SOLUTIONS BRIEF

SUPERMICRO® SAP HANA® CERTIFIED APPLIANCE SOLUTION BRIEF

EXECUTIVE SUMMARY

Digital transformation is a top priority for any enterprise or business looking to gain a competitive advantage in the rapidly evolving information economy. Real time, actionable business insights and continuous operational improvements, once just wishful thinking, have become standard requirements for today's information-driven CEOs. Your digital corporation now requires a powerful, scalable platform for enterprise resource planning (ERP), supply chain management (SCM), or customer relationship management (CRM) to run. You require the ability to manipulate, extract, and analyze large volumes of live transactional data, all in real time, without interruption to business operations. Supermicro and SAP are here to help.

SAP HANA enables your digital transformation by providing a real-time, in-memory computing platform that is 10,000 times faster than traditional databases,* all while allowing real-time, Online Transaction Processing (OLTP) and Online Analytical Processing (OLAP) on the same system or environment. Supermicro has partnered with SAP to pre certify, validate, and architect SAP HANA appliances to power your digital transformation infrastructure.

SUPERMICRO® - *November 2019*

Key Advantages:
2U 4 Socket SAP HANA Appliance (SYS-2049U-TR4)

- Quad Socket 2nd Generation Intel® Xeon® Scalable processors, up to 112 cores

- Appliance model supports up to 6 TB DRAM

- Tailored Datacenter Integration (TDI) model supports up to 18 TB (DRAM + Intel® Optane™ DC Persistent Memory)

- 24 Hot-swap 2.5" SAS3/SATA3 drive bays supported via optional Add-on RAID controller card; 4 Hybrid ports with NVMe support via extra AOC

- Networking flexibility with choices of 1Gb, 10Gb, 25Gb, 40Gb, 100Gb, RJ45, SFP+, and Fibre Channel

- SAP HANA Scale-Up/Scale-Out appliance certified

SUPERMICRO SAP HANA APPLIANCES

The Supermicro quad-socket system, SYS-2049U, a multi-processor (MP) SuperServers were designed for the most demanding, mission-critical workloads in use by top enterprises and cloud service providers. The SYS-2049U with eleven PCI-E 3.0 slots for I/O expansion supports the highest-performance Intel® Xeon® Scalable processors, the largest memory capacity available, the latest in Intel® Optane™ DC persistent memory technology, and fastest all-flash NVMe or SSD storage options available for the SAP HANA® platform. The combination of these cutting edge technologies makes Supermicro MP Servers the most powerful 4 Socket single-node SAP HANA platforms available on the market today. The SAP Appliance is the ideal building blocks for your SAP S/4HANA, BW/4HANA, or SAP HANA database deployments.

Supermicro has partnered with Intel and SAP to certify Intel Optane DC persistent memory for use with SAP HANA version 2.0 SPS03, or higher, on 2nd Gen Intel Xeon Scalable Processors. Intel Optane DC persistent memory is an innovative memory technology that delivers affordable large capacity uniquely combined with support for data persistence. As validated by SAP and Intel, SAP HANA reboot time using a 6TB database was dramatically reduced from 20 minutes down to 90 seconds—a 13x improvement over traditional SSD to DDR load times[1].

In addition to fast load times for HANA database, Intel Optane DC persistent memory delivers an optimized balance between persistence and performance at a lower cost per Gigabyte than DRAM. For large in-memory deployments, the use of Intel Optane DC persistent memory can dramatically lower the initial acquisition cost of your SAP HANA hardware. Intel Optane DC persistent memory is not only lower cost than DRAM, but is also available in larger sizes, up to 512GB per unit. The combination of DRAM plus Intel Optane DC persistent memory allows for much larger SAP HANA deployments, per socket, than use of traditional DDR memory alone[1].

SAP HANA APPLIANCE CERTIFICATION

The SAP HANA Appliance certification guarantees that the S/4 HANA database software performs as intended on the certified system. SAP HANA Appliances are offered in various sizes with predefined, fixed BOMs and sizing as listed on SAP's HANA certified hardware directory. Scale-up appliances are specifically designed to run as a single autonomous compute node with internal or, connected to, external storage. To increase the size and performance of a scale up system, you simply upgrade the CPU, RAM, or Disk in the node.

