



SUPERMICRO H14 SERVERS EXCEL AT INDUSTRY STANDARD BENCHMARKS AND AI INNOVATION

New Servers with AMD EPYC[™] 9005 Series Deliver Unmatched Performance for AI and Enterprise Workloads



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Executive Summary

The new Supermicro H14 product line, featuring 5th Gen AMD EPYC processors, performs well, especially for Al-driven and enterprise workloads. Equipped with AMD's highest core and frequency CPUs, Supermicro H14 servers deliver cutting-edge results across AI model training, HPC, and cloud environments.

Supermicro's AI Factory integration ensures these servers support scalable AI deployments, enabling customers to streamline AI workloads from training to inference with maximum efficiency and ROI.

Supermicro designs, manufactures and delivers a wide range of products based on the AMD EPYC 9005 CPUs. The H14 product line includes:

- FlexTwin[™] A 2U, 4-node compute system with dual AMD EPYC 9005 CPUs per node, FlexTwin is optimized for high-density, high-performance HPC and AI tasks. Advanced liquid cooling enables efficient power use, allowing this system to handle peak workloads such as FEA, CFD, EDA, data analysis, and other demanding workloads.
- Hyper Supermicro's enterprise server offers dual EPYC 9005 CPUs with up to 192 cores and 9TB memory in a compact
 design optimized for AI inference, enterprise, and cloud tasks. Flexible chassis options (1U/2U) accommodate dense
 NVMe/SATA configurations, supporting workloads with extreme memory and I/O demands.



- GPU Accelerated Systems Specifically built for high-performance AI:
 - 4U GPU System (Liquid Cooled) Ideal for AI training and HPC, with up to 8 GPUs in a compact liquid-cooled chassis.
 - 8U GPU System Designed for LLM AI training, this air-cooled system integrates AMD Instinct MI325X GPUs, enabling rapid scaling across AI tasks in standard data centers.
- GPU PCIe Servers With support for up to 10 double-width accelerators, these servers excel in visualization and design applications, accommodating demanding multi-GPU AI environments.
- GrandTwin® A 2U, 4-node platform using a single AMD EPYC 9005 CPU, well-suited for object storage, virtualization, and cluster-based HPC applications, delivering dense, efficient computing power.
- CloudDC Built for cloud data centers, CloudDC uses a single AMD EPYC 9005 CPU with an OCP-compliant design, supporting up to 12 NVMe/SATA bays in a compact, 1U chassis for seamless integration into modular, large-scale environments.

The new AMD EPYC 9005 processors contain up to 192 cores per CPU with the Zen5c and 128 cores with the Zen5 architectures.

SPEC Benchmarks

The SPEC (Standard Performance Evaluation Corporation) benchmark suite measures many applications by running complete applications compared to micro benchmarks. The set of applications varies, ranging from measuring power consumption during application execution to measuring the performance of enterprise applications (Java-based) to floating-point-based applications.

The most popular of these benchmarks are:

SPEC CPU® 2017 is then divided into integer and floating-point performance measures and further into the "speed" and "rate" categories. The "speed" category measures how fast a single application can run on the system. In contrast, the "rate" category measures the performance when running multiple copies of an application on the CPU, typically 2x the number of threads, which measures the system throughput. All of the results are normalized to a given system. The actual time to run the application is not listed.

