**mercury**

# Rugged Data Storage (RDS)
## All-Flash Data Center-Class Network-Attached Storage Solution

**Low-latency access and direct availability of massive amounts of data.**

- Eliminates bottlenecks and complex storage tiering with single flash cloud
- Scales storage capacity and/or compute performance simply

- Powered by VAST Data Universal software
- Redundant architecture, ruggedized in a MIL-STD-810 short-depth chassis for high-reliability

**Mercury's Rugged Data Storage (RDS)** solution is the first data center-class all-flash, multi-petabyte, network-attached storage (NAS) system for edge-based real-time applications.

Architected for low-latency, scalability and security, RDS changes the paradigm for enterprise storage with a universal, single-tier flash cloud for all types of data with NVMe performance to eliminate bottlenecks and complex storage tiering traditionally accomplished with hard disk drives and other media.

## Highlights

- Enormous amounts of flash storage can be affordably deployed at the edge for any highly data-driven application without compromising performance, capacity or scalability

- Harnesses DPU network acceleration, storage class memory, affordable hyperscale flash technology and VAST DATA software algorithms for secure fast access to real-time big data, AL and ML insights over high-speed Ethernet

- Scale performance and data capacity by adding more storage (d-boxes), networking (switch boxes), and/or compute power (c-boxes)

- QLC Flash enabled to support 10+ years of endurance and reliability

- Data reduction algorithms (compression, de-duplication) reduce storage capacity requirements and improve affordability

- Integrated FIPS 140-2 security

- Redundancy of all major subsystems, including multiple integrated processors, network switches, storage array and critical components

**VAST** FEDERAL

**intel.**

**NVIDIA.**

## KEY FEATURES

- Hyperscale all-flash data infrastructure at the cost of disk storage

- Low-latency access to all data with all-NVMe performance (up to 100x faster than HDD)

- Disaggregated commodity Ethernet fabric

- Multi-petabyte scale NAS and object storage

- Composable flash cloud with a single namespace

- AI/ML-ready infrastructure

- Advanced data reduction for unprecedented storage efficiency

- Short-depth chassis for SWaP-constrained use cases

- Ruggedized for mission-critical applications

## TARGET APPLICATIONS

- Artificial intelligence (AI)

- Sensor fusion/processing

- Signals intelligence (SIGINT)

- Electronic warfare (EW)

- Big data query engines

- Video/image capture

- HPC simulation

- Deep learning training

- Log analytics (Splunk, Elastic, etc.)

- Online backup and archival (no more tiers)

- Container storage Interface (CSI) for K8S

**Data Tiering Elimination**



FLASH

HYBRID

BACKUP

ARCHIVE

UNIVERSAL STORAGE

PAST   VAST

**Provided by VAST**
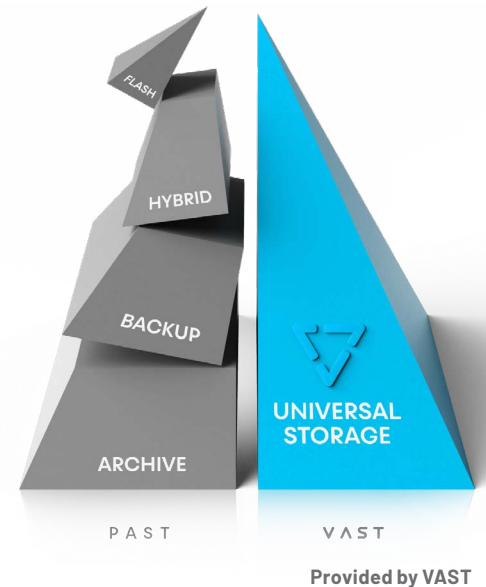
## HARDWARE ARCHITECTURE
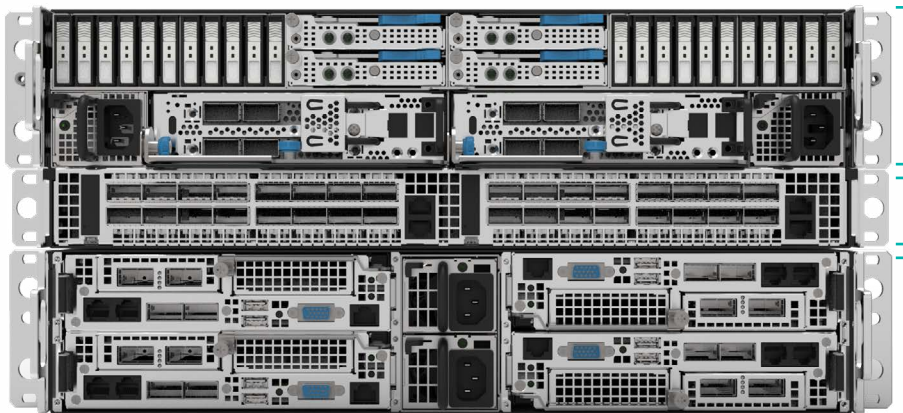


