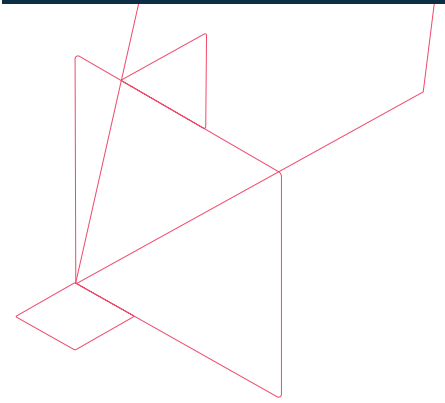


# Commvault Validated Reference Design Specification

Commvault HyperScale™ X Software on SuperMicro 6029P-E1CR24L



## Introduction to Commvault HyperScale™ X Software

Commvault HyperScale™ X Software 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 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 is to provide the complete SuperMicro 6029P-E1CR24L Commvault Validated Reference Design for Commvault HyperScale™ X Software.

### General availability designation

This configuration is classified as a generally available, meaning it has been tested and validated per the Commvault Validated Reference Design Program. This configuration is subject to change due to updated part numbers or replacement hardware as a result of hardware life cycles. Validated Reference Designs are developed to provide optimized 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. 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.

### How to use this document

This document details the necessary design components of the Commvault HyperScale™ X Technology architecture, providing the key components required when purchasing and configuring the infrastructure for a Commvault HyperScale™ X Software solution. 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 is broken into a high-level component section detailing the configuration and specific component options that can be selected to satisfy storage capacity and connectivity requirements. This document does not cover overall architecture and design of the Commvault HyperScale X solution, and should be considered as a supplement specific to the SuperMicro server.

## SuperMicro 6029P-E1CR24L summary

### Server overview

Technical specifications	
Form factor	2U Rackmount
Motherboard chipset	Intel® C621 chipset
Processors	Intel® Xeon® Silver 4216 – 16 Core CPU
Memory	512 GB RAM (8 x 64 GB RDIMM)
Free Slots*	2x PCIe + 1x SIOM Slot

\*Free slots

These are the slots available in each server for hosting ethernet and fiber-channel (FC) cards. Please ensure any additional cards purchased 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

Boot storage houses the operating system and core Commvault 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 deployment of Commvault HyperScale™ X requires a 3-node configuration, each with identical hard disk drive (HDD) capacities. Subsequent expansion of the storage pool can be done by adding individual or multiple nodes.

Overall sizing and retention varies 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.

### Networking options

A minimum of two (2x) 10GB ports are required per node for Commvault HyperScale X installs: one for protected data and one for storage communication between the nodes. It is recommended to have a total of four (4x) ports per node, preferably on two separate cards: two (2x) for data and two (2x) for storage for failover and redundancy. These builds have been designed with this recommendation.

### Optional I/O Add-On Cards

The design includes all core components to support Commvault HyperScale™ X Technology. Flexibility to accommodate a specific customer use-case comes in the form of number of available PCIe slots in the selected server and is limited to the available options in the “I/O & Add-on Cards” section below. For example, optional I/O cards for SAS, Ethernet or Fiber Channel connectivity require a free PCIe slot in the server being considered. 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 dedicated replication network or to connect to Clients in isolated networks.

## Bill of Materials

Commvault has partnered with SuperMicro to create SKUs for the validated Commvault Hyperscale™ X server. There are also component level SKU's for NVMe and optional 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 "I/O & Add-on Cards". Each server purchase should also include the SKU for hardware service warranty (SMSAD3). 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	Usable - capacity/node
SSG-6029P-E1C24-A1-CS071	One Supermicro 6029P-E1CR24L server, with 2x Intel 4216 CPU's, 512 G RAM, 3108 RAID Controller, 2x 480 G OS SSD's, 1x 6.4 TB NVMe drive, 1x 3.2 TB NVMe drive, 24x 8 TB SAS 12 Gb/s HDD. NO Ethernet or FC ports.	~ 101 TiB
SSG-6029P- E1C24-A2-CS071	One Supermicro 6029P-E1CR24L server, with 2x Intel 4216 CPU's, 512 G RAM, 3108 RAID Controller, 2x 480 G OS SSD's, 1x 6.4 TB NVMe drive, 1x 3.2 TB NVMe drive, 24x 10 TB SAS 12 Gb/s HDD. NO Ethernet or FC ports.	~ 126 TiB
SSG-6029P- E1C24-A3-CS071	One Supermicro 6029P-E1CR24L server, with 2x Intel 4216 CPU's, 512G RAM, 3108 RAID Controller, 2x 480 G OS SSD's, 1x 6.4 TB NVMe drive, 1x 3.2 TB NVMe drive, 24x 12 TB SAS 12 Gb/s HDD. NO Ethernet or FC ports.	~ 151 TiB
SSG-6029P- E1C24-A4-CS071	One Supermicro 6029P-E1CR24L server, with 2x Intel 4216 CPU's, 512 G RAM, 3108 RAID Controller, 2x 480 G OS SSD's, 1x 6.4 TB NVMe drive, 1x 3.2 TB NVMe drive, 24x 14 TB SAS 12 Gb/s HDD. NO Ethernet or FC ports.	~ 176 TiB
SSG-6029P- E1C24-A5-CS071	One Supermicro 6029P-E1CR24L server, with 2x Intel 4216 CPU's, 512 G RAM, 3108 RAID Controller, 2x 480 G OS SSD's, 1x 6.4 TB NVMe drive, 1x 3.2 TB NVMe drive, 24x 16 TB SAS 12 Gb/s HDD. NO Ethernet or FC ports.	~ 201 TiB
SSG-6029P- E1C24-A6-CS071	One Supermicro 6029P-E1CR24L server, with 2x Intel 4216 CPU's, 512G RAM, 3108 RAID Controller, 2x 480G OS SSD's, 1x 6.4TB NVMe drive, 1x 3.2TB NVMe drive, 24x 18TB SAS 12Gb/s HDD. NO Ethernet or FC ports	~225 TiB

