A+ Server Solutions
World’s Most Versatile Portfolio of AMD Processor-Based Systems

SUPERMICRO® H12 GENERATION A+ SERVERS
The Most Comprehensive Portfolio of AMD Processor-Based Systems, Including Servers, Storage, GPU-Optimized, SuperBlade, and Multi-Node Twin Solutions to Exactly Match System Requirements to Your Workload
INTRODUCING
H12 GENERATION A+ SERVERS

Better
Broader Portfolio of Versatile Systems

Faster
Maximum I/O and Lowest Latency

Greener
Reduced Environmental Impact & Lower TCO

OPTIMIZED SYSTEMS FOR YOUR WORKLOAD
• Max Performance, High Volume Cloud, High Efficiency Multi-Node, Mainstream

OPEN ARCHITECTURES
• OpenBMC, OCP v3.0 SFF Cards
• New Supermicro® AIOI Cards Provide I/O Flexibility with OCP Superset

SECURE
• Root of Trust

MANAGEABLE & SERVICEABLE
• New Web IPMI Experience
• Tool-less Designs
• Global Service & Support

FIRST-TO-MARKET WITH MAXIMUM PERFORMANCE
• Thermal Capacity Supports Highest Clock Speeds
• Support for Full memory Configuration and Bandwidth

CPU & MEMORY
• Supports the latest AMD EPYC™ Processors with up to 64 Cores Per Socket
• Up to 8TB of DDR4-3200MHz Memory

I/O
• PCI-E 4.0

SUPERBLADE:
• Advanced Networking with 200G InfiniBand Switch, and up to 4x 25Gbe Switches

BEST-IN-CLASS WORKLOAD PERFORMANCE
• Market-Leading GPU Servers for AI/ML and HPC

MAXIMUM POWER EFFICIENCY
• Both Free Air and Water Cooled
• Titanium-Level (96%) Power Supplies

MULTI-NODE SYSTEMS
• Optimized Shared Resources for Reduction in Power and Cooling TCO

LEADING SYSTEM THERMAL DESIGNS
• Max Performance per Watt and per Dollar
• Highest Availability
• Reduced TCO and TCE (total cost to the environment)
**SUPERTWO® H12 GENERATION A+ SERVERS**

Choose from the most comprehensive line of servers, GPU and blade systems in the industry

- Up to 64 cores/128 threads per socket with AMD EPYC 7003 or 7002 Series Processors*
- Up to 32 DIMMs of DDR4-3200MHz memory for up to 8TB per system
- Increased I/O throughput with PCI-E 4.0 and up to 128 lanes per socket
- Hot-pluggable U.2 NVMe storage for better application responsiveness
- 3-Year Limited Warranty and 24-Hour Technical Support

---

**H12 Twin Systems**

*Industry Leading Multi-Node Architectures*
- Single/Dual Socket, up to 240W TDP
- 16 DIMMs DDR4-3200MHz, up to 4TB
- Flexible onboard SIOM networking up to 100G Ethernet
- Up to 4x 2.5” NVMe/SATA + 2x 2.5” SATA or 3x 3.5” SATA
- Redundant 2200W Titanium Level power supplies

---

**H12 Ultra**

*Industry Leading IOPS, Energy Efficiency, and Flexibility*
- Dual Socket, up to 280W TDP
- 32 DIMMs DDR4-3200MHz, up to 8TB
- Flexible onboard networking up to 4x 10G Ethernet
- 24/12x U.2 NVMe in 2U/1U or 12/4x 1.5” SATA in 2U/1U
- Redundant 1200W/1600W Titanium Level power supplies

---

**H12 WIO**

*Cost and Energy Efficiency for Data Center Environments*
- Single Socket, up to 280W TDP
- 16 DIMMs DDR4-3200MHz, up to 4TB
- Onboard 2x 10G Ethernet
- 2.5” or 3.5” NVMe/SATA drives
- Redundant 750W Platinum Level power supplies

---

**H12 SuperBlade®**

*High Density, Performance, and Efficient Resource-Saving Architecture*
- Up to 20x 1-socket SuperBlade servers in 8U
- Single Socket with 8 DIMMs, up to 2TB
- Onboard 2x 25G Ethernet and optional 200G HDR
- Up to 2 hot-pluggable NVMe/SAS/SATA and 2 M.2 per node
- Up to 1 double-wide or 2 single-wide GPUs per node

---

**H12 GPU System**

*The Broadest Portfolio for AI, Deep Learning, and HPC acceleration*
- Dual Socket, up to 280W TDP
- 32 DIMMs DDR4-3200MHz, up to 8TB
- Supports the latest GPUs including NVIDIA A100 and AMD Instinct™ MI100
- Onboard GbE or flexible AIOM networking (Redstone no AIOM, Delta not default with onboard LAN)
- Redundant 3000W Titanium Level power supplies

---

**H12 Mainstream**

*Efficient and Cost-Effective Designs for Mainstream Applications*
- H12 mainstream support up to 280W TDP
- 16 DIMMs DDR4-3200MHz, up to 4TB
- Up to onboard 2x 10G Ethernet
- Up to 8x 3.5” SATA drives in 2U with SAS option
- 1U, 2U, 4U rackmount/tower

---

* AMD EPYC 7003 series processor support requires BIOS version 2.0 or newer
MAXIMUM ACCELERATION A+ GPU SYSTEM

With Supermicro’s advanced architecture and thermal design, including liquid cooling and custom heatsinks, our 2U, 4U GPU systems drive NVIDIA’s latest HGX A100 4-GPU or 8-GPU baseboards, as well as supporting up to 8 directly attached double-width or single-width PCI-E GPU cards, including the latest NVIDIA A100 or AMD Instinct MI100 GPUs in a hyper-dense system.

Supermicro’s unique AIOM and a slew of PCI-E 4.0 slots of these systems enhance the multi-GPU communication and high-speed data flow between systems at a large scale.

The H12 GPU systems feature the latest technology stacks such as 200G networking, NVIDIA NVLink and NVSwitch, 1:1 GPUDirect RDMA, GPUDirect Storage, and NVMe-oF on InfiniBand.

Key Applications

- AI/ML
- Deep Learning Training and Inference
- High Performance Computing (HPC)
- Research Laboratory/National Laboratory
- Molecular Dynamics Simulation
- Astrophysics Simulation
- Chemistry Simulation
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.

