

X14 Single-Socket Server Solutions

Over 20 New Systems that Redefine Single-Socket Performance and Deliver Data Center Power, Space, and Cost Savings



Supporting Intel® Xeon® 6 with P-cores Single-Socket Solutions (including 6900 series with P-cores and 6700/6500 series with P-cores)

- Single-socket servers have better performance per watt
- Savings on acqusition, power, and space costs
- Lower thermal load to reduce cooling costs without sacrificing performance
- More powerful cores and higher core counts for a range of workloads
- No connection needed between CPUs, which avoids Non-Uniform Memory Access (NUMA) latency performance hit and frees up more PCIe lanes
- Future-proofing design that supports DDR5-6400 & MRDIMM-8800 and offers 136 PCIe 5.0 lanes
- Exceptional I/O flexibility for acceleration, storage, and networking

Supermicro X14 is the Most Powerful, Flexible, and Efficient Platform Ever

X14 combines the flexibility of Supermicro's industry-leading Building Block Solutions with Supermicro's rack-scale integration to deliver customized, workload-optimized solutions at any scale for a range of AI, HPC, Cloud, and Edge workloads. Powered by the Intel Xeon 6 with P-cores single-socket solutions, Supermicro X14 systems will deliver higher performance-per-watt and performance-per-core to accelerate any workload.

Performance, Efficiency, and Flexbility Improvements Reduce Costs

New single-socket servers are capable of supporting a wide range of workloads and applications that used to require dual-socket servers. By leveraging a single-socket architecture, enterprises and data center operators can reduce initial acquisition costs, ongoing operational costs such as power and cooling, and the physical footprint of server rack without compromising performance.

Purpose-Built for a Variety of Workloads

Our new single-socket servers offer more powerful cores persystem, faster memory support, and up to 136 PCIe 5.0 lanes to server AI/ML, HPC, Cloud, Storage, CDN, Virtualization, and 5G/Edge. In some cases, new systems based on Intel Xeon 6 with P-cores single-socket solutions can outperform dual-socket systems using prior-generationn Intel Xeon CPUs (2nd and 3rd Gen Intel Xeon Scalable processors).

New Features Increase Performance

Modern single-socket servers are able to replace dual-socket servers and provide the same or even better performance. The enhanced PCIe lane availibility (up to 136 lanes) compared to previous generations means more and faster networking, storage, and acceleration devices can be added to each system, increasing overall system compute capacity and rack density. Deploying single-socket architectures also has the additional advantage over multi-processor systems, including the absence of the CPU-CPU interconnect, which not only frees up more of the processor's I/O capacity for expansion but also avoids latency issues related to Non-Uniform Memory Access (NUMA).

Lower Energy Consumption Requires Less Data Center Space

By deploying single-socket servers, customers can realize cost savings not only on the initial acquisition of the servers, but also due to reduced energy consumption for both system power and cooling. Additionally, single-socket architectures allow higher density rack configurations, which in turn occupy less physical space in the data center, further reducing operating costs.

Future-Proof Design

Single-socket servers include the latest-generation technologies to accommodate a wide range of current and future applications. These systems support DDR5 memory with speeds up to 6400 MT/s and MRDIMM up to 8800 MT/s to enhance performance capabilities for memory-bound workloads, as well as CXL 2.0 with up to 64 lanes, enabling an enhanced shared memory capacity. The unprecedented quantity of PCIe 5.0 lanes available in single-socket systems provides significant adaptability and scalability for future demands, while the uncomplicated architecture of singlee-socket systems facilitates easy maintenance, supporting overall efficiency.



