

TABLE OF CONTENTS

- 2 BENEFITS OF SUPERMICRO RSD
- 3 SUPERMICRO RSD SOFTWARE COMPONENTS
- 4 SUPERMICRO RSD HARDWARE REQUIREMENTS
- 5 ILLUSTRATION OF SUPERMICRO RACK SCALE DESIGN CONFIGURATION

SOLUTION BRIEF

SUPERMICRO RACK SCALE DESIGN (SUPERMICRO RSD) SOLUTION BRIEF

A Rack-Scale Total Solution Built on Open Standards

Supermicro RSD, a rack-scale total solution, empowers cloud service providers, telecoms, and Fortune 500 companies to build their own agile, efficient, software-defined data centers. Built on industry standard Redfish APIs and open source Rack Scale Design software framework from Intel, Supermicro RSD runs on Supermicro server/storage/switch hardware offerings and maximizes utilization through disaggregating compute, network and storage resources distributed within a rack or across multiple racks.





BENEFITS OF SUPERMICRO RSD

Supermicro RSD offers data center operators the following benefits:

Top Supermicro RSD Features

1. Open REST API based Management Provides Interoperability and Scalability in Cloud Scale Infrastructure
2. Resource Pooling and just-in-time Allocation Maximize Utilization of Compute, Network and Storage Resources
3. Future-Proof Investment with Existing and New Disaggregated Hardware

Other Supermicro RSD Features

- Deep discovery including location ID of compute, storage and network building blocks in the rack
- Cooling and Power Management in the rack
- Asset Information, hardware monitoring and provisioning of the application-ready building block

1. Open REST API based Management Provides Interoperability and Scalability in Cloud Scale Infrastructure

In today's large data center environments with tens of thousands of servers distributed in hundreds of racks, traditional 1-to-1 server management using IPMI is inadequate to meet the extensive provisioning and management requirements. Designed with the whole rack as the new management unit in mind, Supermicro RSD leverages an open RESTful API called Redfish that is designed to support composable infrastructure to provide functionality beyond what can be achieved with IPMI. Redfish API provides secure hardware management at rack scale and enables interoperability among potential RSD offerings from different vendors. Acting as a south-bound API for the underlying hardware and a north-bound API for plugging into existing application environments such as OpenStack, Redfish API is the glue of RSD framework. It allows large data center operators to deploy RSD compliant solutions without worrying about vendor lock-in, a critical factor in large scale data center deployments.

2. Resource Pooling and just-in-time Allocation Maximize Utilization of Compute, Network and Storage Resources

Similar to server virtualization or container technology that enables resource sharing for VMs and containers on physical hardware, Supermicro RSD supports pooling of compute, storage and network resources and just-in-time allocation to maximize the utilization of those resources. For example, to optimize the infrastructure for a Hadoop workload, customers may want to dynamically compose a node consisting of computing resources from one physical server node and connect it with a networked storage resource that contains the data. Users provision, manage and power-on the composed node as if it were one physical node. When the task is complete, simply delete the composed node to return the resource to the pools for other workloads.

3. Future-Proof Investment with Existing and New Disaggregated Hardware

Unlike other RSD offerings, Supermicro RSD does not require purpose-built new hardware. In fact, Supermicro RSD solution supports the new Intel® Xeon® Scalable Processors based X11 generation and all existing X10 generation server and storage systems, as well as Supermicro networking products. It protects investments that customers have already made in Supermicro. Furthermore, Supermicro MicroBlade offers future-proof, disaggregated hardware that allows customers to independently refresh compute module (CPU+memory) while keeping the remaining server investment intact resulting in substantial savings and flexibility. *