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
- Cloud Computing
- Big Data Analytics
- Back-up and Recovery
- Scale-Out Storage
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 or 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

Key Applications
- Enterprise Server
- Hyperconverged Storage
- Virtualization
- AI Training/Inferencing
- Big Data Analytics
- Cloud Computing
- CDN
- In-Memory Database

*AMD EPYC 7003 series processor support requires BIOS version 2.0 or newer
H12 CloudDC
Ultimate Scalability and Flexibility on I/O and Storage for Cloud Data Centers

Tool-less design with single-socket I/O configurability, and 16 DIMMs, DDR4-3200MHz up to 4TB of memory

Dual AIOM slots for flexible (OCP 3.0 compliant) networking plus 10 SATA drive bays with optional support of up to 10 NVMe/SAS in 1U

Go beyond the limit with 4 PCI-E 4.0 x16 slots (in 2U), or 2 PCI-E 4.0 x16 slots in 1U for add on features like NIC, storage controller and optional PCI-E 4.0 x16 FHFL GPU support

Ultimate Scalability and Flexibility on I/O and Storage for Cloud Data Centers

Tool-less Mechanical Design for Rapid Cloud Deployment and Easy Maintenance
Ultimate flexibility on I/O and storage with 2 or 4 PCI-E 4.0 x16 slots and dual AIOM slots for maximum data throughput, A+ Cloud DC is designed to have great serviceability with tool-less brackets and trays, redundant power supplies and hot-swappable drives that help make maintenance of today’s demanding data center easier and quicker.

Redundant high-efficiency Platinum Level power supplies for resiliency and serviceability.


Key Applications
- Cloud Computing
- Web Server
- Hyper-converged Storage
- Virtualization, File Servers
- Head-node Computing
- Telcom Security Server
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

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.

Key Applications

- HPC
- AI/ML/DL
- Hybrid Cloud
- EDA
- Virtualization
- Health
- Financial Services
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 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

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

* AMD EPYC 7003 series processor support requires BIOS version 2.0 or newer
H12 MAINSTREAM
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
H12 AIO/M SIOM NETWORKING

New Supermicro® Advanced I/O Module (AIO) Cards Provide I/O flexibility with OCP Superset

AIO NETWORKING

Supermicro® Advanced I/O Module (AIO) extends the OCP 3.0 specification with unique features that tackle some of the biggest challenges such as thermal control, ability to support a wide range of networking options in a small size form factor, remote management, and quick and simple deployment. With AIO, datacenters may enjoy longer refresh cycles and receive better ROI. For large scale cloud datacenters, AIO provides improved mechanical and thermal designs (improved airflow) and increased serviceability, allowing the AIO modules to be serviced and/or replaced without opening the chassis. Many more AIO options will be available, including 2x 1G RJ45, 4x 1G RJ45, 2x 10G RJ45, 2x 10G SFP+, 4x 10G SFP+, 2x 25G SFP28 & 2x 100G QSFP28 and more.

### Model

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AOC-A2G-b2SM</td>
<td>2x 25GbE SFP28</td>
</tr>
<tr>
<td>AOC-AG-i4SM</td>
<td>4x GbE SFP</td>
</tr>
</tbody>
</table>

SIOM NETWORKING

Supermicro® Super I/O Module (SIOM) delivers up to 50% of I/O cost savings and freedom to select networking options from 1Gb/s to 100Gb/s through a Supermicro® optimized form factor that is easy to scale, service and manage across a broad range of Supermicro® server and storage systems. The SIOM also enables a higher degree of system integration and increased capacity by saving PCI-E slots that are traditionally reserved for add on cards.

### Model

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AOC-MGP-i2M</td>
<td>2x GbE RJ45</td>
</tr>
<tr>
<td>AOC-MGP-i4M</td>
<td>4x GbE RJ45</td>
</tr>
<tr>
<td>AOC-MTG-i2SM</td>
<td>2x 10GbE SFP+</td>
</tr>
<tr>
<td>AOC-MTG-i4SM</td>
<td>4x 10GbE SFP+</td>
</tr>
<tr>
<td>AOC-MTG-i2TM</td>
<td>2x 10GbE RJ45</td>
</tr>
<tr>
<td>AOC-MTG-i4TM</td>
<td>4x 10GbE RJ45</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AOC-MHTG-b2TM</td>
<td>2x 25GbE SFP28 &amp; 2x GbE RJ45</td>
</tr>
<tr>
<td>AOC-MH25G-b2S2GM</td>
<td>2x 25GbE SFP &amp; 2x GbE RJ45</td>
</tr>
<tr>
<td>AOC-MHIBF-m2Q2GM</td>
<td>2x FDR IB QSFP &amp; 2x GbE RJ45</td>
</tr>
<tr>
<td>AOC-MHIBF-m1Q2GM</td>
<td>1x FDR IB QSFP &amp; 2x GbE RJ45</td>
</tr>
<tr>
<td>AOC-MHIBE-m1CGM</td>
<td>1x EDR/100Gb E QSFP28 &amp; 1x GbE RJ45</td>
</tr>
</tbody>
</table>
# H12 GPU
(For Complete System Only)

## 4U 8-GPU with PCI-E
- **AS -4124GS-TNR**
  - Processor Support: Dual AMD EPYC 7003 or 7002 Series Processors*
  - Key Applications: HPC, Cloud Gaming, AI/ML, Research & Academia
  - Outstanding Features: 160 PCI-E lanes, 8 direct attached GPUs, PCI-E 4.0, Flexible architecture, AIM support

## 2U 2-Node, 4-GPU with PCI-E
- **AS -2114GT-DNR**
  - Processor Support: Single AMD EPYC 7003 or 7002 Series Processor*
  - Key Applications: Cloud Gaming, Research & Academia
  - Outstanding Features: 4 NVMe for GPUDirect Storage, Up to 8 DIMMs per node, M.2 Support, Supports 6 PCI-E and 1 Mezzanine card

## 4U 8-GPU with HGX
- **AS -4124GO-NART**
  - Processor Support: Dual AMD EPYC 7003 or 7002 Series Processors*
  - Key Applications: AI Compute / Model Training / Deep Learning, HPC
  - Outstanding Features: Highest 8 GPU communication using NVIDIA NVLink and NVRSwitch, Up to 8 NICS for GPUDirect RDMA (1:1 GPU Ratio), Up to 8 NVMe for GPUDirect Storage with optional backplane

