

Commvault® Validated Reference Design Specification

Commvault Grid Reference Architecture on SuperMicro SYS-512B-WR

OVERVIEW

Commvault Grid™ Reference Architecture is an intuitive and easy-to-deploy integrated data-protection solution with a distributed scale-out file system that provides unmatched scalability, security, and resilience. Its flexible architecture allows you to get up and running quickly and grow as your needs demand. Commvault Validated Reference Designs accelerate hybrid cloud adoption and deliver:

- Simple, flexible data protection for all workloads, including containers, virtual, and databases
- High-performance backup and recovery with enhanced recovery capabilities
- Optimized scalability to easily grow capacity in single-node increments as needed – on-prem and in the cloud
- Enhanced resilience with intelligent load balancing of data across disks and nodes and the ability to support concurrent hardware failures
- Built-in ransomware protection via intelligent monitoring to detect data anomalies and alert users

By shifting the secondary storage and data management infrastructure to a scale-out architecture, enterprises can help transform their data centers to be as operationally efficient, resilient, and scalable as public cloud infrastructure. Commvault Grid allows organizations to replace limited and legacy backup tools with a modern hybrid-cloud-enabled data management solution that eliminates expensive forklift upgrades. The purpose of this technical specification is to provide the details for the SuperMicro SYS-512B-WR Commvault Validated Reference Design for Commvault Grid™ Reference Architecture.

GENERAL AVAILABILITY DESIGNATION

This configuration is classified as a general availability design, meaning it has been tested and validated as per the Commvault Validated Reference Design Program. This configuration is subject to change due to updated part numbers or replacement hardware due to hardware lifecycles. Validated Reference Designs are developed to optimize costs, resiliency, and performance. Commvault collaborates with SuperMicro to create fully supported design builds. Substitutions or modifications to validated design specifications could result in unsupported configurations. Any substitutions or modifications to validated configurations must be approved by both Commvault and SuperMicro. This configuration is currently orderable for customer deployment and supported through Commvault support channels.

HOW TO USE THIS DOCUMENT

This document details the necessary design components of the Commvault Grid Reference Architecture, providing the key components required when purchasing and configuring the infrastructure for a Commvault Grid Reference Architecture. Commvault Reference Designs deliver validated configurations with leading hardware vendor technology complemented by best practices that will accelerate ROI, reduce complexity, and add customer value.

This document includes a high-level component section detailing the configuration and specific component options available to satisfy storage capacity and connectivity requirements. Any specific SuperMicro links relevant to the solution are listed at the bottom of this document. Further, this document is a supplement to the overall architecture and design of Commvault Grid.

SUPERMICRO SYS-512B-WR SPECIFICATION SUMMARY

Server overview

Technical specifications	
Form factor	1U Rack Mount with 4 x LFF HDD
Processors (minimum)	Single Intel® 6505P CPU
Memory (minimum)	256 GB RAM
Free PCIe slots (with no networking cards)*	2 (1x PCIe 5.0 x16 FHFL + 1x PCIe 5.0 x8 LP)

***Free slots:** These are the remaining slots available in each server after the core components, such as RAID controller is installed. Please ensure any additional cards added will physically fit in the server.

NOTE: Smaller form-factor cards can fit in larger form factor slots. However, larger form-factor cards cannot fit into smaller form-factor slots. For example, an x4 size card can fit in an x8 size slot, however, an x8 size card cannot fit in an x4 size slot.

This server requires a minimum of VaultOS 9 based ISO image for installation, and will NOT work or be supported with any prior ISO image.

BOOT AND METADATA STORAGE OPTIONS

Boot storage houses the operating system and core Commvault Grid binaries. The metadata storage provides caching areas for such operations as deduplication, indexing, logs, and extents. The design specifies dedicated storage for Commvault metadata.

DATA STORAGE OPTIONS

Data storage houses the protected data. Data storage selection dictates the amount of data that each node can accommodate. Initial deployments of Commvault Grid require a 3-node minimum configuration, each with identical hard disk drive (HDD) capacities. Subsequent expansion of the Storage Pool can be done with individual or multiple nodes. Mixing of different server vendors, models, and/or node capacities with a Storage Pool is supported (the number of drives per node must be identical, and individual drive capacity must be equal or larger than the initial nodes). Overall sizing and retention vary per customer and, therefore, is beyond the scope of this document. Please refer to [Commvault Grid Technology Sizing Documentation](#) to determine the drive size (and node quantity) required for the specific deployment.

NOTE: SAS, NL-SAS and SATA HDDs are supported, however SAS is the recommended option.