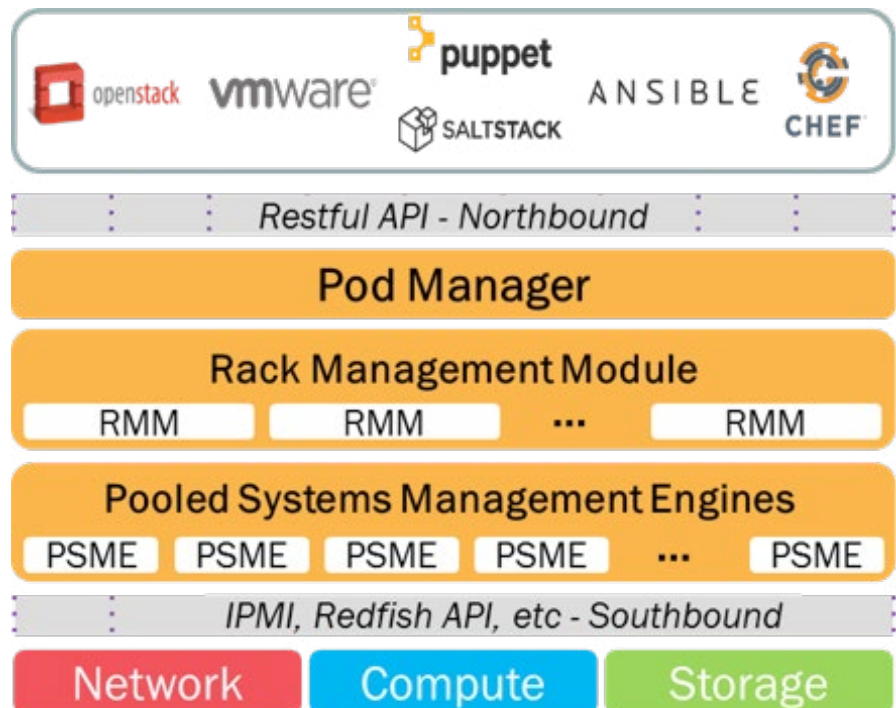
* https://www.supermicro.com/CaseStudies/CaseStudy_Fortune100.pdf

SUPERMICRO RSD SOFTWARE COMPONENTS

Supermicro RSD includes the following software components:

- Pod Manager (PodM): A pod is a collection of physical racks. Pod Manager sits at the top of the logical software hierarchy and uses Redfish API to communicate with the racks that make up the pod. It manages and aggregates the hardware resources within multiple racks in the Pod by polling respective PSMEs and RMMs
- Rack Management Module (RMM): RMM manages power and thermal resources within a rack by polling rack hardware and reports this information to PodM through Redfish API.
- Pooled System Management Engine (PSME): PSME acts as the drawer or chassis manager. PSME communicates with each BMC controller in the drawer/chassis and reports aggregated information such as telemetry and asset information through Redfish API to PodM.
- Web UI: A browser based graphical user interface that simplifies the management of RSD

To streamline Supermicro RSD deployments, all required management software components are packaged into a 1U management appliance with each software component running in its own container. Alternatively, for customers who prefer to deploy RSD software on their own compute node, Supermicro will provide a software only RSD package.

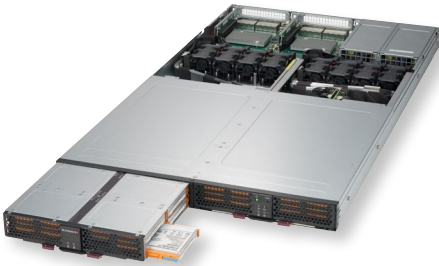


SUPERMICRO RSD HARDWARE REQUIREMENTS

Since Supermicro RSD runs on all existing X10 and the new X11 generation server and storage systems supporting Intel® Xeon® Scalable processors, and networking hardware, customers have the total flexibility to build optimized Supermicro RSD racks that best serve their needs.

A minimum Supermicro RSD rack includes the following hardware components:

- A 1U management appliance SKU: SYS-5019S-TN4-SRSMGT and the RSD related software SKU: SFT-SMCI-SRSDM. A second management appliance can be ordered as a standby for high-availability applications.



New with **Supermicro RSD 2.1** release, up to 12 application hosts can dynamically share the disaggregated NVMe pooled storage (SSG-136R-N32JBF as shown above). With just 1U of rack space, Supermicro resource-saving NVMe storage supports up to 32 hot-swap 2.5" NVMe SSDs for petabyte-scale high performance and high density NVMe storage.