## 2U 4-GPU with HGX
- **AS -2124GQ-NART**
  - Processor Support: Dual AMD EPYC 7003 or 7002 Series Processors*
  - Key Applications: AI Compute / Model Training / Deep Learning, HPC
  - Outstanding Features: High-density 2U with 4 GPU peer-to-peer communication, Directly attached GPUs for low latency, 4 NICS for GPUDirect RDMA (1:1 GPU Ratio)

---

* AMD EPYC 7003 series processor support requires BIOS version 2.0 or newer
** Can be sold as barebone system
## H12 FatTwin®
*(For Complete System Only)*

### 8 Nodes, Front I/O
![8 Nodes, Front I/O Image]

### 8 Nodes, Rear IO
![8 Nodes, Rear IO Image]

### 4 Nodes, Rear IO
![4 Nodes, Rear IO Image]

### Specifications

<table>
<thead>
<tr>
<th>MODEL</th>
<th>AS-F1114S-FT</th>
<th>AS-F1114S-RNTR</th>
<th>AS-F2014S-RNTR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor Support</td>
<td>Single AMD EPYC 7003 or 7002 Series Processor*</td>
<td>Single AMD EPYC 7003 or 7002 Series Processor*</td>
<td>Single AMD EPYC 7003 or 7002 Series Processor*</td>
</tr>
</tbody>
</table>
| **Key Applications** | • Hyperscale and Hyperconverged Solutions  
• Cloud Computing  
• Cluster Node  
• Data Center  
• HPC cluster computer nodes | • Hyperscale / Hyperconverged  
• HPC and Big Data  
• Data Center Enterprise Applications  
• Scale Out Storage  
• Telco Data Center  
• Virtualization Server | • Hyperscale / Hyperconverged  
• HPC and Big Data  
• Data Center Enterprise Applications  
• Scale Out Storage  
• Telco Data Center  
• Virtualization Server |
| **Outstanding Features** | • 8 nodes in a 4U system  
• 280W CPU support  
• Supports up to 64 cores  
• 2x LP PCI-E x16 slots; 1x AIOM PCI-E x16 slot per node  
• Supports 2-4x 2.5” SATA drives per node  
• Quad 2200W Titanium Level high-efficiency power supplies | • Up to 6 hot-swap optional SATA/NVMe drives per node  
• 4 onboard M.2 SATA/NVMe support per node  
• Flexible AIOM module per node  
• 1 PCI-E add-on card per node  
• Up to 8 DIMMs per node | • Can support up to 8 SATA/NVMe drives per node  
• Can support up to 10 2.5” SATA drives  
• 4 onboard SATA/NVMe M.2 Support per node  
• Flexible AIOM module per node  
• 1 PCI-E add-on cards per node  
• Up to 8 DIMMs per node |
| **Serverboard** | SUPER® H12SSF-AN6 | SUPER® H12SSF-RAN6 | SUPER® H12SSF-AN6 |
| **System Memory** | Up to 4TB ECC 3DS LRDIMM, up to DDR4-3200MHz in 16 DIMMs | Up to 2TB DDR4-3200MHz ECC 3DS LRDIMM in 8 DIMMs | Up to 2TB DDR4-3200MHz ECC 3DS LRDIMM in 8 DIMMs |
| **Expansion Slots** | 1 PCI-E 4.0 x16 (AIOM); 2 PCI-E 4.0 x16 (LP) per node | FatTwin Rear IO: PCI-E 4.0 x16 LP Riser and PCI-E 4.0 x8 Internal RAID AOC | FatTwin Rear IO: PCI-E 4.0 x16 LP Riser and PCI-E 4.0 x8 Internal RAID AOC |
| **Onboard Storage Controller** | N/A | N/A | N/A |
| **Connectivity** | AIOM Network Card For Flexible Networking Options (not included, must 1 per Node) | AIOM Network Card For Flexible Networking Options (not included, must add 1 per node) | AIOM Network Card For Flexible Networking Options (not included, must add 1 per node) |
| **VGA/Audio** | 1 VGA; Aspeed AST2600 BMC per node | Octal set of 1 VGA, Aspeed AST2600 BMC | Octal set of 1 VGA, Aspeed AST2600 BMC |
| **Management** | N/A | IPMI 2.0 KVM with dedicated LAN SSM, SUM SuperDoctor® 5 Watch Dog | IPMI 2.0 KVM with dedicated LAN SSM, SUM SuperDoctor® 5 Watch Dog |
| **Drive Bays** | 2-4x 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 | 8 Hot-swap 3.5” SATA drive bays per node |
| **Peripheral Bays** | N/A | N/A | N/A |
| **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) | Redundant 2200W Titanium Level (96%) (Full redundancy based on configuration and application load) |
| **Cooling System** | 8x 8cm 13.5k RPM rear fans per enclosure | 3x 3cm 20K RPM middle fans | 2x 80mm heavy duty PWM fans |
| **Form Factor** | 4U (8-node) Rackmount  
448 x 177 x 737mm (17.63” x 6.96” x 29") | 4U (8-node) Rackmount  
447 x 88 x 730mm (17.6” x 3.47” x 28.75") | 4U (4-node) Rackmount  
447 x 88 x 730mm (17.6” x 3.47” x 28.75") |

* AMD EPYC 7003 series processor support requires BIOS version 2.0 or newer
## H12 Twin Systems

### Key Applications
- Hyperscale and Hyperconverged Solutions
- Compute Intensive Application
- Enterprise Server
- Data Center
- HPC

### Outstanding Features
- Up to 3 3.5" SATA drives per node
- Up to 8 DIMMs per node
- Flexible SIOM options
- M.2 support
- 2 PCI-E add-on cards per node

