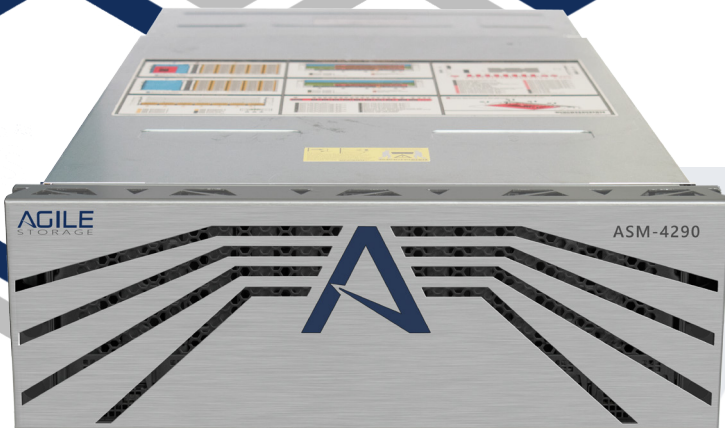# AGILESTORAGE
ASM-4290

WASP™
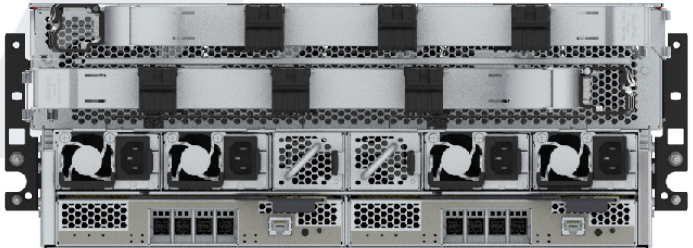## WORKLOAD AGNOSTIC STORAGE PLATFORM

powered by **AGILE** STORAGE

The **ASM-4290 series** are Intel® Scalable Processor platform systems in 4U height with one or two storage controller nodes for transparent failover between the two nodes. WASP ASM-4290 systems offer excellent reliability and ultra high storage density. This makes the WASP ASM-4290 systems the ideal choices for large capacity-, nearline-, or backup storage deployments.

- High Performance
- Quality of Service
- Up to 70% cost saving
- Simple Management
- End-to-End Data-Integrity
- Self healing Filesystem

High Performance: Intel® Xeon® Scalable Processor series are based on Intel® 14nm technology and yield up to 33% improved performance, significant power-, virtualization security enhancement as well as DDR4 support, compared to previous generation.

Flexible Network Configuration: By offering a variety of network choices through OCP NIC (Network Interface Controller) mezzanine card options, ranging from 1G/10G (optical or Base-T) to 40G and 100G Ethernet the high speed performance and IO flexibility are realized, catering to suitable demands of different application procedures.

Robust and high available hardware architecture: The adoption of power redundancy and hot-swappable node design and multiple expander implementation enables more reliability during operation. Also the hot-swappable feature on all serviceable parts makes maintenance even easier.

Full Hardware Redundancy

The flexibility of the WASP ASM-4290 storage system allows fully redundant configurations with dual SAS 12G path, dual domain, 2+2 power supply redundancy, and two high-performance Intel® Xeon® Scalable Processor server nodes.

In Addition the multi-HDD control mode brings customers the configuration flexibly to adress any requirements in their real multiple applications environments.

Ultra Dense Storage - 1.44PB in 4U

The WASP ASM-4290 storage system is designed for large mass storage deployments. In this 4U enclosure not only up to two full-functional server nodes can be installed, also ninty 3.5" / 2.5" HDD bays are available, supporting redundant 12Gb/s dual channel SAS-3 and/or single path 6Gb/s SATA.

One WASP ASM-4290 storage system holds up to 1.44PB capacity in 4U rackspace. This system scales up to 8.64PB in 24U rackspace. This equals to 360TB per 1U.

