

# Heritage RAID-2S

HeritageRAID-2S provides the latest storage technology in a simple and affordable package. By delivering high capacity, reliability, data availability, and bandwidth in both SAS and SATA disk configurations, HeritageRAID-2S meets the exploding data storage needs of today's IT departments.

HeritageRAID-2S systems feature 4 Gb Fibre Channel, SAS, or iSCSI host interfaces and attach directly to servers, networks, NAS engines or SANs where performance, reliability, scalability, and low cost is critical.

### Performance

Equipped with a 64-bit RISC processor, up to 2 GB cache per controller and a fifth-generation 800 MHz data bus architecture, the HeritageRAID-2S is designed for performance critical applications and environments. A HeritageRAID-2S dual controller FC-SAS system delivers sustained reads of up to 727 MB/s and sustained writes of up to 546 MB/s in a 16 drive RAID-5 configuration. A dual controller iSCSI-SAS system can achieve 720 MB/s reads and 300 MB/s writes in a RAID-5 configuration through 8 host ports.

### Reliability and Data Availability

HeritageRAID-2S provides high data availability with support for RAID levels 0, 1, (0+1), 3, 5, 6, 10, 30, 50, & 60. RAID 6 improves fault tolerance by implementing two parity drives. Other features such as dual active-active or active-passive controllers, controller failback, cache battery backup option, hot swappable drives, global & dedicated hot spares, automatic drive failure detection, automatic background rebuild, and redundant load sharing power supplies and cooling fans ensure that your data is available in the event of a component failure. All components are hot-pluggable.

### Configuration & Scalability

HeritageRAID-2S features 12 or 16 hot swappable Serial ATA II or SAS drives for capacity up to 16 TB in a single enclosure. SAS expansion ports provide for JBOD expansion to 80 drives. Mixing SATA and SAS drives in the same enclosure is supported for flexible multi-tier storage applications in one unit.

### FAMILY FEATURES

- 4 Gb FC, Multi-lane SAS, or Multiple Connection iSCSI Host Interfaces
- Single or Dual RAID Controllers
- Active-Active Failover Support
- 12 or 16 Hot Swap SAS or SATA II Drives
- RAID Levels 0, 1 (0+1), 3, 5, 6, 10, 30, 50, 60, NRAID, and JBOD
- JBOD Expansion up to 80 Drives
- Global, Dedicated & Enclosure Specific Hot Spares
- Automatic Background Rebuild
- Online RAID Expansion
- Drive Roaming
- Intelligent Drive Handling
- SANWatch GUI Manager
- Multi-Pathing Technology
- Snapshot Option
- VSS Support
- Array/System Event Notification
- Redundant, Hot-Swap Power Supplies & Cooling Modules
- Enhanced Power Saving Technology



## Smart Technologies

The Innovative firmware design of the HeritageRAID-2S features intelligent drive technology that enhances I/O processing, drive handling, and system management.

- **IOSmart.** Allows for the flexible configuration of logical drives, logical volumes and logical partitions and ensures instant RAID availability via background logical drive initialization. The firmware's embedded intelligent algorithms, such as Adaptive Write Policy and Guaranteed Latency I/O, improve the performance of sequential write applications and ensure the fast and continuous flow of data.
- **DrvSmart.** Provides an easy way to store data while keeping it safe. One of the main DrvSmart functions, Media Scan, retrieves data from degraded or damaged hard drives and handles low quality drives in both the degraded mode and during the rebuild process. Other DrvSmart features include disk cloning, drive roaming, SMART, transparent resetting of non-responsive hard drives, and RAID parity update tracking and recovery.
- **SysSmart.** In addition to RAID protection for the disk drives, HeritageRAID-2S features Auto Data Protection Mechanisms. These special SysSmart firmware functions ensure data safety by automatically switching to write-through data caching when abnormal subsystem conditions are detected such as a PSU/cooling module failure, low BBU or UPS battery charge, etc. By using the firmware to monitor and control the enclosure's dual-speed fans, the fan rotation speed is raised to a higher level when critical conditions are detected, e.g., a PSU or fan failure. Fan speed returns to the lower setting when normal operating status is restored. Component status, voltage and temperature readings, and system events are instantly revealed in the SANWatch interface.