<table>
<thead>
<tr>
<th>MODEL</th>
<th>Serverboard</th>
<th>System Memory (Max.)</th>
<th>Expansion Slots</th>
<th>Onboard Storage Controller</th>
<th>Connectivity Options</th>
<th>VGA/Audio</th>
<th>Management</th>
<th>Drive Bays</th>
<th>Peripheral Bays</th>
<th>Power Supply</th>
<th>Cooling System</th>
<th>Form Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>TwinPro® - 2U 4 UP Nodes</td>
<td>SUPER® H12SST-PS</td>
<td>Up to 2TB Registered ECC DDR4-3200MHz SDRAM in 8 DIMMs</td>
<td>2 PCI-E 4.0 X16 (LP), 1 SIOM card support, 4 M.2 SATA/PCI-E slots, 22110/2280/2260/2242, M-key</td>
<td>SATA3</td>
<td>SIOM Network Card For Flexible Networking Options (not included, must add 1 per node)</td>
<td>Aspeed AST2500 BMC</td>
<td>IPMI2.0; KVM with dedicated LAN; SPM; SSM; SUM; SuperDoctor® 5; Watchdog</td>
<td>3 Hot-swap 3.5&quot; SATA drive bays per node</td>
<td>N/A</td>
<td>Redundant 2000W Titanium Level (96%) (Full redundancy based on configuration and application load)</td>
<td>4x 80mm heavy duty PWM fans</td>
<td></td>
</tr>
<tr>
<td>BigTwin® - 2U 4 DP Nodes</td>
<td>SUPER® H12DST-B</td>
<td>Up to 4TB DDR4-3200MHz ECC 3DS LRDIMM in 16 DIMMs</td>
<td>2 PCI-E 4.0 X16 (LP), 1 SIOM card support, 1 M.2 SATA/PCI-E slot 2280/2210, M-key</td>
<td>SATA3</td>
<td>SIOM Network Card For Flexible Networking Options (not included, must add 1 per node)</td>
<td>Aspeed AST2500 BMC</td>
<td>IPMI2.0; KVM with dedicated LAN; SPM; SSM; SUM; SuperDoctor® 5; Watchdog</td>
<td>6 hot-swap 2.5&quot; drive bays per node (4 NVMe + 2 SATA)</td>
<td>N/A</td>
<td>Redundant 2200W Titanium Level (96%) (Full redundancy based on configuration and application load)</td>
<td>4x 80mm heavy-duty PWM fans</td>
<td></td>
</tr>
<tr>
<td>BigTwin® - 2U 4 DP Nodes</td>
<td>SUPER® H12DST-B</td>
<td>Up to 4TB DDR4-3200MHz ECC 3DS LRDIMM in 16 DIMMs</td>
<td>2 PCI-E 4.0 x16 (LP), 1 SIOM card support, 1 M.2 SATA/PCI-E slot 2280/2210, M-key</td>
<td>SATA3</td>
<td>SIOM Network Card For Flexible Networking Options (not included, must add 1 per node)</td>
<td>Aspeed AST2500 BMC</td>
<td>IPMI2.0; KVM with dedicated LAN; SPM; SSM; SUM; SuperDoctor® 5; Watchdog</td>
<td>6 hot-swap 2.5&quot; SATA drive bays per node</td>
<td>N/A</td>
<td>Redundant 2200W Titanium Level (96%) (Full redundancy based on configuration and application load)</td>
<td>4x 80mm heavy-duty PWM fans</td>
<td></td>
</tr>
</tbody>
</table>

* AMD EPYC 7003 series processor support requires BIOS version 2.0 or newer
** For complete system only
## H12 Ultra
*(For Complete System Only)*

### AS-1024US-TRT

**Processor Support:** Dual AMD EPYC 7003 or 7002 Series Processors*

**Key Applications:**
- Virtualization
- Cloud Computing
- High End Enterprise Server

**Outstanding Features:**
- Optional 4 NVMe ready
- 32 DIMMs
- 3+1 PCI-E add-on cards
- 4x 3.5” SATA/SAS/NVMe drive bays
- 280W CPU support
- Redundant Titanium Level (96%) power supplies
- Maximum IO output in 1U platform

**Serverboard:** SUPER® H12DSU-IN

**System Memory (Max.):** 32x DIMM slots, Up to 8TB ECC 3DS LRDIMM, Up to 3200 MHz

**Expansion Slots:**
- 2 PCI-E x16 (FH/9.5”L) slots; 1 PCI-E x16 slot (LP); 1 PCI-E 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.

**Connectivity:**
- Dual 10GBase-T RJ45 LAN ports via Intel Carlsville X710-AT2; 3 USB 3.0 ports (2 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:**
- 4x hot-swap 3.5” drive bays support

**Peripheral Bays:**
- N/A

**Power Supply:**
- 1000W 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

**Form Factor:**
- 437 x 43 x 754mm (17.2” x 1.7” x 29.7”)

### AS-1124US-TNRP

**Processor Support:** Dual AMD EPYC 7003 or 7002 Series Processors*

**Key Applications:**
- Virtualization
- Cloud Computing
- High End Enterprise Server

**Outstanding Features:**
- Maximum IO output in 1U platform
- 32 DIMMs
- 3+1 PCI-E 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

**Serverboard:** SUPER® H12DSU-IN

**System Memory (Max.):** 32x DIMM slots, Up to 8TB ECC 3DS LRDIMM, Up to 3200 MHz

**Expansion Slots:**
- 2 PCI-E x16 (FH/9.5”L) slots; 1 PCI-E x16 slot (LP); 1 PCI-E x16 slot (internal LP)

**Onboard Storage Controller:**
- 12 hot-Swappable U.2 drives support; Optional 12 SAS3 /12SATA support with additional SAS/SATA Kit

**Connectivity:**
- Dual port 10G RJ45 & dual port 10G SFP+, Intel Carlsville X710-TM4; 4 USB 3.0 ports (1 front, 2 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:**
- 12x hot-swap 2.5”* drives support

**Peripheral Bays:**
- N/A

**Power Supply:**
- 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

**Form Factor:**
- 437 x 43 x 724mm (17.2” x 1.7” x 28.5”)

* AMD EPYC 7003 series processor support requires BIOS version 2.0 or newer
# H12 Ultra
(For Complete System Only)

## 2U Ultra, 8TB DDR4
### AS - 2024US-TRT
- **Processor Support**: Dual AMD EPYC 7003 or 7002 Series Processors*
- **Key Applications**:
  - Virtualization
  - Cloud Computing
  - High End Enterprise Server
  - Hyperconverge Storage
- **Outstanding Features**:
  - 32 DIMMs
  - 5+1 PCI-E 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

## 2U Ultra, 24 NVMe
### AS - 2124US-TNRP
- **Processor Support**: Dual AMD EPYC 7003 or 7002 Series Processors*
- **Key Applications**:
  - Virtualization
  - Cloud Computing
  - High End Enterprise Server
  - Hyperconverge Storage
- **Outstanding Features**:
  - 32 DIMMs
  - 1 PCI-E 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**

## System Memory (Max.)
- **AS - 2024US-TRT**: 32 DIMM slots, Up to 8TB ECC 3DS LRDIMM, Up to 3200 MHz
- **AS - 2124US-TNRP**: 32 DIMM slots, Up to 8TB ECC 3DS LRDIMM, Up to 3200 MHz

