



▶ Commvault® Validated Reference Design Specification

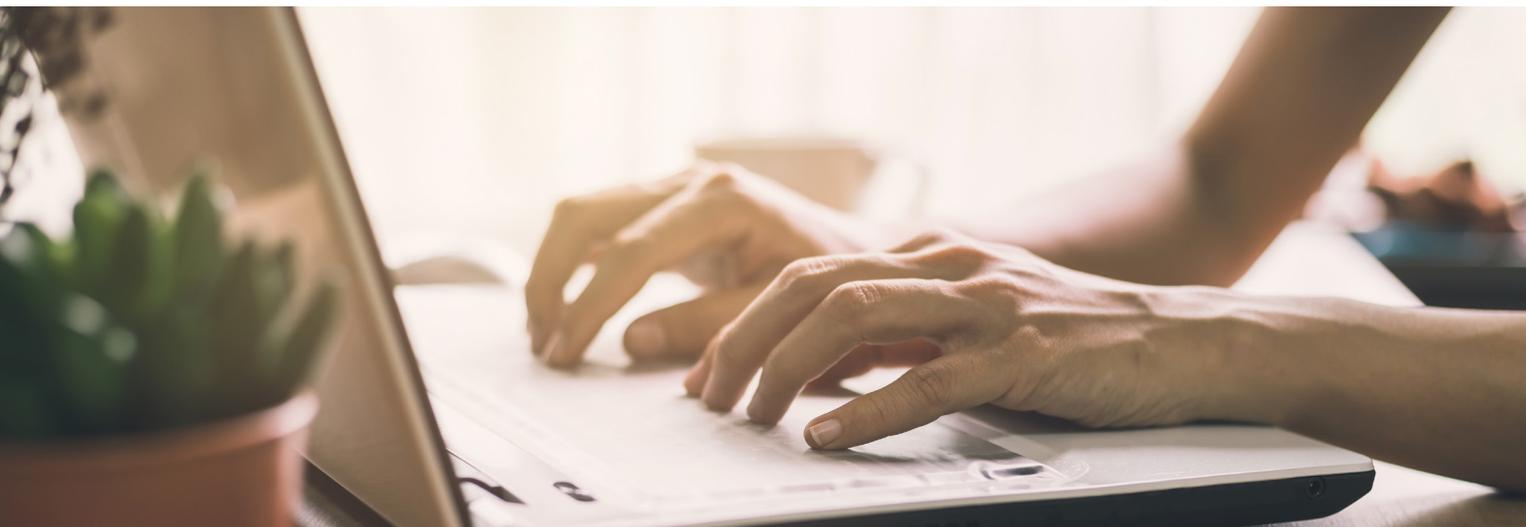
HUAWEI FUSIONSERVER 5288 V5

▶ INTRODUCTION TO COMMVault HYPERSCALE™ SOFTWARE

With Commvault HyperScale™ Technology, you can build a unified, modern data protection and management platform that delivers cloud-like services on-premises. The purpose of this technical specification is to detail the Huawei FusionServer 5288 V5 Server for the Commvault Validated Reference Design. By building these services on a scale-out infrastructure and leveraging Commvault capabilities, you'll enable:

- Cloud-like agility, resiliency and availability to on-premises data and applications
- Greater end-user efficiency with automation and self-service capabilities
- Improved hardware utilization and optimized costs from general-purpose hardware
- Seamless storage scalability with predictable performance without requiring forklift upgrades
- Better, more secure data protection, utilization and movement by eliminating point product and data silos

By shifting the secondary storage and data management infrastructure to this architecture, enterprises can go a long way in transforming their data centers to be as operationally efficient, resilient and scalable as public cloud infrastructure. Lower hardware costs, operational efficiencies and simplified support allows the replacement of limited and legacy backup tools with a modern cloud enabled data management solution at the cost of replacing legacy purpose-built backup appliance (PBBA). More importantly, this architecture, which extends into public cloud, allows enterprises to offer consistent sets of services to all workloads running on-premises or in public cloud, independent of the underlying infrastructure for true cloud based data management.



