

FlashDisk® RAID 1U/2.5" RV-1300 Series

Rugged RAID at COTS Prices with 2.5" Disks for Field Deployments Virtual Storage - RAID 6 - Fibre Channel, SAS and iSCSI Hosts

FlashDisk COTS Rugged disk arrays are designed to protect data from certain environmental perils - at COTS prices. Far less expensive than fully rugged systems, the FlashDisk RV-1300 Series supports SAS, Fibre Channel or iSCSI hosts. It supports (12) 2.5" SAS or SSD disks and provides up to 12 TB in the base unit. Compact 1U shelves are perfect for vehicles with space and weight limits. The RV-1300 expands to 600 TB with up to six 1U, 2U or 3U expansion shelves. As COTS rugged, it is protected against dust, moisture, shock and vibration not offered on standard commercial units.



FlashDisk RV-1300 disk arrays feature 2.5" SAS or SSD disks and are ideal for mobile applications - providing field reliability and data protection at COTS prices.

Military commanders have approved these units for field use and have deployed them worldwide in harsh environments. The front door is crafted of sturdy welded cold rolled steel that provides rigidity and structural integrity. The rugged door is further secured with two Huck fasteners that prevent drives from ejection in the event of a crash. It also houses a dust filter to constrict particle flow and provide a moisture shield to protect internal components. The LCD front panel is easily viewed by field personnel and offers pushbutton controls to operate the unit from the front panel. Optionally, the US Army, Navy and Air Force can mount this unit using nine bolts to an optional 1U mounting tray for mobile operations. FlashDisk Global Manager™ provides all storage services and a centralized management pane for multiple systems. FlashDisk RV-1300 supports a base unit with single or dual redundant controllers with mirrored cache and up to 6 expansion shelves. RAID 6 provides dual parity for large arrays to protect against two drive failures and to ensure successful disk rebuilds.

Redundant Controller Systems					
Host Interface	SAS 6 Gb		iSCSI 1 Gb		Fibre Channel 8 Gb
Models	RV-1334R		RV-1358R		RV-1328R
Number of Host Ports	4		8		8
RAID 5/6: IOPS (R/W)	129K / 56K		87K / 33K		148K / 72K
RAID 5/6: Throughput MB/s. (R/W)	2,138 / 1,034		701 / 556		2,203 / 1,147

Single Controller Systems					
Host Interface	SAS 6 Gb		iSCSI 1 Gb		Fibre Channel 8 Gb
Models	RV-1332S		RV-1354S		RV-1324S
Number of Host Ports	2		4		4
RAID 5/6: IOPS (R/W)	67K / 45K		48K / 30K		77K / 58K
RAID 5/6: Throughput MB/s. (R/W)	1,348 / 854		338 / 328		1,389 / 891

Number of Total SAS/SSD Disks	108				
3.5" SAS Disks	15K rpm: 600 GB - 7.2K rpm: 2, 4, 6 TB				
2.5" SAS Disks	15K rpm: 300 GB; 10K rpm: 600, 900 GB, 1.2 TB; 7.2K rpm: 1 TB				
2.5" SSD Disks	MLC SAS/SATA: 200, 400, 800 GB; MLC SAS 2.0 TB				
Compatibility	Supports any open O/S; Supports VMware, Citrix, Hyper-V				
Reliability	RAID 0, 1, 3, 5, 6, 10, 15, 16, 30, 50, 60; Hot swap components; Hot spare drive; Automatic rebuild; Path failover				
Manageability	FlashDisk Global Manager manages multiple FlashDisk units over network; Automated alerts				
Warranty and Service	Three year factory warranty; 24x7 automated "call home" to US call center; Phone support during business hours				

Storage Services

Virtual Storage Pools

Create, expand, and delete storage volumes as requirements change to maximize storage utilization.

Snapshots

Up to 256 snapshots per volume with 4,096 total snapshots and 256 volume copies. Mount and read snapshots, restore files and databases. Rollback to selected time. Server flush agent supports Windows and Linux applications.

Thin Provisioning Option

Provides dynamic storage allocation and maximizes storage utilization.

Remote Replication Option

Storage based replication for business continuity and disaster recovery.

Mirroring

Create mirror volumes, split mirrors, fast resync for data redundancy, backup, data mining and analysis.

Volume Copy

Reconstitute full volumes from snapshots, create multiple full versions to avoid overloading production.

FlashD2D Backup

Scheduled zero-downtime tiered primary to secondary disk-to-disk back-up. Enables off-line copy to tape.

Global Management

Manage multiple FlashDisk RV Series systems from a single, easy to use GUI from any browser on the web.

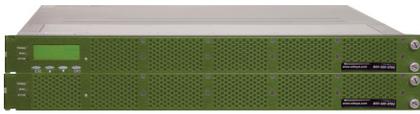
Storage Wizard

Wizard simplifies initial setup and enables advanced settings.