## Expansion Slots
- **AS - 2024US-TRT**: 2 PCI-E 4.0 x16 slots (FH, 10.5" L); 1 PCI-E 4.0 x16 slot (FH, 9.5" L); 1 PCI-E 4.0 x16 slot (LP); 1 PCI-E 4.0 x8 slot (FH, 9.5" L, in x16 slot); 1 PCI-E 4.0 x8 slot (internal LP, in x16 slot)
- **AS - 2124US-TNRP**: 1 PCI-E 4.0 x16 slot (FH, 9.5" L)

## Onboard Storage Controller
- **AS - 2024US-TRT**: 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
- **AS - 2124US-TNRP**: 24x Hot-Swappable U.2 drive bays support with optional up to 24x SAS3 drive bays support VS SAS card and cables

## Connectivity
- **AS - 2024US-TRT**: Dual port 10G RJ45, Intel Carlsville X710-AT2; 4 USB 3.0 ports (1 front, 2 rear, 1 Type A)
- **AS - 2124US-TNRP**: Dual 10G RJ45 & Dual 10G SFP+ ports, Intel Carlsville X710-TM4 3 USB 3.0 ports (2 rear, 1 Type A)

## VGA/Audio
- **AS - 2024US-TRT**: 1 VGA; 1 ASPEED AST2500 BMC
- **AS - 2124US-TNRP**: 1 VGA; 1 ASPEED AST2500 BMC

## Management
- **AS - 2024US-TRT**: Built-in Server management tool (IPMI 2.0, KVM/media over LAN) with dedicated LAN port
- **AS - 2124US-TNRP**: Built-in Server management tool (IPMI 2.0, KVM/media over LAN) with dedicated LAN port

## Drive Bays
- **AS - 2024US-TRT**: 12x hot-swap 3.5" drive bays support
- **AS - 2124US-TNRP**: 24x hot-swap 2.5" drive bays support

## Peripheral Bays
- **AS - 2024US-TRT**: 2x 2.5" peripheral drive bays with additional rear drive bay kits + cable
- **AS - 2124US-TNRP**: N/A

## Power Supply
- **AS - 2024US-TRT**: 1600W redundant Titanium Level (96%) power supplies (Full redundancy based on configuration and application load)
- **AS - 2124US-TNRP**: 1600W redundant Titanium Level (96%) power supplies (Full redundancy based on configuration and application load)

## Cooling System
- **AS - 2024US-TRT**: 4x heavy-duty fans w/ optimal Fan Speed Control
- **AS - 2124US-TNRP**: 4x heavy-duty fans w/ optimal Fan Speed Control

## Form Factor
- **AS - 2024US-TRT**: 437 x 89 x 723mm (17.2" x 3.5" x 28.46")
- **AS - 2124US-TNRP**: 2U Rackmount

---

* AMD EPYC 7003 series processor support requires BIOS version 2.0 or newer
### Cost Effective 1U

<table>
<thead>
<tr>
<th>MODEL</th>
<th>AS-1114CS-TNR</th>
<th>AS-2014CS-TR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor Support</td>
<td>Single AMD EPYC 7003 or 7002 Series Processor*</td>
<td>Single AMD EPYC 7003 or 7002 Series Processor*</td>
</tr>
</tbody>
</table>
| Key Applications | - Financial Services  
- Cloud Computing  
- Network Appliance  
- Private Cloud  
- Content Delivery Network (CDN)  
- Deep Learning Inferencing | - Financial Services  
- Cloud Computing  
- Network Appliance  
- Private Cloud  
- Content Delivery Network (CDN)  
- Deep Learning Inferencing |
| Outstanding Features | - Dual AIOM slots for flexible networking  
- 2x PCI-E 4.0 x16 FH/HL slots  
- 860W redundant Platinum Level power supplies  
- Tool-less drive trays and tool-less brackets  
- 280W CPU support  
- 16 DIMMs | - Dual AIOM slots for flexible networking  
- 4x PCI-E 4.0 x16 (2 FH, 10.5”L) or 2x PCI-E 4.0 x16 (FH/HL) + 4x PCI-E 4.0 x8 FH/HL slots  
- 920W redundant Platinum Level high-efficiency power supplies  
- Tool-less drive trays and tool-less brackets  
- 280W CPU support  
- 16 DIMMs |
| Serverboard |SUPER® H12SSW-AN6 |SUPER® H12SSW-AN6 |
| System Memory (Max.) | 16 DIMM slots, Up to 4TB ECC 3DS LRDIMM, Up to 3200 MHz | 16 DIMM slots, Up to 4TB ECC 3DS LRDIMM, Up to 3200 MHz |
| Expansion Slots | 2 PCI-E 4.0 x16 (FH/HL) | 4 PCI-E 4.0 x16 (2 FH, 10.5”L) or 2 PCI-E 4.0 x16 (FH/HL) + 4 PCI-E 4.0 x8 FH/HL slots |
| Onboard Storage Controller | 10x hot-swappable SATA drives bays support; Optional 10x SAS3/ NVMe support with additional SAS/NVMe kit | 12x 3.5” SATA /SAS (SAS via AOC)/NVMe drive bays with optional kit + 2x 2.5” (with optional kit) |
| Connectivity | Dual AIOM slots, 2 USB 3.0 ports (2 rear) | Dual AIOM slots, 2 USB 3.0 ports (2 rear) |
| VGA/Audio | 1 VGA; 1 ASPEED AST2600 BMC | 1 VGA; 1 ASPEED AST2600 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 | 10x hot-swap 2.5” drive bays support | 12x hot-swap 3.5” drive bays support |
| Peripheral Bays | N/A | 2x 2.5” Peripheral drive bays with additional rear drive bay kits + cable |
| Power Supply | 860W redundant Platinum Level high-efficiency power supplies | 920W redundant Platinum Level high-efficiency power supplies |
| Cooling System | 6x 40x40x56mm counter-rotation PWM fans | 3x 80x80x38mm middle cooling fans |
| Form Factor | 1U Rackmount 437 x 43 x 597mm (17.2” x 1.7” x 23.5”) | 2U Rackmount 437 x 89 x 648mm (17.2” x 3.5” x 25.5”) |