All SAP HANA Appliances are designed to be turn-key solutions. As such, Supermicro pre-installs the HW components, operating system, and SAP HANA before delivering the appliance. (See recommended configuration below)

SAP HANA CERTIFIED APPLIANCES (Scale from 192GB to 24.6TB AEP + DRAM)	
SYSTEM	**SPECIFICATIONS** (BWoH, BW/4H, S/4H and DM)
SYS-2049U-TR4 2 Socket configuration (Up to 56 cores)	192 GB to 7.6 TB (12 × 128GB DDR4) + (12 × 512GB Intel Optane DC Persistent Memory)
SYS-2049U-TR4 4 Socket configuration (Up to 112 cores)	192 GB to 15.4 TB (24 × 128GB DDR4) + (24 × 512GB Intel Optane DC Persistent Memory)

SAP HANA APPLIANCE —TAILORED DATA CENTER INTEGRATION

All SAP Certified Appliances are eligible for Tailored Datacenter Integration (TDI) deployment, which allows the customer to build an SAP HANA server with their own choice of CPU, RAM, Disk, and add-on cards. The SAP HANA TDI option offers you more flexibility and freedom of choice to deploy SAP HANA hardware matching your existing data center infrastructure.

The Supermicro Intel Select Solution for SAP HANA leverage TDI phase 5 approach based on Supermicro certified SAP HANA appliance, SYS-2049U-TR4 and Intel Optane DC persistent memory. The latter is perfectly aligning with large database use case supporting up to hundreds of Gigabytes or Terabytes of memory to reduce TCO by automatically placing large amount of warm data in the less costly persistent memory than DRAM drastically improve start-up time of the database while other business cases are coming in real-time.

Again, to emphasize, SAP HANA Appliances are designed as fixed BOM turnkey solutions, whereas SAP HANA TDI deployments allow the customer to mix and match certified components. TDI open architecture allows the customer to request a HANA system with a certified configuration from Supermicro. SAP certifies computing nodes and storage products with SAP HANA hardware partners (e.g. Supermicro) and requires that customers only use these certified configurations for SAP HANA TDI deployments.

SUPERMICRO SAP HANA HARDWARE SIZING AND CONSULTING

To assist you on your SAP HANA infrastructure and hardware selection, Supermicro's SAP architects and solutions managers offer free hardware sizing and consulting services. Whether you are a greenfield customer considering SAP HANA adoption or brownfield customer looking to migrate SAP ECC to S/4HANA, Supermicro's SAP HANA experts are available to guide you and help you optimize your hardware stack for performance and cost.

To get started, please contact **sapexpert@supermicro.com.**
Supermicro SAP HANA certified solutions: **https://www.supermicro.com/en/solutions/sap**

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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ABOUT INTEL SELECT SOLUTIONS

Intel is driving the next wave of data center innovation with Intel Select Solutions, based on Intel technologies. Intel Select Solutions are verified solutions configurations that are aimed to speed selection and deployment of data center and communications network infrastructure. The solutions are developed from deep Intel experience with industry solution providers, as well as extensive collaboration with the world's leading data center and service providers.

[1] Legal Disclaimer for Faster Start Time and Increase Memory Capacity Claims. Based on Intel testing as of March 1, 2019. Columnar store entire reload into DRAM for 1.3 TB dataset is 20 mins. Entire system restart before is 32 minutes and with Intel® Optane™ DC persistent memory is 13.5 minutes (12 mins for OS + 1.5 mins). Configuration details: baseline: 4S Intel® Xeon® Platinum 8280M processor (28 cores), 6 TB memory (48 x 128 GB DDR4 at 2,666 megatransfers per second [MT/s]), 10Gb Intel® Ethernet Converged Network Adapter X520, 60 x 480 GB Intel® SSD DC S4600 Serial ATA (SATA), BIOS: WW48'18, SUSE 15*, Intel® IT workload, 3 TB SAP HANA® database, security mitigations: variants 1, 2, 3 enabled. AD 2-2-2 config: 4S Intel Xeon Platinum 8280L processor (28 cores), 9 TB memory (24 x 256 GB Intel® Optane™ DC persistent memory, 24 x 128 GB DDR4 at 2,666 MT/s), 10Gb Intel Ethernet Converged Network AdapterX520, 90 x 480 GB Intel SSD DC S4600, BIOS: WW48'18, SUSE 15, Intel IT workload, 6 TB SAP HANA database, security mitigations: variants 1, 2, 3 enabled.

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