### I/O & Add-On Cards:

There is one SIOM and two (2x) available PCIe slots in each server. The SIOM slot needs to be populated with the appropriate Ethernet card to provide a minimum of 4x 10/25 G Ethernet ports per server and any other connectivity such as Fiber-Channel (FC) for Intellisnap/tapeout or additional ethernet for a dedicated replication network. Thus, if the customer requires six (6x) Ethernet ports, the SIOM slot needs to be populated with the appropriate quad-port NIC. This will allow for one of the two PCIe slots to be used with a dual-port ethernet NIC. The last available PCIe slot can then be used for FC connectivity, if required. Network bonding and zoning best-practices recommend the use of ports from separate cards for better resilience.

**Note:** The NVMe devices are housed in the rear cage and do not use a PCIe slot. Following are the supported components for this server.

Supermicro SKU	Description
AOC-M25G-I2S-O	SIOM, Dual-port 10/25 GbE with 2 SFP28 ports based on Intel Fortville-25 XXV710.,RoHS
AOC-M25G-M4S-O	SIOM Quad-port 25 GbE SFP28 based on Mellanox ConnectX-4 Lx E
AOC-MTG-I4S-O	SIOM Quad-port 10 GbE controller with 4x SFP+ ports, based on Intel Fortville XL710., RoHS/REACH
AOC-S25G-I2S-O	PCIe Standard Low Profile 25 G dual-port SFP28, based on Intel XXV710
AOC-QLE2742SR	PCIe x8 3.0, Qlogic QLE2742-SR dual-port Gen6 32 G FC HBA

Ordering examples

Backend capacity	Required connectivity/node (Ethernet + FC ports)	Required SKU's (ordering)	Comments
275 TiB	Default (4x 10/25 G)	3x SSG-6029P-E1C24-A1-CS071 + 3x AOC-M25 G-I2S-O + 3x AOC-S25 G-I2S-O + 3x SMSAD3	3x HyperScale X Nodes, each with 24x 8 TB HDD's, 4x 10/25 G ethernet ports and support. <b>Usable capacity = 302 TiB.</b>
650 TiB	Default + 2x FC ports	4x SSG-6029P-E1C24-A4-CS071 + 4x AOC-M25 G-I2S-O + 4x AOC-S25 G-I2S-O + 4x AOC-QLE2742SR-CS071 + 4x SMSAD3	4x HyperScale X Nodes, each with 24x 14 TB HDD's, 4x 10/25 G ethernet and 2x FC ports plus support. <b>Usable capacity = 704 TiB.</b>
850 TiB	Six (6x) Ethernet and 2x FC ports	5x SSG-6029P-E1C24-A4-CS071 + 5x AOC-M25 G-M4S-O + 5x AOC-S25 G-I2S-O + 5x AOC-QLE2742SR-CS071+ 5x SMSAD3	5x HyperScale X Nodes, each with 24x 14 TB HDD's, 4x 25 G and 2x 10/25 G ethernet ports and 2x FC ports plus support. <b>Usable capacity = 880 TiB.</b>

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 6029P-E1CR24L server can be found on the following website:  
<https://www.supermicro.com/products/system/2U/6029/SSG-6029P-E1CR24L.cfm>

Please forward requests for quotes (RFQ) to the mail alias [Commvault2SMC@supermicro.com](mailto:Commvault2SMC@supermicro.com)

Commvault HyperScale™ X Technology integrates with storage arrays, hypervisors, applications and the full range of cloud provider solutions to support the most diverse and dynamic environments. Visit [commvault.com/hyperscale/software](https://commvault.com/hyperscale/software) >