REFERENCE DESIGN WITH HUAWEI

The Huawei FusionServer servers improve upon their existing extensive portfolio of modern solutions to drive IT transformation in the data center. The Huawei FusionServer 5288 V5 represents a suited platform for Commvault's HyperScale software to expand and transform capabilities for customers in today's evolving software-defined world. The highly optimized Huawei FusionServer 5288 will ensure that the acquisition, deployment, and upkeep are streamlined. The FusionServer 5288 V5 is a versatile server that is great for high performance computing of ultra-large capacity.

HOW TO USE THIS DOCUMENT

This document covers the design components of the HyperScale architecture, providing options for purchasing the infrastructure for a Commvault HyperScale solution. Commvault Validated Reference Designs deliver tested configurations with leading hardware vendor technology that provide validated designs complemented by best practice configurations that will accelerate ROI, reduce complexity, and add customer value.

The document is broken into a high level component section detailing out the configuration and specific component options that can be selected depending on the storage density, metadata, and optional I/O components that are required. Each subsection provides guidance for ordering configurations.

This document does not cover overall architecture and design of the HyperScale solution, and should be considered as a supplement specific to the applicable hardware vendor.

▶ HUAWEI FUSIONSERVER 5288 V5 SPECIFICATION SUMMARY

CORE COMPONENTS

Core Components represent features of the build that do not change. They include Chassis, CPU, Memory and other critical elements that need to be ordered.

Country-specific components such as power cables are not listed and can be changed as required.

CORE COMPONENTS	TECHNICAL SPECIFICATIONS
FORM FACTOR	4U Rackmount
NODE FORM FACTOR	Large Density – 24LFF
MOTHERBOARD CHIPSET	Intel® C622
PROCESSORS	Intel® Xeon® Silver 4114
MEMORY	256GB RAM (8x32GB RDIMM)
NETWORKING	LOM: 2x10GE + 2xGE ports Intel 82599 10 Gigabit Ethernet Controller
STORAGE CONTROLLER	SR450C SAS/SATA RAID card (Avago3508)
OPTIONAL I/O CARDS CAPABLE	Yes

Boot storage houses the operating system and core HyperScale binaries, while the Metadata storage provides caching areas for such operations as deduplication, Index Cache, and extents. This storage option can be either configured together as a single unit, or housed separately. At this time Huawei only has one storage option that can be used.

BOOT/METADATA CONFIGURATIONS	TECHNICAL SPECIFICATIONS
COMBINED BOOT/METADATA CONFIGURATION	4x 1920GB SATA SSD, 6Gbps – RAID5

DATA STORAGE OPTIONS

Data storage houses the data footprint for the customer environment. Data storage configuration directly impacts the amount of data that each node in the solution is able to store.

When deploying nodes inside of the same block (e.g. 3 node initial configuration), choose identical HDDs. If the nodes in a block have different HDD sizes, the lowest size will be chosen for the data storage, which would lead to underutilized resources on nodes with larger HDDs.

Separate node blocks in the same grid may use different HDDs (e.g. mixing a 3 node 6TB block with a second 3 node 10TB block in the same grid).

Overall sizing and retention varies per customer and therefore is beyond the scope of this document. Please refer to Commvault HyperScale sizing documentation to determine the drive size (and node quantity) required for the specific deployment.

DATA STORAGE CONFIGURATION	TECHNICAL SPECIFICATIONS
STORAGE CONFIGURATION – DATA STORAGE STORAGE TYPE	4TB, NL-SAS or SATA, 24Drives 6TB, NL-SAS or SATA, 24 Drives 8TB, NL-SAS or SATA, 24 Drives 10TB, NL-SAS or SATA, 24 Drives 12TB Not supported at this time as per Huawei

OPTIONAL I/O ADD-ON CARDS

The design includes all core components to work with Commvault’s HyperScale Technology. There are specific times where additional I/O connectivity is desired as part of the overall solution. Optional I/O cards for SAS and fibre channel connectivity are validated and included as part of the design, the quantity and type of these I/O cards are customizable, and there are multiple valid configurations possible.

SAS Connectivity is typically used for direct tape integration, while fibre channel cards are used for IntelliSnap operations or tape libraries.