* AMD EPYC 7003 series processor support requires BIOS version 2.0 or newer
## MODEL | **SBA-4114S-C2N** | **SBA-4114S-T2N** | **SBA-4119SG**
--- | --- | --- | ---
**Processor Support** | Single AMD EPYC 7003 or 7002 Series Processor*; TDP up to 280W | Single AMD EPYC 7003 or 7002 Series Processor*; TDP up to 280W | Single AMD EPYC 7003 or 7002 Series Processor*; TDP up to 280W
**Key Applications** | • Resource saving and high density | • Resource saving and high density | • Resource saving and high density
• Data center | • Data center | • Data center
• HPC | • HPC | • HPC
• EDA | • EDA | • EDA
**Outstanding Features** | • 2x hot-plug 2.5” NVMe/SAS3/SATA3 drive bays | • 2x hot-plug 2.5” NVMe/SATA3 drive bays | • 1 NVMe/SATA M.2
• 2 NVMe/SATA M.2 | • 2 NVMe/SATA M.2 | • 2 PCI-E 4.0 x16 slots
• 2x 25G on board | • 2x 25G on board | • 2x 25G on board
• Flexible AIOM module per node | • Flexible AIOM module per node | 
**Serverboard** | MBD-BH12SSI-M25 | MBD-BH12SSI-M25 | MBD-BH12SSI-M25
**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 PCI-E 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
**Peripheral Bays** | N/A | N/A | N/A
**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 support requires BIOS version 2.0 or newer*
### H12 SUPERBLADE®
*(For Complete System Only)*

![Up to 20 hot-plug server blades](image1)

![Up to 20 hot-plug server blades](image2)

**MODEL**

<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>
</tbody>
</table>
| Module Support | Supports:  
• SBA-4114S-C2N  
• SBA-4114S-T2N  
• SBA-41195G | Supports:  
• SBA-4114S-C2N  
• SBA-4114S-T2N  
• SBA-41195G |
| LED | • Fault LED  
• Power LED | • Fault LED  
• Power LED |
| InfiniBand Switch | 1x 100G EDR IB or OPA switch | N/A |
| Gigabit Ethernet Switch | Up to 2 hot-plug 25G Ethernet Switches | Up to 4 hot plug 25G Ethernet switch |
| Management Module | 1 hot-plug management module providing remote KVM and IPMI 2.0 functionalities | 2 hot-plug management modules providing remote KVM and IPMI 2.0 functionalities |
| Power Supply | 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) | 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 support requires BIOS version 2.0 or newer

---

**Rear View**

**Rear View**
<table>
<thead>
<tr>
<th>MODEL</th>
<th>SBE-820L</th>
<th>SBE-820H</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>
</tbody>
</table>
| Module Support | Supports: • SBA-4114S-C2N  
  • SBA-4114S-T2N  
  • SBA-41195G | Supports: • SBA-4114S-C2N  
  • SBA-4114S-T2N  
  • SBA-41195G |
| 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 support requires BIOS version 2.0 or newer
## MODEL | AS -2014S-TR | AS -2024S-TR
---|---|---
**Processor Support** | Single AMD EPYC™ 7003/ 7002-series Processor (Up to 280W) | Dual AMD EPYC 7002/7003 series processors
**Key Applications** | • Backup storage  
• Web or Database Servers  
• Compact Network Appliance | • Data processing & Storage  
• Cloud Computing  
• Hosting & Application delivery  
• Cloud and Virtualization needs  
• Content Delivery Network (CDN)
**Outstanding Features** | • 12x 3.5” hot-swap drive bays  
• 2x 2.5” Hot Swap SATA3 Drive Bays, 2x 2.5” Internal SATA3 Drive Bays (optional)  
• Up to 2TB DDR4 ECC RDIMM  
• 2x 1GbE LAN  
• 2x M.2 Support by default | • 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
**Chipset** | System on Chip (SoC) | System on Chip (SoC)
**System Memory (Max.)** | Up to 2TB 3DS ECC RDIMM/LRDIMM; DDR4 Up to 3200MHz, in 8 DIMM slots | 16 DIMM slots, Up to 4TB of 3200 MHz memory
**Expansion Slots** | 5 PCI-E 4.0 x16 LP slots, 2 PCI-E 4.0 x8 LP slots | 3 PCI-E 4.0 x16 LP slots + 3 PCI-E 4.0 x8 LP slots
**Onboard Storage Controller** | 12 Hot-Swappable 3.5”/2.5” SATA3 drive support; Optional 2x 2.5" SATA3 drive support with optional kits | 8 SATA3, 2 SATADOM and 2 PCI-e 4.0 NVMe internal ports
**Connectivity** | 2 GBase-T Ethernet via Broadcom BCM5720 Controller; 5 USB 3.0 ports (4 rear, 2 via header) | 2 USB 3.0 ports (2 rear)
**VGA/Audio** | 1 VGA 1 Aspeed AST2500 BMC | 1 VGA; 1 ASPEED AST2600 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** | 12 Hot-Swappable 3.5”/ 2.5” SATA3 drive support; Optional 2x 2.5" SATA3 drive support with optional kits | 12x hot-swap 3.5/2.5” drive bays
**Peripheral Bays** | N/A | N/A
**Power Supply** | 920W Redundant Power Supplies Platinum Level (94%) (Full redundancy based on configuration and application load) | 920W redundant Platinum Level High-Efficiency power supplies
**Cooling System** | 3 heavy duty fans w/ Optimal Fan Speed Control | 3x 80x80x38mm middle cooling fans
**Form Factor** | 437 x 89 x 648mm (17.2” x 3.5” x 25.5”) | 437 x 89 x 648mm (17.2” x 3.5” x 25.5”)

* AMD EPYC 7003 series processor support requires BIOS version 2.0 or newer
### SuperWorkstation

#### MODEL | AS-3014TS-i | AS-5014A-TT
---|---|---
**Processor Support** | Single AMD EPYC 7003 or 7002 Series Processors*, TDP up to 280W | AMD Ryzen™ Threadripper™ PRO 3000WX Series Processor, up to 64 Cores

**Key Applications** | • Entry-Level Workstation  
• Video and Music Production  
• Office Applications | • Media and Entertainment Content Creation  
• Product Design and Engineering Simulation  
• AI and Deep Learning

**Outstanding Features** | • 4x 3.5” internal SATA HDD Bays  
• Up to 2TB DDR4 ECC RDIMM  
• 2x 1GbE LAN  
• 2x M.2 Support by default | • 5U Rackmountable / Tower  
• 6 PCI-E 4.0 x16 slots  
• M.2 Support  
• 10GBase-T LAN port, 1x 1GbE LAN port

**Serverboard** | SUPER® H12SSL-i | SUPER® M12SWA-TF

**System Memory (Max.)** | Up to 2TB 3DS ECC RDIMM/LRDIMM; DDR4-3200MHz, in 8 DIMMs | Up to 2TB Registered ECC DDR4-3200MHz Memory, in 8 DIMMs

