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WHITE PAPER

BIGTWIN – THE INDUSTRY'S HIGHEST PERFORMING TWIN MULTI-NODE SYSTEM

First and Only 2U Multi-Node Systems supporting 205 watt dual-Xeon Processors, 24 DIMMs per node, and 24 All-Flash NVMe

EXECUTIVE SUMMARY

- No-compromise 5th Generation Twin architecture delivers the highest performance and efficiency in a 2U 4-node platform.
- The first and only multi-node system that supports the widest TDP range of CPUs (up to 205 watts), fully exploits all memory channels with 24 DIMMs per node and 24 All-Flash NVMe drives.
- 30% better thermal capacity in a compact 2U form factor enables configurations with the highest performance processor, memory, storage and I/O leveraging the Titanium level 96% efficient PowerStick power supplies (2200W/2600W)
- 100% more I/O capacity and added flexibility with more than 10 networking options including 1GbE, 10G, 25G, 100G, IB and industry leading SIOM modular interconnect.
- Each node can support current and next generation dual Intel Xeon processors with up to 3TB of memory, 24 drives of All-Flash NVMe, Hybrid NVMe/SATA/SAS, SSD and HDD, plus 2 m.2 NVMe/SATA per node.

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THE 5TH GENERATION TWIN ARCHITECTURE

The Supermicro® BigTwin™ is a breakthrough modular multi-node server system that eliminates traditional modular vs rack computing design trade-offs. BigTwin is the 5th generation in the patented Supermicro Twin Family with a multitude of innovations and engineering breakthroughs. The no-compromise architecture delivers the efficiency of multi-node density optimized systems with the full features and power of traditional 1U and 2U rack mount systems.

"Exceeding our customers' computing performance and efficiency demands has been our hallmark and our new BigTwin server is no exception. As our fifth generation Twin platform, BigTwin optimizes multi-node server density with maximum performance per watt, per square foot and per dollar with support for free-air cooled data centers."

Charles Liang
President and CEO of Supermicro

Figure 1. *Rear View of 2U BigTwin Server System Showing 4 Hot-swap DP Nodes and 2 Redundant Power Supplies*

A No-Compromise Design

The key benefit of BigTwin is the no-compromise design. Historically multi-node systems traded off features and capacity for higher density. They were deployed for workloads that did not require the highest performance or the highest memory density on a single node. The new 2U BigTwin design is a breakthrough multi-node system that supports the highest performing CPUs, full 24 DIMMs of memory and up to 24 all-flash NVMe SSD drives.

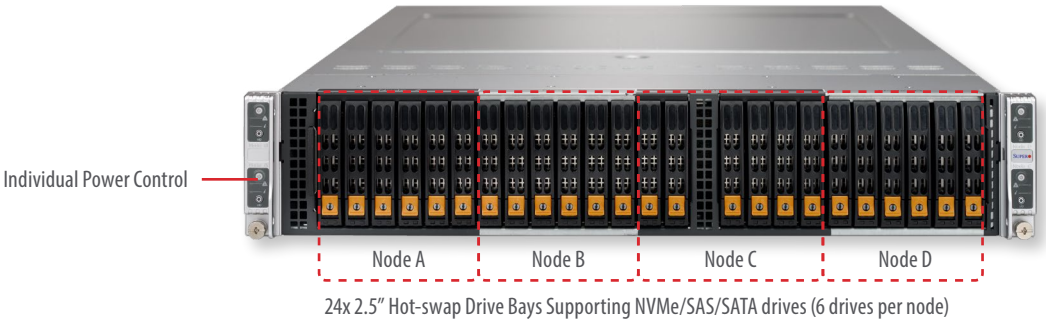


Figure 2. *Front View of 2U BigTwin Server System (All-Flash NVMe Model)*

ALL-FLASH NVME AND 24 DIMMS PER NODE

Supermicro has been a leader in introducing NVMe support and advanced NVMe features in our product portfolio and BigTwin continues that tradition. BigTwin supports 24 hot-swappable 2.5" U.2 NVMe drives, or mixed configurations with SAS3 and SATA3 drives (varies by different BigTwin models).

Leveraging Supermicro's building block architecture BigTwin is a shared design with common components where most multi-node systems are one-off designs with limited leverage and integration to the rest of the product family creating sub-optimal service, sparing and training. The building block design also allows the system to be optimized to the specific requirements of the intended workload.

The 24 DIMMs can be used to deliver better performance and responsiveness for database and cloud infrastructure workloads, as well as providing the flexibility to customers looking to invest in lower capacity DIMMs for lowered dollar per GB solutions.

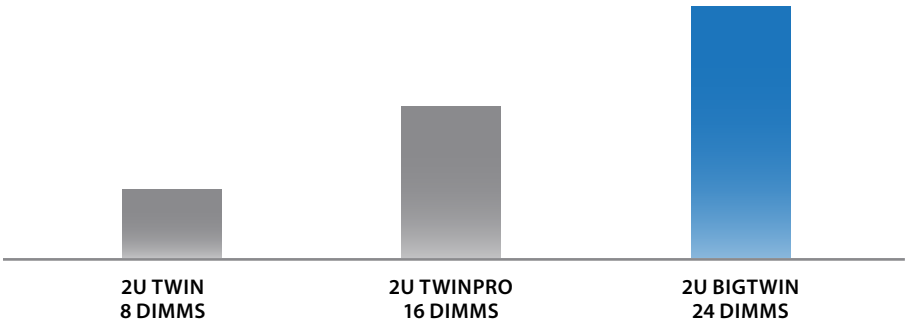


Figure 3. *Maximum Memory Support Per Node on 3 Different 2U Twin Architecture Generations*

Applications

A hyper-converged solution of 3 nodes plus a hot spare can be hosted by just one BigTwin server. Each node can support dual Intel Xeon E5-2600 v4/v3 processors with up to 3TB of memory, 2 NVMe SSD drives for caching and 4 SAS drives for datastore.