Visual Calendar Scheduler

Schedules all storage services including snapshots, volume copies, split mirrors, fast resync and replication easily and intuitively.

RV-1300 Base Unit with 1U Expansion Shelf



The RV-1300 Series supports up to 108 disk drives with six 1U/2U/3U expansion shelves and expands to 600 TB with 6 TB disk drives.

RV-1300 Models Rear View



RV-1334R with 4 SAS 6 Gb ports.



RV-1358R with 8 iSCSI GbE ports.



RV-1328R with 8 Fibre Channel 8 Gb ports.



RV-1310R 2.5" 12-drive 1U expansion shelf.



RV-2310R 3.5" 12-drive 2U expansion shelf.



RV-3410R 3.5" 16-drive 3U expansion shelf.

System Options

Thin Provisioning
Remote Replication
Advanced Storage Services

LUN Masking
Cache upgrade

1U RAID Base Unit

RAID controller
RAID levels supported
Host interfaces
Expansion shelf interface
Number of drives - Total capacity
On-line capacity expansion
Cache memory capacity
Non-volatile cache
Maximum LUNs
Maximum number of hosts
LUN mapping/filtering
Host adapters available for
Power supplies and AC inlets

1U/2U/3U Expansion Shelves

Expansion architecture
Expansion shelf architecture
Maximum drives/capacity
Removable drive trays
Power supplies
Cooling system
Active components
S.E.S. monitoring controllers

Controls and Indicators

LCD front operation panel
LED indicators
Alerting
Component failure
LCD front operating console

Compatibility

Operating systems
Platforms supported
Cluster support
Remote monitoring ports
Communication protocols

Storage Management

Event notification
FlashAlert call home service
Manage out of band
FlashDisk Global Manager GUI

General

Uninterruptible power supply
Redundant AC power
Power consumption (1U/2U/3U)
RAID unit dimensions (1U/2U/3U)
RAID unit weight (1U/2U/3U)
Operating temperature
Cooling system
Compliance

Warranty & Service

Standard warranty
Service contracts
Secure site
Installation and service

Enables high storage utilization with virtual storage on demand.
Available on "multi-protocol" models with added iSCSI replication ports.
Increases snapshots from 64 to 256 per volume; from 1,024 to 4,096 total and increases volume copies from 64 to 256 total.
Enables volume protection needed in SAN environment.
Expands 2 GB controller cache memory to 4 GB cache.

Single/Dual redundant 64-bit, 11th generation controller
0, 1, 3, 5, 6, 1+0, 15, 16, 30, 50, 60
6 Gb SAS, 8 Gb F/C, GbE
6 Gb SAS, 4 lanes - 24 Gb per port - up to 72 Gb per array
(12) 2.5" disks per base unit - 600 TB maximum
Automatically adds new drives to existing array - "on-the-fly"
2 GB, expandable to 4 GB per controller
Li-ION battery powered backup to flash memory
1024 total, 64 per host ID
4 SAS, 64 iSCSI or 64 Fibre Channel
Configurable per logical partition
PCI-X, PCI Express
Dual hot-swap redundant 380 W each; dual AC inlets

Single/Dual SAS (Serial Attach SCSI) bus
Multiplexed access to each drive within the shelf
12 or 16 disks per expansion shelf - 72 TB per shelf maximum
Hot swappable; individual drive locks
Dual hot-swappable; 380/460/530 Watts each
Dual hot-swappable fan modules
No active data path components on the midplane
Dual, hot-swappable SCSI Enclosure Services modules

2 x 16 character display, push button controls.
LED power, battery, controller, and system status
Audible and visual alerts
Failure indication through LCD and GUI
View/edit logical RAID/physical drives, setup hot-spare drives, map hosts, check parity, enable write-back cache, rebuild failed drive, view logs...

Supports 14 Operating Systems including Windows, Linux, and UNIX
Intel, SUN, HP, IBM RS-6000, Apple, SGI
Supports 9 industry-standards including Windows, Linux, and Veritas
RJ45 10/100 Ethernet
TCP/IP, SNMP, SSH

Automatic event and problem alert notification
24-hour call center available for immediate action
Ethernet
Manage storage services of multiple FlashDisks from any web browser

Required when using write-back cache
Dual 90-260 VAC Inlet, 47-63 Hz
100 VAC @ 8/10A; 240 VAC @ 4/5 A; 380/460/530 W with PFC
1.7"/3.4"/5.1" h x 17.5" w x 19.6" d
Approximately 39/63/77 lbs. fully loaded with drives
0° to 40° C
Two dual hot-swap fans mounted on power supplies
FCC, UL, CE, CSA

One year factory warranty and toll free hotline during business hours
Optional on-site service, spare parts and advance parts replacement
Customizable service programs for classified sites
On-site installation; 24x7 service available

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