## Enhanced Power Saving Technology

The Enhanced power-saving feature enables energy efficiency through a system power requirements reduction of as much as 65%. Allowing users to flexibly configure power-saving levels for individual logical drives, the enhanced feature maintains applications' service levels when implementing power-management mechanism. Depending on applications' access frequency and ideal performance levels, users can configure the power-saving mode of their respective logical drives as level 1, level 2, or the combination of the two. Set with level 1 mode, disks will enter idle state if they have not received I/O for a user-configured period of time. In this state, disk drives take only one second to respond when accessed. Set with level 2 mode, the drives enter spin-down state. According to internal tests, although spun-down drives take longer to respond when accessed, they require less than 20% of power consumption and contribute to overall system energy savings of approximately 50% and up to 65%. The two levels can be further combined into a two-stage procedure. Receiving no I/O for a pre-set period of time, the disks would first become idle then, if the no I/O status continues the disk drives will spin-down. The enhanced power-saving feature gives users the flexibility to find their own balance between storage performance and energy efficiency.

## Software Features

- **SANwatch** is a java-based management GUI that provides all functions necessary to discover, configure, administer, and monitor HeritageRAID-2S arrays. SANWatch also provides management interfaces for EonPath and Snapshot functions, so that all data protection and high availability features can be accessed through one interface.
- **EonPath** provides multi-path I/O functionality by recognizing and managing the redundant paths to an individual RAID volume. Greater reliability is achieved through the path failover mechanism in the event of cabling component failure. EonPath also comes with load-balancing algorithms which help accelerate the throughput across host-storage data links. Supported functions include active-active/active-standby path redundancy, intelligent load-balancing, I/O traffic monitoring, and multiple paths to RAID volumes (up to 32).
- **Snapshots** are managed via the SANWatch GUI. The Snapshot functionality provides high-level data protection with its immediate, space-efficient copy of storage volumes, and the automated scheduler for hands-free operation. Snapshot facilitates backup tasks and protects enterprise data from disasters and human errors. Using the copy-on-write methodology, snapshot requires minimum disk space. Only changes and updates are written to the snapshot volumes. Snapshot operates with a VSS hardware provider, which offers ease of integration with popular backup software and facilitates backup processes with VSS writers such as Microsoft SQL server.

## iSCSI Model Features

- Single or dual-redundant controllers
- Four host ports per controller
- Host port grouping for higher bandwidth
- LUN masking access control
- Compliant with IETF iSCSI standard (RFC 3720)
- Device discovery: SLP (Service Locator Protocol) and IETF RFC-4171 iSNS (Internet Storage Name Service)
- Level 0 error recovery
- CHAP authentication (mutual and one way) and Access Control List for better security.
- Header Digest mode
- Jumbo frame support



### SANWatch — SNAPSHOT SPECIFICATIONS

Specifications	Express	Professional	
CAPACITY	Maximum number of source volumes	4	Subsystem Logical Drive limitations
	Maximum Snapshots per source volume	8	128
	Maximum number of snapshots per system	32	Up to 1024, depending on cache size and Logical Drive capacity
ONLINE SNAPSHOT IMAGE MAPPING	4	128	
SNAPSHOT SCHEDULER AND AUTOMATED PRUNING	N/A	Yes	
RAID CONTROLLERS	1	2	
SPACE THRESHOLD SETTING AND AUTOMATED PURGING	N/A	Yes	
READY-ONLY ACCESS	Yes	Yes	
OS FLUSH AGENT SUPPORT	Yes	Windows Server 2003	

### Host Interface

- 4 Gb Fibre Channel, SAS (wide link), or 1 Gb iSCSI

### Expansion Interface

- SAS 4x wide link expansion for up to 80 drives (varies by model)

### RAID Controller

- ASIC 400 RAID Engine
- 800 MHz 64-bit RISC-based Processor with 1MB L2 cache
- Up to 2GB DDR controller cache memory (512 MB default)
- Dedicated XOR engine
- Active-Active or Active-Passive Failover/Failback (See Model Specs)
- Firmware in Flash ROM for easy upgrade
- System voltage and temperature self-monitoring
- Largest RAID set addressable by GUI: 64 TB
- Concurrent I/O commands
- Tagged Command queuing up to 1024
- Auto-negotiate FC-AL, point-to-point, or switched fabric (FC only)