**D-Box** (Data Storage Box), Gen 4 PCIe Fabric, 8x storage-class NVMe SCM U.2 SSDs, 4x NVIDIA Bluefield DPUs, 22x 15 TB/30 TB E1.L rulers

**Switch Box** (Ruggedized Mellanox SN2100), Dual 16-port QSFP 100 G Ethernet Switches

**C-Box** (Container Computer Server Nodes), RES HD XR6 Quad Intel® Xeon® Scalable processors, Total of 128 cores, 1 TB memory for 4 C-Nodes

**Baseline configuration**

## FEATURES/SPECIFICATIONS

### Form Factor

5U 19" rackmountable, 22" (558.8 mm) depth or less for each subsystem

### Redundancy

Redundant compute/network nodes and power supplies throughput enable full access to data in event of node failures

### Removable Media

EDSFF E1.L NVMe rulers can be ejected individually or together in removable cannister

### Scalability

Scale compute performance independently of data capacity with more C-boxes and D-boxes

### Power Input

AC power 90–264 VAC, 47–63 Hz/DC power 28 VDC and -48 VDC options

### Ruggedization

Designed to meet MIL-STD-810, MIL-STD-461, MIL-STD-167, for use in MIL-S-901 shock isolated cabinet

### Power Consumption

Approximately 2500 W

### Weight

Approximately 230 lb

### Data Transfer Speed

Up to 40 GB/s read, 5 GB/s write. Up to 325 K read IOPS, 145 K write IOPS.

## SOFTWARE ARCHITECTURE

**Multi-Protocol Access:** NFS, NFS+RDMA+GPUDirect™, SMB, S3, K8S CSI

**Stateless Servers:** VAST containers

**Similarity-Based Data Reduction:** Global compression, deduplication (save up to 20:1 depending on data type)

**Enterprise Infrastructure Support:** Kubernetes, VMware

**Big Data and AI Support:** Splunk, Elastic, Vertica, Spark, KX, SAS, Trino, Dremio, TensorFlow, Pytorch, MATLAB

**Data Protection Application Support:** Acronis, Commvault, Veeam, Rubrik, Cohesity, Oracle, Dell EMC, Veritas, IBM

**Software License, Maintenance and Support Contracts:** Multi-year contracts are bundled with hardware based on total raw flash capacity purchased