**Expansion Slots** | 5 PCI-E 4.0 x16, 2 PCI-E 4.0 x8 | 6 PCI-E 4.0 x16 slots  
M.2 Interface: 4 PCI-E 4.0 x4, RAID 0, 1, 5 & 10  
M.2 Form Factor: 2280, 22110  
M.2 Key: M-Key

**Onboard Storage Controller** | 4x internal 3.5” SATA3 drives support; 4x 2.5” SATA3 drives support | 4 SATA3 (6Gbps) ports; RAID 0, 1, 5, 10

**Connectivity** | 2 GBase-T Ethernet via Broadcom BCM5720 Controller; 5 USB 3.0 ports (4 rear, 2 via header) | 10GBase-T LAN port, 1x 1GbE LAN port (shared with IPMI)

**VGA/Audio** | 1 VGA; 1 Aspeed AST2500 BMC | 1 VGA port (dedicated for IPMI);  
7.1 HD Audio

**Management** | Built-in Server management tool (IPMI 2.0, KVM/media over LAN) with dedicated LAN port | Intel® Node Manager, IPMI 2.0, SSM, SPM, SUM, SuperDoctor® 5, Watchdog

**Drive Bays** | 4x internal 3.5” SATA3 drive bays; 4x 2.5” SATA3 drives support | 4x internal fixed 3.5”/2.5” SATA3 drive bays;  
2x front fixed 2.5” SATA3 drive bays

**Peripheral Bays** | N/A | 2x 5.25” drive bays

**Power Supply** | 900W redundant Gold Level power supplies | 2000W Platinum Level power supply

**Cooling System** | 2 system fans w/ optimal Fan Speed control | 1x 12cm rear exhaust fan,  
3x 12cm front cooling fans (optional),  
3x 12cm top cooling fans (optional);  
Optional high-performance closed-loop water cooling for CPU

**Form Factor** | Mid-Tower  
193 x 424 x 525mm (7.6” x 16.7” x 20.68”)) | 5U Rackmountable / Tower  
222 x 535 x 573 mm (21.06” x 8.74” x 22.56”)

* AMD EPYC 7003 series processor support requires BIOS version 2.0 or newer
## Processor Support
<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>Single AMD EPYC 7003 or 7002 Series Processor*; TDP up to 280W</td>
<td>Single AMD EPYC 7003 or 7002 Series Processor*; TDP up to 280W</td>
<td>Single AMD EPYC 7003 or 7002 Series Processor*; TDP up to 240W</td>
<td></td>
</tr>
</tbody>
</table>

## Key Applications
- Database Processing & Storage
- Data Center
- FireWall Applications

## Outstanding Features
- Support up to 3 PCI-E cards
- Up to 2TB DDR4 ECC RDIMM
- Dual 10GBaseT LAN ports
- 2x M.2 support by default
- 2 SATA DOMs support with embedded power

## Serverboard
- SUPER® H12SSW-IN
- SUPER® H12SSW-NTR
- SUPER® H12SSW-IN

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

## Expansion Slots
- 2 PCI-E 4.0 x16 (FH/HL) slots, 1 PCI-E 4.0 x16 (LP) slot
- 2 PCI-E 4.0 x16 (FH/HL) slots, 1 PCI-E 4.0 x16 (LP) slot
- 2 PCI-E 4.0 x16 (FH/HL) slots, 1 PCI-E 4.0 x16 (LP) slot

## Onboard Storage Controller
- 4 Hot-Swappable 3.5" SATA drive support; Optional 4 U.2 NVMe (PCIe Gen 3) drive support vs additional NVMe cables required
- 10 Hot-Swappable U.2 NVMe drive support; Optional 10 SATA3 drive support vs additional SATA cables required
- 10 Hot-Swappable U.2 NVMe drive support; Optional 2 U.2 NVMe (PCIe Gen 3) drive support vs additional NVMe cables required

## Connectivity
- 2 10GBase-T Ethernet via Broadcom BCM57416 Controller; 7 USB 3.0 ports (4 rear, 2 front, 1 Type A)
- 2 10GBase-T Ethernet via Broadcom BCM57416 Controller; 7 USB 3.0 ports (4 rear, 2 front, 1 Type A)
- 2 10GBase-T Ethernet via Broadcom BCM57416 Controller; 7 USB 3.0 ports (4 rear, 2 front, 1 Type A)

## VGA/Audio
- 1 VGA 1 Aspeed AST2500 BMC
- 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; Software Out of Band License key (SFT-OOB-LIC) included for OOB BIOS 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; Software Out of Band License key (SFT-OOB-LIC) included for OOB BIOS management

## Drive Bays
- 4 Hot-Swappable 3.5" SATA drive support; Optional 4 U.2 NVMe (PCIe Gen 3) drive support vs additional NVMe cables required
- 10 Hot-Swappable U.2 NVMe drive support; Optional 10 SATA3 drive support vs additional SATA cables required
- 10 Hot-Swappable U.2 SATA drive support; Optional 2 U.2 NVMe (PCIe Gen 3) drive support vs additional SATA cables required

## Peripheral Bays
- Optional to support 1x Slim DVD-ROM Drive
- N/A
- N/A

## Power Supply
- 500W Redundant Power Supplies Platinum Level (94%) (Full redundancy based on configuration and application load)
- 750W Redundant Power Supplies Platinum Level (94%) (Full redundancy based on configuration and application load)
- 500W Redundant Power Supplies Platinum Level (94%) (Full redundancy based on configuration and application load)

## Cooling System
- 4 heavy duty fans w/ Optimal Fan Speed Control, Additional 1 heavy duty fan support w/ Optimal Fan Speed Control
- 6 heavy duty fans w/ Optimal Fan Speed Control
- 4 heavy duty fans w/ Optimal Fan Speed Control, Additional 1 heavy duty fan support w/ Optimal Fan Speed Control

## Form Factor
- 1U Rackmount 437 x 43 x 650mm (17.2” x 1.7” x 25.6”)
- 437 x 43 x 597mm (17.2” x 1.7” x 23.5”)
- 437 x 43 x 597mm (17.2” x 1.7” x 23.5”)

* AMD EPYC 7003 series processor support requires BIOS version 2.0 or newer
** For complete system only
### 2U UP WIO