### RAID Operation

- RAID Levels 0, 1 (0+1), 3, 5, 6, 10, 30, 50, 60, NRAID, and JBOD
- Multiple RAID Sets
- Configurable dedicated, global and enclosure-specific hot spares
- Drive hot swapping
- Drive roaming
- Automatic background rebuild
- Online RAID expansion
- Intelligent drive handling
- Variable stripe size per controller (optimization for random or sequential I/Os)

### Max # of Logical Drives

- 16 if configured with less than 1GB Cache ; 32 if configured with 1GB or more

### Max # of Partitions per LD

- 16 if configured with less than 1GB Cache ; 64 if configured with 1GB or more

### Max # of Luns

- 128 if configured with less than 1GB Cache ; 1024 if configured with 1GB or more

### RAID Levels

- RAID levels 0, 1 (0+1), 3, 5, 6, 10, 30, 50, 60, NRAID and JBOD

### Drive Capacity

- SATA: 250, 500, 750 GB, & 1 TB (7200 RPM)
- SAS: 500, 750 GB, & 1 TB (7200 RPM)
- SAS: 146, 300, & 450 GB (15K RPM)

### Drive Interface

- SAS 3 Gb/s & SATA 3 Gb/s

### Visual/Audible Status Indicators

- Power and drive failure indication on drive trays
- Built-in audible alarm & mute
- Front Panel LCD and LED indicators. LED status indicators on rear for controller, cache, battery, network link, power supplies, & fans.

### Management

- SANWatch Java-based GUI Manager software via in-band or network with Snapshot option.
- EonPath multi-pathing software
- Front panel LCD
- Firmware-embedded manager via RS-232C.
- NPC (Notification Processing Center) module for event notification over Email, fax, cell phone (SMS), LAN broadcast, SNMP traps, & Instant Message (MSN).
- Presence detect & thermal sensors via I<sup>2</sup>C bus.

### OS Support

- Microsoft Windows Server 2003/2008
- MacOS X ver. 10.4
- Sun Solaris ver. 9/10
- Red Hat Linux ver. 8/9, 64 bit; Red Hat Linux Enterprise ver. 4, 32/64 bit
- SuSe Linux Enterprise ver. 10, 32/64 bit; SuSe Linux ver. 9.1, 64 bit
- Fedora 64 bit