8,64PB in 24U

WASP is changing the storage DNA

The WASP OS from AGILESTORAGE™ is a full-featured storage operating system designed for virtualized environments, and cloud deployments.
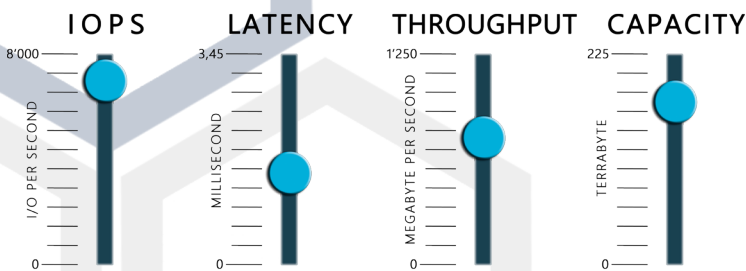
WASP provides dynamically selectable performance to each application or tenant by continuously monitoring and adjusting key storage performance characteristics including IOPS, throughput, and latency.

Based on WASP's embedded analytics capabilities, an application's performance needs also can be dynamically adjusted by the administrator for the ultimate in flexibility.

Ease of Use - Low Management Cost

WASPcenter, the web-based centralized management console, controls **AGILE**STORAGE™ environment world wide from a single site to multiple geographically dispersed clusters.

Know how each Virtual Storage Machine performs in real time, from active IOPS vs Scheduled IOPS to read/write ratios and block size, using WASP Storage Analytics.

Guaranteed Storage Performance

WASP is the only Software defined Storage Solution offering features such as secure isolation and guaranteed storage performance to each application or VM, sharing the same appliance hardware.

Based on this patented storage software architecture, cost savings up to 70% can be achieved in multiple application environments, compared with traditional legacy storage deployments.

WASP's VSM architecture also offers vMotion like storage migration across different storage qualities, physical appliances and datacenters. WASP Appliances are seemlessly scalable from a few TB up to 8.64 PB in less than one 42U rack.

VSM - Virtual Storage Machines

Our WASP based storage system is designed and built from the ground up for multi-tenancy. With our WASP storage system, each application is fully isolated at all storage stack levels and unified under a Virtual Storage Machine (VSM).

With completely isolated applications, and controller resources allocated to each application can now easily monitored, controlled, and provisioned. As we'll see in detail in the previouse section. WASP storage systems also intelligently provisions controller resources to each application, based on the application's QoS requirements (IOPS, latency and throughput).
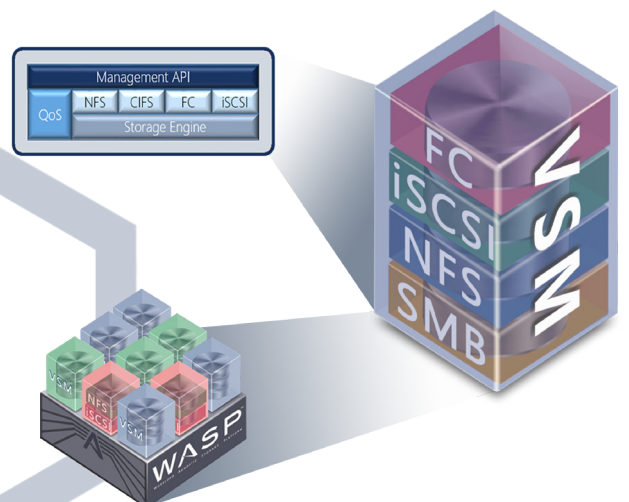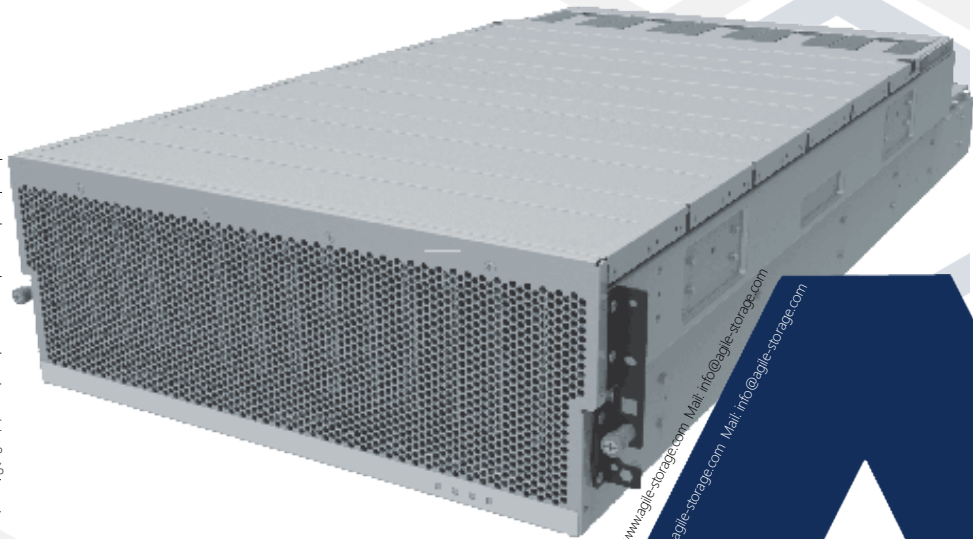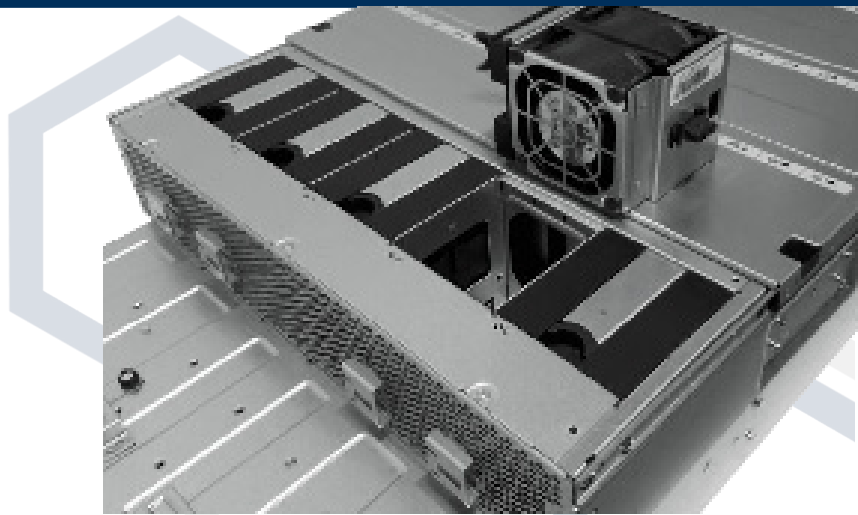
Further, each application's data can now be optionally encrypted to provide additional security.

