Commvault

Commvault® Cloud Validated Reference Design Specification

Commvault Cloud HyperScale X™ Reference Architecture on
SuperMicro SYS-620C-TN12R

INTRODUCTION TO HYPERSCALE X REFERENCE ARCHITECTURE

HyperScale X™ 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. HyperScale X 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 from Commvault's Validated Reference Design program is to provide details on SuperMicro SYS-620C-TN12R servers for running HyperScale X 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 specifications. Substitutions or modifications to validated design specifications could result in unsupported configurations. Both Commvault and SuperMicro must approve any substitutions or modifications to validated configurations. 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 HyperScale X Reference Architecture, providing the key components required when purchasing and configuring the infrastructure for a HyperScale X 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.

The document includes a high-level component section detailing the configuration and specific component options available to satisfy storage capacity and connectivity requirements. The reader is referred to a SuperMicro link for details on individual server configurations, validated with Commvault's HyperScale X Reference Architecture. This document does not cover overall architecture and design of the Commvault Cloud HyperScale X and should be considered as a supplement specific to SuperMicro servers.

SuperMicro SYS-620C-TN12R GENERAL SUMMARY

SERVER OVERVIEW

Technical Specifications	SYS-620C-TN12R
Form Factor	2U Rack Mount with 12 x LFF HDD
Processors (Minimum)	Dual Intel® Xeon® Silver 4316 CPU
Memory (Minimum)	512 GB RAM
Free Slots **(with no networking cards)***	2x PCIe 4.0 + 2x AIOM OCP 3.0 compatible

*Free PCIe slots: These are the PCIe slots available in each server for Ethernet and Fiber Channel cards, after the core components, such as RAID controller are 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.

BOOT AND METADATA STORAGE OPTIONS

Boot storage houses the operating system and core Commvault Cloud HyperScale X 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 HyperScale X require a 3-node 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). Overall sizing and retention vary per customer and, therefore, is beyond the scope of this document. Please refer to Commvault HyperScale 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. Larger than 20TB drives are NOT supported.

NETWORKING OPTIONS

A minimum of two (2x) 10GB ports are required per node for HyperScale X 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 are designed to support this recommendation. The base SKU list below does not include network cards, and these must be configured and specified separately.

OPTIONAL I/O ADD-ON CARDS

The design includes all core components to support HyperScale X. Flexibility to accommodate specific customer use cases comes in the form of the number of available PCIe slots in the selected server and is limited to the available options in the Flex Component Guidelines section. For example, optional I/O cards for SAS, Ethernet, or Fiber Channel connectivity require a free PCIe 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. Thus, multiple valid configurations are possible within the confines of the published reference design.

BILL OF MATERIALS

Commvault has partnered with SuperMicro to create SKUs for the validated Commvault HyperScale™ X server. There are also component level SKUs for Ethernet and Fiber-Channel (FC) connectivity. The number and type of nodes and the specific optional SKUs to be purchased is dependent on the desired backend capacity and connectivity requirements of the customer. The set of SKUs below allow for easy ordering and fulfilment of required hardware without deviating from the tested configuration. Supported components are shown under the heading "Flex Component Guidelines". Each server purchase should also include the SKU for hardware service warranty (SMSAD3). Initial deployment of Commvault HyperScale™ X requires a 3-node configuration, each with identical hard disk drive (HDD) capacity. Subsequent expansion of the storage pool can be done by adding individual or multiple nodes of different types, if desired. Each component listed below has been tested and validated and substitutions cannot be supported. Country-specific components such as power cables are not listed and can be changed as required.

HyperScale X SKU	Description
SYS-620C-TN12R-A2-CS071	One Supermicro SYS-620C-TN12R server, with 2x Intel 4316 CPU's, 512G RAM, 3916 RAID Controller, 2x 480G OS SSD's, 2x 3.8TB NVMe drives. 12x **12TB SAS** 12Gb/s HDD. NO Ethernet or FC ports.
SYS-620C-TN12R-A4-CS071	One Supermicro SYS-620C-TN12R server, with 2x Intel 4316 CPU's, 512G RAM, 3916 RAID Controller, 2x 480G OS SSD's, 2x 3.8TB NVMe drives. 12x **16TB SAS** 12Gb/s HDD. NO Ethernet or FC ports.
SYS-620C-TN12R-A6-CS071	One Supermicro SYS-620C-TN12R server, with 2x Intel 4316 CPU's, 512G RAM, 3916 RAID Controller, 2x 480G OS SSD's, 2x 3.8TB NVMe drives. 12x **20TB SAS** 12Gb/s HDD. NO Ethernet or FC ports.

FLEX 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.

Expansion Card Part Number	Description
AOC-A25G-i4SM-O	AIOM 4x 25GbE SFP28 Intel E810-CAM1
AOC-A25G-i2SM-O	AIOM 2-Port 25GbE SFP28, based Intel E810-XXVAM2
AOC-AH25G-M2S2TM	AIOM Dual-Port 25GbE SFP28 based on Mellanox CX-4 Lx EN, and Dual-Port 10GbeE RJ45 based on Intel X550-AT2
AOC-ATG-i4SM-O	AIOM 4-port 10G with SFP+ Intel XL710-BM1
AOC-ATG-i2TM-O	AIOM 2-port 10GBase-T, Intel X550
AOC-QLE2742SR	PCI-E x8 3.0 QLE2742-SR Dual-port Gen6 32G Fiber Channel
AOC-S25GC-i2S-O	PCIe 4.0 x8 dual port 25GbE Intel E810-XXVAM2 SFP28

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-620C-TN12R servers can be found on the following SuperMicro website:

- SYS-620C-TN12R Data Sheet
- SYS-620C-TN12R Spec Sheet