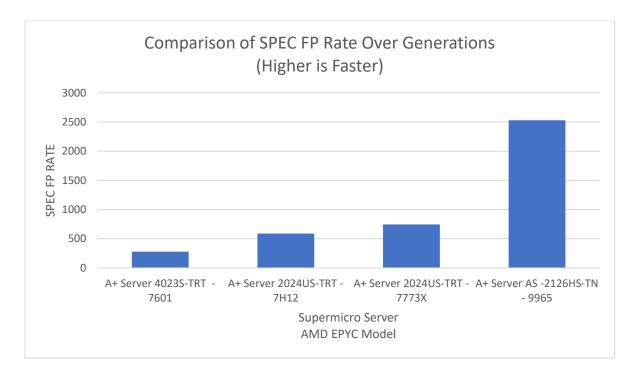
SPEC CPU 2017 Floating Point Rates

The Supermicro A+ Hyper server with dual AMD EPYC 9965 processors demonstrated the top performing server from a Tier 1 vendor (Top 5 per IDC Q2, 2024). The Supermicro Hyper A+ Server AS -2126HS-TN contained dual AMD EPYC 9965 processors and 1.5TB of memory. The configuration is found at: https://spec.org/cpu2017/results/res2024q4/cpu2017-20240920-44769.html

In the SPECrate®2017_fp_peak category, the Supermicro A+ Hyper server scored 2530 in the Result category (compiler optimizations allowed for each application). Three hundred eighty-four copies of the applications were run (1 per core) in a dual-socket system. This result was higher than offerings from Dell and Hewlett Packard Enterprise among the Tier 1 vendors.

This result can be compared to processors in earlier generations of the AMD EPYC line. Compared to the Supermicro system with the AMD EPYC 7601 processor, the latest AMD EPYC 9965 is over 8X faster.

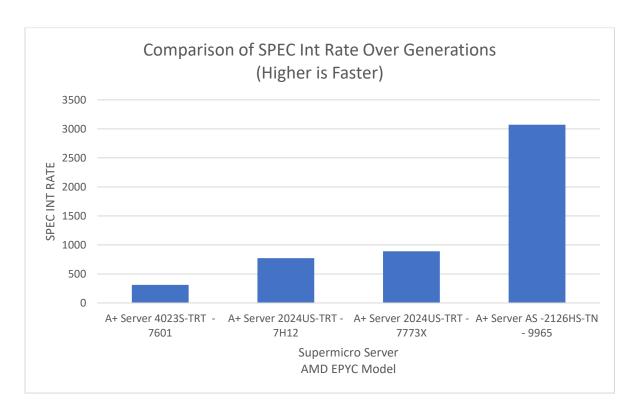




SPEC CPU 2017 Integer Rates

The Supermicro A+ Hyper server with dual AMD EPYC 9965 processors demonstrated a very high performing server from a Tier 1 vendor (#3 per IDC, Q2, 2024). The Supermicro Hyper A+ Server AS -2126HS-TN contained dual AMD EPYC 9965 processors and 1.5TB of memory. The configuration can be found at: https://spec.org/cpu2017/results/res2024q4/cpu2017-20240920-44771.html

The Supermicro A+ Hyper server scored 3070 in the Result category (compiler optimizations allowed for each application). Seven hundred sixty-eight copies of the applications were run (2 per core) in a dual-socket system. This result can be compared to processors in earlier generations in the AMD EPYC product line. Compared to a Supermicro server (circa 2018), the performance is almost 9X faster.



SPECjbb 2015 Results

The SPECjbb 2015 benchmark demonstrates the performance of a single system. Max-jOPS is a benchmark metric representing a system's maximum transaction throughput before requests start to fail. Critical-jOPS is a throughput metric that measures a system's performance under response time constraints. It's a geometric mean of the critical-jOPS values calculated at five different Service Level Agreement (SLA) points. These points are 10ms, 25ms, 50ms, 75ms, and 100ms response time SLAs.

Supermicro, with the H14 Hyper server, has the highest performance of any dual socket system. The Supermicro AS -2126HS-TN leads the entire industry, using the AMD EPYC 9965 processor and showing the result:

Max-jOPS = 1263805 Critical-jOPS = 598544

Both of these results were obtained using the Oracle Java SE 22.02 HotSpot 64-bit Server VM.

Summary

Supermicro's H14 servers, enhanced with 5th Gen AMD EPYC processors, combine high performance with the AI Factory platform, enabling enterprises to achieve breakthrough efficiency in AI, HPC, and cloud workloads. For details on specific configurations and more about the Supermicro AI Factory, visit www.supermicro.com/aplus

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