Technical specifications

Model Name	ASM-4190 / ASM-4290
Positioning	Single or dual node storage controller
Form Factor	4U2N 19" rack mount
Processor	Single Socket (per controller node) Intel Xenon Skylake CPU up to 140W
Memory Slot	12x DDR4 DIMM slot (max 768GB RAM per controller node)
Storage Controller	Dual M.2 Nvme Boot Device LSI 12Gb/s SAS3 controller Dual SAS expander midplane 2x ESM (Expansion SAS Module)
Network Controller	Intel 82599ES Dual Port 10G SFP+ Dual Port 1GBase-T (RJ45) **Optional:** Intel X540 Dual Port 10GBase-T Mellanox ConnectX-4 2-Port 40G QSFP+ Mellanox ConnectX-4 2-Port 100G QSFP28
Expansion Slot	1x PCIe Gen3 x16 (HHHL) 1x OCP Mezzanin Slot
Disk Drive Bay	OS Drive bays per node 2x M.2 Nvme SSD's Top loader primary bays: 90x 3.5"/2.5" 12Gb/s SAS3 hot-plug bays
System Management	IPMI 2.0 compliant Dedicated Management Port RJ45
Power Supply	4x 1'300W Platinum PSU 2+2 redundancy

Performance	up to 150'000 IOPS at 4K block size
Throughput	up to 52.5 TB/h (14.6 GB/sec)
Scalability	up to 8.64PB raw capacity in 24U Rackspace
Connectivity	1G / 10G / 40G / 100G Ethernet 4G / 8G / 16G Fibrechannel
Storage protocol	SMB 2.x / SMB 3.x / NFS v3 / NFS v4 iSCSI / FC OpenStack / CloudStack
RoHS	RoHS Compliant
Environmental specs.	Operating Temperature: 5°C to 37°C Non-operating Temperature: -40°C to 60°C Operating relative Humidity: 8% to 90% Non-operating relative Humidity: 5% to 95%
Dimension (W / H / D):	446mm / 175,3mm / 1070mm