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# 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 c enter-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







#### **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**



Provided by VAST

## HARDWARE ARCHITECTURE



**D-Box** (Data Storage Box), Gen 4 PCle 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<sup>™</sup>, 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 Al 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

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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

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