▶ BILL OF MATERIALS

This bill of materials represents the configuration that is in progress to being validated as part of the Commvault Reference Design Program. There are four main sections of this document. Core Components, Data Storage Options, Metadata Storage Options, Optional Components.

QTY.	PART NUMBER	DESCRIPTION
1	02312CLG	5288 V5 (36*3.5-inch hard disk chassis, onboard 2*GE+2*10GE optical ports (excluding optical modules)) H52H-05
2	02311TLF	PAC900S12-BE AC power supply unit
2	02311XJT	Intel Xeon 4114 (2.2GHz/10-core/13.75MB/85W) processor (with a radiator)
8	06200241	DDR4 RDIMM Memory, 32GB, 2666MT/s, 2Rank (2G*4bit), 1.2V, ECC
1	02312DQD	SR450C SAS/SATA RAID card, RAID 0, 1, 10, 5, 50, 6, 60, 2GB Cache (Avago3508), supporting supercapacitor and sideband management
1	02311WDP	3508/3516 RAID card supercapacitor
1	02311TWT	1*x8 (x16 slot) + 1*x8 RISER3 module
1	02311TYP	4*3.5 "rear hard disk backplane component
1	02310YHP	Ethernet adapter -10Gb optical port (Intel 82599) -dual ports -SFP+ (excluding optical modules) -PCIe 2.0 x8
4	02318169	Optical Transceiver, SFP+, 10G, Multi-mode Module (850nm,0.3km,LC)
1	21240142	4 U static slide rail suite

BOOT & METADATA STORAGE OPTIONS

COMBINED BOOT/METADATA STORAGE

QTY.	PART NUMBER	DESCRIPTION
4	02312DYE	Solid state disk -1920GB-SATA 6Gb/s-read/write hybrid -5200 PRO series -2.5 inch (3.5-inch)

DATA STORAGE OPTIONS

For Data Storage choose the appropriate configuration. The 6Gbps SATA Drives are listed for this configuration, should the customer wish to deploy either 12Gbps or NL-SAS variants of these drives they are considered validated as part of this design. Currently all know variants of 6/12Gbps and NL-SAS/SATA drives are validated.

QTY.	PART NUMBER	DESCRIPTION
24	02311AYV	Function Module, Servers HDD, 4000GB, SATA 6Gb/s, 7.2K rpm, 128MB cache or above, 3.5inch (3.5inch Drive Bay)
24	02311DYQ	Function Module, Servers, Hard Disk, 6000GB, SATA 6.0Gb/s, 7200rpm, 3.5 inch, 64 MB, Hot-swap
24	02311JRE	Function Module, Servers, Hard Disk, 8000GB, SATA 6.0Gb/s, 7200rpm, 3.5 inch, 128 MB, Hot-swap
24	02311SXE	Function Module, Servers, HDD, 10TB, SATA 6Gb/s, 7.2K rpm, 256MB, 3.5 inch

Populating this server with 36 drives is not a supported reference design.

OPTIONAL I/O ADD-ON CARDS

The Optional I/O cards are used for connectivity to tape and Fibre Channel connections. The quantity and type of these I/O cards is customizable, and there are multiple valid configurations. Specific cards can be housed in individual nodes and do not have to be matched identically across all nodes.

QTY.	PART NUMBER	DESCRIPTION
1	06030220	Qlogic, FC HBA, 8Gb (QLE2562), 2-Port, SFP+ (with 2x Multi-mode Optical Transceiver), PCIe 2.0 x4
1	06030217	Emulex, FC HBA, 8Gb (LPe12002), 2-Port, SFP+ (with 2x Multi-mode Optical Transceiver), PCIe 2.0 X4 PCIe 1.0 x8

▶ ADDITIONAL RESOURCES

Find additional information regarding the [Huawei FusionServer 5288 V5](#).

- ▶ Bringing a scale-out infrastructure to the Commvault Data Platform, [Commvault HyperScale™ Technology](#) integrates with storage arrays, hypervisors, applications and the full range of cloud provider solutions to support the most diverse and dynamic environments.

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