X14	Hyper Best-in-class Performance and Flexibility Rackmount Server	WIO Industry's Widest Variety of I/O Optimized Servers	CloudDC with DC-MHS All-in-one Rackmount Platform for Cloud Data Centers
Family Highlights	 Support for DDR5 with up to 16 DIMMs per system Flexible networking options with up to 2 AIOM networking slots (OCP NIC 3.0 compatible) Optional PCIe slot configurations up to 8 PCIe 5.0 x8 or 4 PCIe 5.0 x16 slots Redundant Titanium Level (96%) power supplies from 1200W to 2600W 	 Support for DDR5 with up to 8 DIMMs per system Support for PCle 5.0 and CXL 2.0 Native SATA support on motherboard; no additional controller card required Supports double-width GPU/FPGA cards in both 1U and 2U 	 Support for DDR5 with up to 16 DIMMs per system Support for PCIe 5.0 and CXL 2.0 Architectures based on the OCP Data Center Modular Hardware System (DC-MH5)
Key Applications	 Cloud Computing Enterprise Server Virtualization Al Inference Machine Learning Software-defined Storage 	 Enterprise Applications Networking Appliance Firewall/Security Appliances General Purpose Computing Cloud Computing Media Entertainment 	 Private/Public/Hybrid Cloud Cloud Computing Big Data Analytics Al Inference Machine Learning Network Appliance Virtualization Open BMC ODM Custom Design for CSPs/ Hyperscalers
Form Factor	1U or 2U rackmount	1U or 2U rackmount	1U rackmount
Socket Count/Type	Single Intel® Xeon® 6900 series processor or Intel® Xeon® 6700/6500 series processor	Single Intel® Xeon® 6700/6500 series processor	Single Intel® Xeon® 6700/6500 series processor
GPU Compatibility	Up to 4 double-width to 8 single-width GPUs	Up to 1 double-width to 2 single-width GPUs	Up to 2 single-width GPUs
Storage	All-hybrid hot swappable NVMe/SAS/SATA; up to 24 2.5" drive bays	Hot-swappable NVMe/SAS/SATA; up to 8 drive bays	All-hybrid hot-swappable NVMe/SAS/SATA; up to 12 2.5" drive bays





X14	GrandTwin [®] Multi-Node Architecture Optimized for Single-Processor Performance	SuperBlade [®] Highest Density Multi-Node Server	
Family Highlights	 Support for DDR5 with up to 16 DIMMs per node Support for PCIe 5.0 and CXL 2.0 Front I/O configuration to simplify cold-aisle servicing Optional support for EDSSF E1.S NVMe drives 	 10 servers per 6U enclosure; 100 servers per rack (up to 12,800 CPU cores) Lower TCO & reduce e-waste by reusing the enclosure, PSU, fans, switches for future generation servers 16 DDR5 DIMM slots for RDIMM or MRDIMM Up to 4 GPUs, DPUs, FPGA cards, or network cards Up to 4 integrated 25G/100G Ethernet switches Up to 2 integrated management modules for higher availability Up to 93% cable reduction over rack servers 	
Key Applications	 MEC (Multi-Access Edge Computing) HPC Cloud Gaming Multi-Purpose CDN High-Availability Cache Cluster Telco Edge Cloud EDA (Electronic Design Automation) Mission-Critical Web Applications 	 Al Inferencing Al Supercomputing CAD, CAE, and EDA vSAN Financial Services MEC (Multi-Access Edge Computing) Cloud Computing Multi-purpose CDN Telco Edge Cloud 	
Form Factor	2U2N or 2U4N rackmount	6U enclosure with up to 10 servers, 4 switches, and 2 management modules	
Socket Count/Type	Single Intel® Xeon® 6900 series processor or Intel® Xeon® 6700/6500 series processor	Single Intel® Xeon® 6900 series processor or Intel® Xeon® 6700/6500 series processor	
GPU Compatibility		Up to 4 GPUs	
Storage	2.5" NVMe or E1.S NVMe	Up to 6 NVMe SSDs (more for OEM SKUs)	





X14	Storage (Top-Loading) Accessibility and Efficiency for Data Centers	Edge Compact Server for the Intelligent Edge	
Family Highlights	 Enterprise serviceability featuring internal cable management arm and hot-swap MB nodes for effortless accessibility to key components Easy-to-deploy 60-bay and 90-bay Support for DDR5 with up to 16 DIMMs Support for PCIe 5.0 and CXL 2.0 Onboard Broadcom[®] 3808N controller for OS RAID mirroring 	 High-density processing power in compact form factors suitable for Edge deployments Flexible I/O with up to 3 PCIe 5.0 slots in 1U or 7 slots in 2U Both AC and DC power configurations available with redundant power supplies Enhanced operating temperatures from -5°C to 55°C (CPU TDP- dependent) 	
Key Applications	 Hosting & Content Delivery Data Replication Hyperscale/Hyperconverged Data Center Software-defined Storage 	 MEC (Multi-Access Edge Computing) Al Machine Learning Industrial Automation Smart Retail/Medical Expert Systems 	
Form Factor	4U rackmount	1U, 2U, or 2.5U	
Socket Count/Type	Single Intel® Xeon® 6700/6500 series processor	Single Intel® Xeon® 6700/6500 series processor	
Storage	Up to 90 top-loading hot-swap 3.5"/2.5" SAS/SATA + 4 rear hot-swap 2.5" NVMe + 2 internal fixed 2.5" NVMe	Up to 4 hot-swap 2.5" NVMe	

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