X14 **FlexTwin**™

Purpose-Built HPC-at-Scale Solution

Dual processor multi-node systems optimized for maximum performance density

- **2U 4-node liquid cooled architecture**
- **Front-accessible nodes with front I/O and storage for cold-aisle servicing**
- **Dual socket per node supporting Intel® Xeon® 6900 series processors with P-cores and direct-to-chip liquid cooling**
- **Support for DDR5-6400 and 8800MT/s MRDIMMs**
- **EDSFF E1.S drive support**
- **Modular design with flexible networking, storage, and power supply options depending on the specific application**
- **Optional thermally-optimized front PCIe slot for easy access to networking**
- **Integrated front I/O management module**

All-New Architecture

Supermicro X14 FlexTwin is a new platform designed for maximum performance density and serviceability in a multi-node architecture, featuring support for the latest CPU, memory, storage, and cooling technologies. Purpose-built to support demanding HPC workloads including financial services, manufacturing, scientific research, and complex modeling, X14 FlexTwin can be customized to suit specific HPC applications and customer requirements thanks to Supermicro's modular Building Block architecture.

Designed for Rack-Scale

The 2U 4-node design of X14 FlexTwin coupled with direct-to-chip liquid cooling at rack-scale enables maximum compute density, with four dual-processor nodes in a 2U chassis delivering up to 96 compute nodes and 24,576 performance cores in a standard 48U rack—the highest density of performance cores ever in a Supermicro system. With FlexTwin, Supermicro is able to offer a complete one-stop solution that includes servers, racks, networking, liquid cooling components, and liquid cooling towers, speeding up the time to deployment and resulting in higher quality and reliability across the entire infrastructure, enabling customers faster time to results.

Liquid Cooled for Maximum Performance

Each hot-swappable FlexTwin node features direct-to-chip liquid cooling technology which can remove up to 90% of server-generated heat. This not only reduces data center cooling costs compared to traditional air cooling, but also ensures maximum compute performance by reducing instances of thermal throttling under maximum load. Supermicro's liquid cooling solution can be provided with in-rack or in-row Cooling Distribution Units (CDU) which feature redundant pumps and PSUs to reduce failure points and potential downtime while also providing single vendor accountability.

Enhanced Serviceability and Reliability

X14 FlexTwin has been developed to ensure a high level of serviceability in dense data center environments, with hot-swappable nodes featuring front-mounted storage bays and I/O ports which can be easily accessed from the cold aisle and without disturbing adjacent nodes, reducing the complexity of installation and maintenance. The front placement of the PCIe 5.0 expansion slot is optimal for high speed networking cards with optical transceivers, encouraging maximum airflow over the card and components to enhance thermal performance.

Powered by Intel Xeon 6 Processors

Supermicro X14 takes performance to the next level, with support for the new generation of Intel Xeon 6900 series processors with P-cores that deliver the highest performance per-core of any Intel Xeon processor ever. Designed for maximum performance and ideal for the most demanding AI, HPC, and cloud environments, Intel Xeon 6900 series processors with P-cores feature up to 128 cores per socket, include new FP16 instructions on the built-in Intel AMX accelerator to further enhance AI workload performance, and provide up to 12 channels or memory per CPU including new support for MRDIMMs up to 8800MT/s for up to 37% faster memory bandwidth than standard RDIMMs. P-cores are optimized for high performance-per-core and excel at the widest range of workloads, including better AI performance than any other general-purpose CPU. X14 FlexTwin will also support Intel Xeon 6900 series processors with E-cores in 1Q'25.

FlexTwin	SYS-222FT-HEA-LCC
Processor Support (node)	Dual Intel® Xeon® 6900 series processors with P-cores Up to 500W TDP (liquid cooled)†
Memory Slots & Capacity (node)	24 DIMM slots up to 6TB DDR5-6400MT/s up to 3TB MRDIMM 8800 MT/s
I/O Ports (node)	Networking via AIOM 1 RJ45 1 GbE Dedicated BMC LAN ports 1 VGA port
Motherboard	X14DBT-FAP
Form Factor	2U 4-Node Rackmount
Expansion Slots (node)	Default 1 PCIe 5.0 x16 LP slots 1 PCIe 5.0 x16 AIOM slots (OCP 3.0 compatible) Option A * 1 PCIe 5.0 x16 LP slots 1 PCIe 5.0 x16 AIOM slots (OCP 3.0 compatible) 1 PCIe 5.0 x16 FHHL slots
Drive Bays (node)	2 front hot-swap E1.S PCIe 5.0 NVMe drive bays
Cooling	16x 31K RPM Counter Rotating 40x40x56mm Fans Direct to Chip (D2C) Cold Plate
Power	4x 3200W Redundant (N + N) Titanium Level (96%) power supplies

† CPUs with high TDP supported under specific conditions. Contact Technical Support for details.

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