**Key Applications**
- Virtualization
- Hyperconverged 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

**Model**
**AS-2114S-WN24RT**
- Single AMD EPYC 7003 or 7002 Series Processor*
- TDP up to 280W

**Model**
**ASG-1014S-ACR12N4H**
- Single AMD EPYC 7003 or 7002 Series Processor*
- Object Storage
- Scale-Out Density
- Database Applications
- Hadoop & Ceph storage solutions

---

### High Capacity Storage

**Model**
**AS-2114S-WN24RT**
- 12x 3.5" hot-swap SAS3/SATA3 drive bays with Broadcom 3916 SAS3 IR mode controller
- 16x 4TB Registered ECC DDR4 3200MHz SDRAM
- 4x 2.5" 7mm hot-swap NVMe/SATA drive bays
- 3 PCI-E 4.0 x16 slots
- 2x 10GBase-T LAN Ports via Broadcom BCM57416 and 2x M.2 NVMe up to 110mm
- Internal Cable Arm

**Model**
**ASG-1014S-ACR12N4H**
- 12x 3.5" SAS/SATA drive bays with Broadcom 3916 SAS3 IR mode controller
- 16x 4TB Registered ECC DDR4 3200MHz SDRAM
- 4x 2.5" 7mm hot-swap NVMe/SATA drive bays
- 3 PCI-E 4.0 x16 slots
- 2x 10GBase-T LAN Ports via Broadcom BCM57416 and 2x M.2 NVMe up to 110mm
- Internal Cable Arm

---

### Common Specifications

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

- **Expansion Slots**
  - 1 PCI-E 4.0 x16 (FH/LH)
  - 2 PCI-E 4.0 x16 (FHHL); 1 PCI-E 4.0 x8 (LP)

- **Onboard Storage Controller**
  - 24 Hot-Swappable U.2 NVMe drive support
  - NVMe/SATA drive bays via CPU

- **Connectivity**
  - 2 10GBase-T Ethernet via Broadcom BCM57416 Controller; 5 USB 3.0 ports (4 rear, 1 Type A)
  - 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
  - 1 VGA; 1 ASPEED AST2600 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**
  - 24 Hot-Swappable U.2 NVMe drive support
  - 12x 3.5" SAS/SATA drive bays; 4x 7mm 2.5" NVMe/SATA drive bays

- **Peripheral Bays**
  - N/A
  - N/A

- **Power Supply**
  - 1200W Redundant Power Supplies Titanium Level (96%) (Full redundancy based on configuration and application load)
  - 800W redundant Platinum Level high-efficiency power supplies

- **Cooling System**
  - 3 heavy duty fans w/ Optimal Fan Speed Control
  - 6x 40x40x56mm counter-rotation PWM fans

- **Form Factor**
  - 2U Rackmount
  - 1U Rackmount
  - 437 x 89 x 630mm (17.2" x 3.5" x 24.8")
  - 447 x 43 x 940mm (17.6" x 1.7" x 37")

* AMD EPYC 7003 series processor support requires BIOS version 2.0 or newer
# 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 or 7002 Series Processor*</td>
<td>Dual AMD EPYC 7003 or 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 &amp; Slots</td>
<td>ATX 12&quot; x 9.6&quot;</td>
<td>EATX 12&quot; x 13.05&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Memory Capacity &amp; Slots</td>
<td>2 TB ECC Registered, DDR4-3200MHz SDRAM in 8 DIMMs</td>
<td>4 TB ECC Registered, DDR4-3200MHz SDRAM in 16 DIMMs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expansion Slots</td>
<td>5 PCI-E 4.0 x16, 2 PCI-E 4.0 x8, M.2 Interface: 2 PCI-E 4.0 x4, M.2 Form Factor: 22110, 2280, M.2 Key: M-Key</td>
<td>3 PCI-E 4.0 x16, 3 PCI-E 4.0 x8, M.2 Interface: 1 PCI-E 4.0 x4, M.2 Form Factor: 22110, 2280, M.2 Key: M-Key</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Onboard RAID Controller</td>
<td>-i: Broadcom 3008 SAS3 (12 Gbps) controller for 8 SAS3 (12 Gbps) ports; RAID 0,1,10</td>
<td>-N6: Dual LAN with Broadcom BCM5720L Gigabit 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>-i: 1 PCI-E 4.0 NVMe x4 Internal Port</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)</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 PCI-E 4.0 NVMe x4 Internal Port, -NT: 2 PCI-E 4.0 NVMe x4 Internal Ports</td>
<td>1 COM Ports, SATA DOM power connector, TPM 1.2/2.0 header, 4 PCI-E 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 support requires BIOS version 2.0 or newer
Global Expansion
Providing Greater Economies of Scale and Accelerated Support to Data Center, Cloud Computing, AI, Enterprise IT, Hadoop/Big Data, HPC, 5G, Hyperscale, and Embedded Solutions Customers Worldwide

Worldwide Headquarters
San Jose, California, USA

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

EMEA
- Supermicro's system integration facility and services in The
  Netherlands serves 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
- 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

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

Global Expansion
Providing Greater Economies of Scale and Accelerated Support to Data Center, Cloud Computing, AI, Enterprise IT, Hadoop/Big Data, HPC, 5G, Hyperscale, and Embedded Solutions Customers Worldwide

Worldwide Headquarters
San Jose, California, USA

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

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

Global Expansion
Providing Greater Economies of Scale and Accelerated Support to Data Center, Cloud Computing, AI, Enterprise IT, Hadoop/Big Data, HPC, 5G, Hyperscale, and Embedded Solutions Customers Worldwide

Worldwide Headquarters
San Jose, California, USA

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

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

Global Expansion
Providing Greater Economies of Scale and Accelerated Support to Data Center, Cloud Computing, AI, Enterprise IT, Hadoop/Big Data, HPC, 5G, Hyperscale, and Embedded Solutions Customers Worldwide

Worldwide Headquarters
San Jose, California, USA

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

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

Global Expansion
Providing Greater Economies of Scale and Accelerated Support to Data Center, Cloud Computing, AI, Enterprise IT, Hadoop/Big Data, HPC, 5G, Hyperscale, and Embedded Solutions Customers Worldwide

Worldwide Headquarters
San Jose, California, USA

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

EMEA
- Supermicro's system integration facility and services in The
  Netherlands serves 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
- 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

EMEA
- Supermicro's system integration facility and services in The
  Netherlands serves 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
- 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

EMEA
- Supermicro's system integration facility and services in The
  Netherlands serves 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
- 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

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

Faster
Maximum I/O and Lowest Latency

Greener
Reduced Environmental Impact and Lower TCO