The Supermicro BigTwin is a breakthrough modular multi-node server system, an ultra-dense and energy efficient powerhouse that provides industry leading performance per-watt, per-dollar, and per-squarefoot.

Figure 5. *BigTwin's 96% Efficiency 2200W Power Stick Design*

Each BigTwin Server Supports up to

- 4 hot-swappable DP nodes in 2U
- 24 DIMMs per node
- 6 NVMe / SAS / SATA drives per node
- 1 SIOM card support per node
- 2 low-profile PCI-E x16 slots per node
- Redundant 2200W Titanium Level (96%) Power Supplies

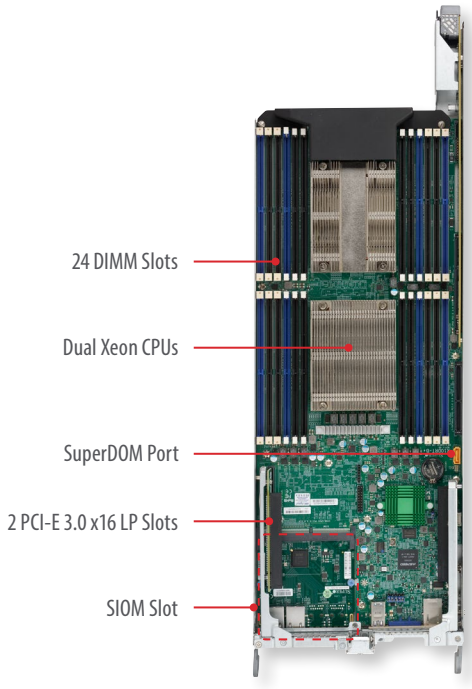


Figure 4. *BigTwin's Ultra-Dense Node Design*

"BigTwin is also the first and only multi-node system that supports up to 205-watt Xeon CPUs, a full 24 DIMMs of memory per node and 24 All-Flash NVMe drives ensuring that this architecture is optimized for today and future proofed for the next generation of technology advancements, including next generation Intel Skylake processors."

Charles Liang
President and CEO of Supermicro

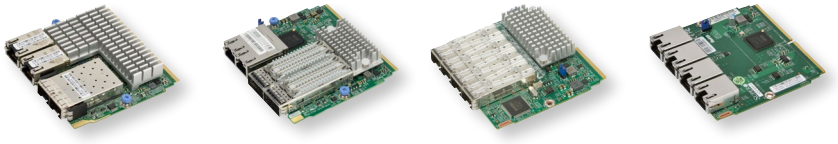
FOR MORE INFORMATION

- Supermicro® BigTwin™ Solutions
  www.supermicro.com/products/bigtwin/
- Supermicro® FatTwin™ Solutions
  http://www.supermicro.com/products/nfo/FatTwin.cfm
- Supermicro® 1U TwinPro™
  http://www.supermicro.com/products/nfo/2UTwinPro.cfm
- Supermicro® 2U TwinPro™ and 2U TwinPro²™
  https://www.supermicro.com/products/nfo/2UTwinPro.cfm
- Supermicro 2U Twin²®
  http://www.supermicro.com/products/nfo/2UTwin2.cfm
- Supermicro 1U/2U Twin™
  http://www.supermicro.com/products/nfo/2UTwin.cfm

SIOM: SUPERMICRO OPTIMIZED FLEXIBLE NETWORKING FOR 1GB/S TO 100GB/S

Supermicro Super I/O Module (SIOM), common across both Rack and Modular platforms, delivers up to 50% I/O cost savings and freedom to select networking options from 1Gb/s to 100Gb/s. The SIOM enables a tighter system integration and leaves a total of two PCI-E 3.0 x16 LP slots for storage or networking add-on-cards on each node.

SIOM MODULES	NETWORKING FEATURES
AOC-MH25G-m2S2T	Dual-port 25 Gigabit Ethernet SFP28 and Dual-port 10 Gigabit Ethernet RJ45
AOC-MHIBF-m2Q2G	Dual-port FDR InfiniBand QSFP+ and Dual-port Gigabit Ethernet RJ45
AOC-MTG-i4S	Quad-port 10 Gigabit Ethernet SFP+
AOC-MGP-i4T	Quad-port Gigabit Ethernet RJ45



AOC-MH25G-M2S2T | AOC-MHIBF-M2Q2G | AOC-MTG-I4S | AOC-MGP-I4T

Figure 6. *Example SIOM options. For a complete list, please visit* www.supermicro.com/support/resources/AOC/AOC_Compatibility_SIOM.cfm

About Super Micro Computer, Inc.

Supermicro® (NASDAQ: SMCI), the leading innovator in high-performance, high-efficiency server technology is a premier provider of advanced server Building Block Solutions® for Data Center, Cloud Computing, Enterprise IT, Hadoop/Big Data, HPC and Embedded Systems worldwide. Supermicro is committed to protecting the environment through its "We Keep IT Green®" initiative and provides customers with the most energy-efficient, environmentally-friendly solutions available on the market.

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