacity of 3000 Integrated Rack Solutions per month, including up to 1000 Liquid Cooled Racks per month.

Flexible AC Power (120/208/230/480VAC, Single/3-phase) 48VDC Power

10/25/40/100/200/400 Gb/s Network Testing Environments

Air Cooling/Free Air Cooling/Liquid Cooling

Turnkey Data Center Solutions within two weeks
Global Expansion
Providing Greater Economies of Scale and Accelerated Support to Data Center, Cloud Computing, AI, Enterprise IT, HPC, 5G, Hyperscale, and Embedded Solutions Customers Worldwide

America
- Supermicro’s Headquarters expansion: Over 1.5 million square foot Green Computing Park in San Jose, California signals the company’s increasing leadership in the IT industry
- One of the largest high-tech R&D, manufacturing, and business hubs in Silicon Valley
- East Coast Sales and Service Office

APAC
- Supermicro’s Asia Science and Technology Park is a key milestone in the company’s growth as a true global leader in the development of advanced, power saving computing technologies

Silicon Valley
Expanded manufacturing, command center

EMEA
- Supermicro’s system integration facility and services in The Netherlands serve the dynamic, rapidly growing EMEA market with localized supply and time-to-market advantages

Supermicro Worldwide

America
- Supermicro’s Headquarters expansion: Over 1.5 million square foot Green Computing Park in San Jose, California signals the company’s increasing leadership in the IT industry
- One of the largest high-tech R&D, manufacturing, and business hubs in Silicon Valley
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- Supermicro’s Asia Science and Technology Park is a key milestone in the company’s growth as a true global leader in the development of advanced, power saving computing technologies

Silicon Valley
Expanded manufacturing, command center

EMEA
- Supermicro’s system integration facility and services in The Netherlands serve the dynamic, rapidly growing EMEA market with localized supply and time-to-market advantages
Better
Brodest Portfolio of Versatile Systems

Faster
Maximum I/O and Lowest Latency

Greener
Reduced Environmental Impact and Lower TCO