Figure 1. 1U Supermicro RSD Management Appliance (SYS-5019S-TN4-SRSMGT)

- One Supermicro 1G management switches for connecting the BMC controllers*
- One Supermicro data switch*
- Select your compute nodes from Supermicro's broad X10 and the new Intel® Xeon® Scalable processors based X11 generation server portfolio. Popular server choices include but are not limited to TwinPro, BigTwin, FatTwin and MicroBlade.
- Select your storage nodes from Supermicro's storage portfolio. Popular choices include 2U Ultra with 24 NVMe as hot storage, 2U SSG with 24 SAS HDDs as warm storage and 60 bay or 90 bay JBODs as cold storage.

HOW DO I BUY SUPERMICRO RSD AND WHAT SKUS TO ORDER?

There are two paths to take when ordering Supermicro RSD. For customers who want to manage their existing Supermicro X10 and X11 generation server, storage and networking products with RSD, the required net new products are:

1. **SYS-5019S-TN4-SRSMGT** for the RSD hardware, and
2. **SFT-SMCI-SRSDM** for the RSD software.

For customer who want a software only RSD package, then order **SFT-SMCI-SRSDM** for the RSD software only. Other components can be ordered on an as needed basis. For



FOR MORE INFORMATION

Please visit www.supermicro.com/solutions/SRSD.cfm

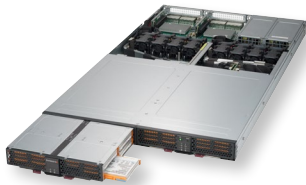
* Switches from other vendors need certification before adding to Supermicro RSD rack

customers who want to order the new Intel® Xeon® Scalable processors supported X11 generation server and storage products, please follow the list of hardware components outlined in the previous section to configure the hardware that best meets your application needs.

ILLUSTRATION OF SUPERMICRO RACK SCALE DESIGN CONFIGURATION



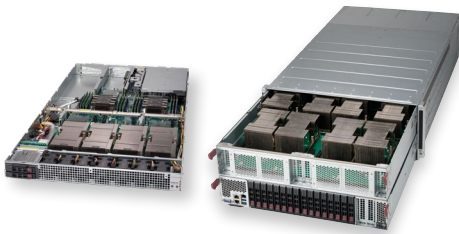
BigTwin™



NVMe Storage Enclosures



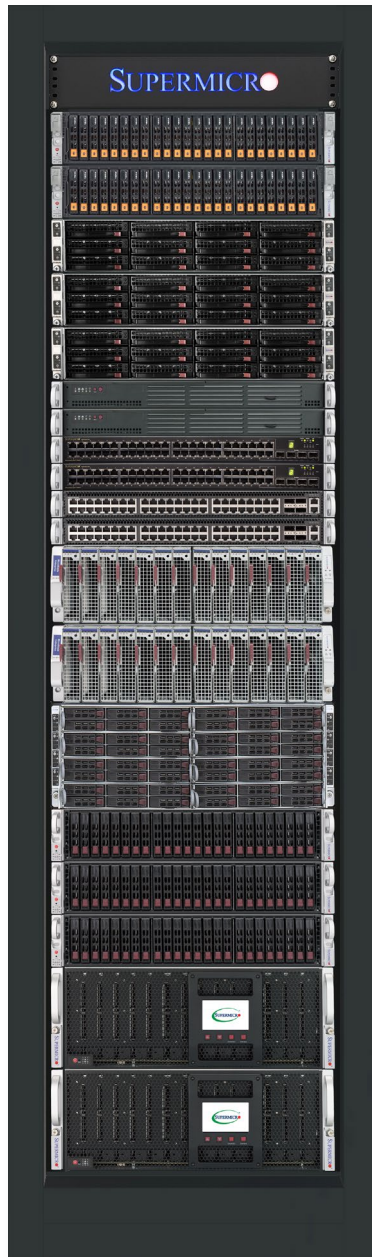
Ultra



GPU Optimized



Datacenter Optimized Systems



TwinPro™



FatTwin™



MicroBlade™/SuperBlade®



Simply Double Storage



60/45 Bay High Capacity Storage

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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