## STANDARD CONFIGURATIONS

RDS is fully scalable to meet performance and capacity needs. Connect with a sales representative for optimal configuration.
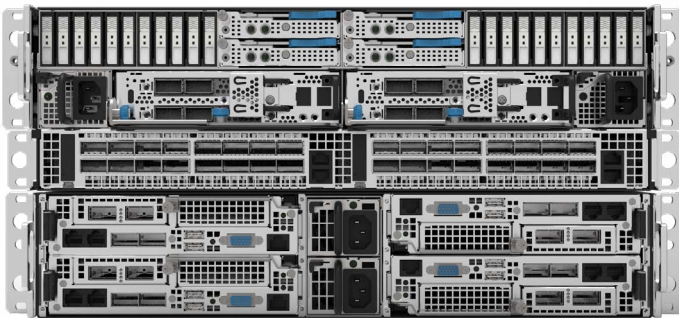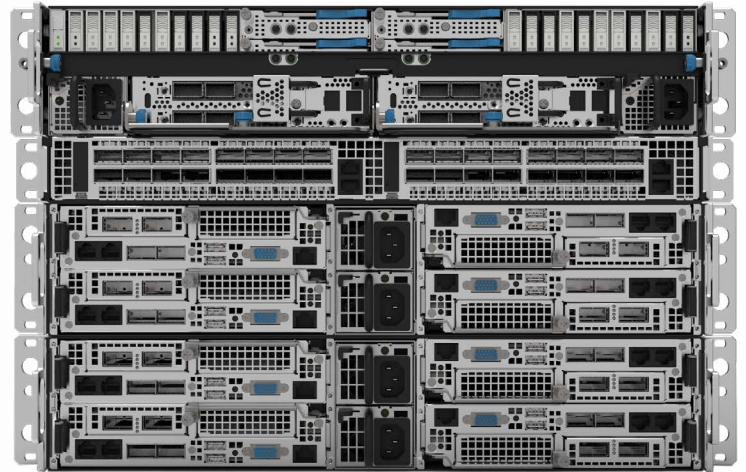


**P/N RDSSYS-1ABA1A1AA1005
(Baseline Configuration)
(1) D-box, (1) C-box, (1) Switch box
22x 30.72 TB E1.L
8x 800 GB U.2
110/220 VAC**
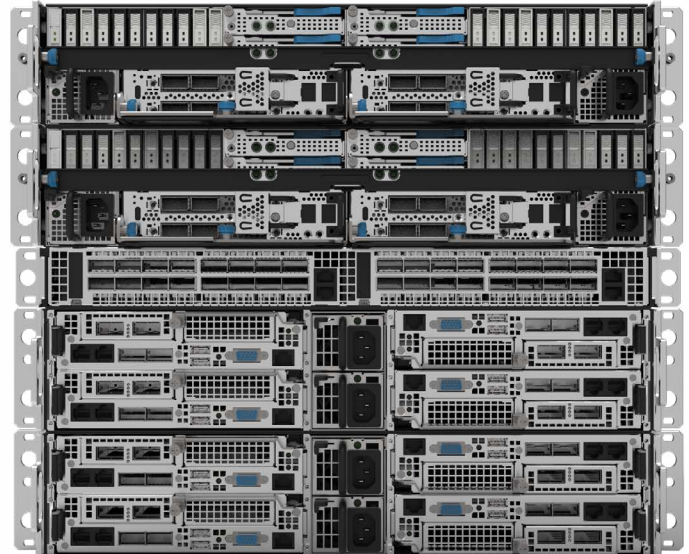


**P/N RDSSYS-2ABA2A1AA1006
(2) D-boxes, (2) C-boxes, (1) Switch box
44x 30.72 TB E1.L
16x 800 GB U.2
110/220 VAC**
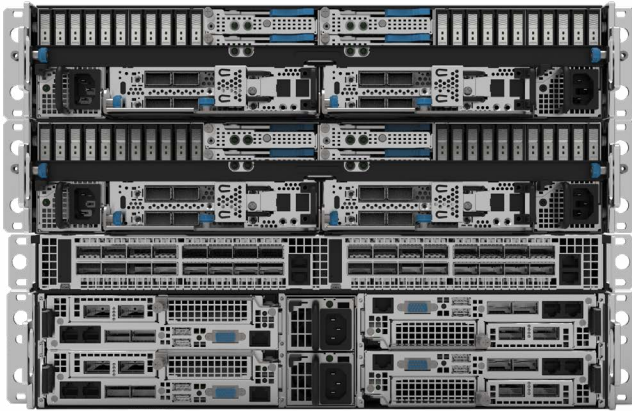
P/N RDSSYS-2ABA1A1AA1007
(2) D-boxes, (1) C-box, (1) Switch box
44x 30.72 TB E1.L
16x 800 GB U.2
110/220 VAC



P/N RDSSYS-1ABA2A1AA1008
(1) D-box, (2) C-boxes, (1) Switch box
22x 30.72 TB E1.L
8x 800 GB U.2
110/220 VAC