NETWORKING OPTIONS

A minimum of two (2x) 10GB ports are required per node for Commvault Grid installs, one for protected data and one for storage communication between the nodes. Best practices recommend a total of four (4x) ports per node, two (2x) for data and two (2x) for storage for resilience against network failures. These builds have been designed with this recommendation.

OPTIONAL I/O ADD-ON CARDS

The design includes all core components to support Commvault Grid. Flexibility to accommodate specific customer use cases comes in the form of the number of available slots in the selected server and is limited to the available options in the Optional Component Guidelines section. For example, optional I/O cards for SAS, Ethernet, or Fiber Channel connectivity require a free slot in the server. SAS Connectivity is typically used for direct tape integration, while Fiber Channel (FC) cards are used for Commvault IntelliSnap® technology operations or tape libraries. Additional Ethernet cards may be required for a dedicated replication network or to connect to Clients in isolated networks. Where there are validated substitutes, there is a recommended set of components and other options. As the quantity and type of I/O cards can vary, multiple valid configurations are possible.

BILL OF MATERIALS

The Bill of Materials lists all components required to configure Commvault Grid nodes. Each component has been tested and validated. Substitutions cannot be supported. Country-specific components, such as power cables, are not listed and can be changed as required.

Commvault Grid SKU	Description
SYS-512B-WR -RA08-CS071	One Supermicro SYS-512B-WR server, with 1x Intel 6505P CPU, 256G RAM, 3908 RAID Controller, 1x 960G OS SSD's, 1x 3.8TB NVMe drives. 4x 8TB SAS 12Gb/s HDD. NO Ethernet or FC ports.
SYS-512B-WR -RA16-CS071	One Supermicro SYS-512B-WR server, with 1x Intel 6505P CPU, 256G RAM, 3908 RAID Controller, 1x 960G OS SSD's, 1x 3.8TB NVMe drives. 4x 16TB SAS 12Gb/s HDD. NO Ethernet or FC ports.
SYS-512B-WR -RA20-CS071	One Supermicro SYS-512B-WR server, with 1x Intel 6505P CPU, 256G RAM, 3908 RAID Controller, 1x 960G OS SSD's, 1x 3.8TB NVMe drives. 4x 20TB SAS 12Gb/s HDD. NO Ethernet or FC ports.

OPTIONAL COMPONENT GUIDELINES

The number and type of available expansion slots is listed in the Server Overview table above. The expansion slots must be populated to provide the appropriate minimum of 4x 10/25G Ethernet ports per server, as well as any other connectivity, such as Fiber-Channel (FC) for Intellisnap and/or Tape-Out, or additional Ethernet for other dedicated networks, such as replication. Cards designed PCIe may be used in PCIe slots only. Cards designed as AIOM may be used in AIOM slots only.

Component Part Number	Description
AOC-S25GC-i4S-O	4-ports PCIe G4 x16 LP 25G/10G SFP28 Intel E810-CAM1
AOC-STG-i4T-O	Std LP 4-port 10G RJ45, Intel XL710+ X557 PCIe LP G3x8 4x10GbE RJ45 Intel XL710-BM1 & X557-AT4
AOC-STGL-I4T-O	PCIe G4 x8 LP 4x 10GbE RJ45 2x Intel E610-XAT2
AOC-QLE2742SR	QLE2742-SR, Dual ports 32GFC, PCIe3.0 x8, SFP+, Low Profile
AOC-LPE36002-M64	HBA Emulex Dual-Port Gen 7 64/32GFC HBA Optic PCIe4 x8
AOC-SAS3-9500-8E	Broadcom Aero HBA 9500-8e PCIe Gen4 05-50075-01
AOM-SFP28-25GBE-SR-INT	Intel Ethernet TXCVR, Dual-rate 10GbE/25GbE, SFP28, SR Optic, MFG PN E25GSFP28SR

ADDITIONAL CONSIDERATIONS

Please note that due to the differences in each customer environment, some components are not included in the design but must be ordered separately to ensure full functionality and connectivity. These parts include the FC and Ethernet transceivers, as well as the Ethernet, FC, and power cables.

ADDITIONAL RESOURCES

Additional information regarding the SuperMicro SYS-512B-WR servers can be found at the following links:
[SYS-512B-WR Data Sheet](#) [SYS-512B-WR Spec Sheet](#)

Commvault Grid integrates with storage arrays, hypervisors, applications, and the full range of cloud provider solutions to support the most diverse and dynamic environments. [Learn more here.](#)