### HeritageRAID-2S RAID FIBRE CHANNEL HOST MODEL SPECIFICATIONS

Part Number	H2S12100F24	H2S12200F24	H2S16100F24	H2S16200F4
DESCRIPTION	12 Bay FC-SAS/SATA Single Controller	12 Bay FC-SAS/SATA Dual Controller	16 Bay FC-SAS/SATA Single Controller	16 Bay FC-SAS/SATA Dual Controller
FORM FACTOR	2U Rack		3U Rack	
HOST INTERFACE	4 Gb FC			
DISK INTERFACE	Supports Intermix SAS & SATA 3.0			
RAID CONTROLLERS	1	2	1	2
CACHE MEMORY	512 MB per controller (up to 2 GB per controller)			
CACHE BATTERY (BBU)	Included with Dual (redundant) Controller models; Optional for Single Controller Models			
ACTIVE/ACTIVE FAILOVER	No	Yes	No	Yes
HOT-SWAP CONTROLLER	No	Yes	No	Yes
HOST CHANNELS	2	4	2	4
HOST PORTS	2 SFP ports	4 SFP ports	4 SFP ports	8 SFP ports
COM PORTS (RS232)	2 (1-Mgmt, 1-UPS)			
10/100 RJ-45 (MGMT)	1	2	1	2
EXPANSION PORTS	1 SAS 4x SFF-8088	2 SAS 4x SFF-8088	1 SAS 4x SFF-8470	2 SAS 4x SFF-8470
MAX SCALABILITY	Up to 4 12-Bay JBODs	Up to 3 12-Bay JBODs	Up to 4 16-Bay JBODs	Up to 3 16-Bay JBODs
MAX # OF DRIVES	60	48	80	64
CORRESPONDING JBOD	H2S12000S1	H2S12000S2	H2S16000S1	H2S16000S2
RAID ENGINE	ASIC 400			
CPU	800 MHz RISC 64 bit			
MAX NUMBER OF LOGICAL DRIVES	16 if configured with less than 1GB Cache; 32 if configured with 1GB or more			
MAXIMUM NUMBER OF PARTITIONS PER LD	16 if configured with less than 1GB Cache; 64 if configured with 1GB or more			
MAXIMUM NUMBER OF LUNS	128 if configured with less than 1GB Cache; 1024 if configured with 1GB or more			
MAX LD SIZE	64 TB			
SANWATCH (MGMT)	JAVA based			
RAIDWATCH (MGMT)	Embedded			
EONPATH SUPPORT	No	Yes	No	Yes
SNAPSHOT	Optional			
EVENT NOTIFICATION	Email / Fax / LAN Broadcast / SNMP traps / SMS / MSN			
RAID MANAGEMENT	JAVA-based SANWatch / Browser-based Embedded RAIDWatch / RS-232 / Telnet / LCD			
EXT. CONNECTIONS	2 – SFP Host 1 – SFF-8088 Exp. 1 – RJ-45 10/100 2 – RS-232	4 – SFP Host 2 – SFF-8088 Exp. 2 – RJ-45 10/100 2 – RS-232	4 – SFP Host 1 – SFF-8470 Exp. 1 – RJ-45 10/100 2 – RS-232	8 – SFP Host 2 – SFF-8470 Exp. 2 – RJ-45 10/100 2 – RS-232
POWER SUPPLIES	2 – 350W Redundant, Hot Swap with PFC	2 – 530W Redundant, Hot Swap with PFC	2 – 530W Redundant, Hot Swap with PFC	2 – 530W Redundant, Hot Swap with PFC
COOLING MODULES	3	2 (Embedded in P/S)	2 (Embedded in P/S)	2 (Embedded in P/S)
COOLING FANS	3 (1 in each module)	4 (2 in each module)	4 (2 in each module)	4 (2 in each module)
INPUT VOLTAGE	90VAC -260VAC			
INPUT FREQUENCY	47 - 63 Hz			
OPERATING TEMPERATURE	0° to 35°C (32° to 95° F)			
NON-OPERATING TEMPERATURE	-40° to 60°C (-40° to 140° F)			
RELATIVE HUMIDITY	5-95%, non-condensing			
OPERATING ALTITUDE	Sea level to 12,000 ft			
POWER CONSUMPTION	350W	530W	530W	530W
MAX HEAT DISSIPATION	1197 BTU/hour	1615 BTU/hour	1807 BTU/hour	1807 BTU/hour
HEIGHT (mm/in.)	88 / 3.46	88 / 3.46	131 / 5.16	131 / 5.16
WIDTH (mm/in.)	482 / 18.98	482 / 18.98	482 / 18.98	482 / 18.98
DEPTH (mm/in.)	505 / 19.88	516 / 20.31	504.3 / 19.85	504.3 / 19.85
SHIPPING DIMENSIONS	390H x 570W x 780D mm 15.35 x 22.44 x 30.71 in	390H x 575W x 780D mm 15.35 x 22.64 x 30.71 in	423H x 567W x 772D mm 16.7 x 22.32 x 30.4 in	423H x 567W x 772D mm 16.7 x 22.32 x 30.4 in
SHIPPING WEIGHT	34 kg / 75 lbs	34.9 kg / 77 lbs	47.1 kg / 104 lbs	48 kg / 106 lbs
CERTIFICATIONS	IEC, MIL-STD, ISTA, ISO, RoHS, CE, FCC, BSMI, UL, MS WHQL WS2003			

### HeritageRAID-2S RAID iSCSI HOST MODEL SPECIFICATIONS

Part Number	H2S1210012	H2S1220012	H2S1610012	H2S1620012
DESCRIPTION	12 Bay iSCSI-SAS/SATA Single Controller	12 Bay iSCSI-SAS/SATA Dual Controller	16 Bay iSCSI-SAS/SATA Single Controller	16 Bay iSCSI-SAS/SATA Dual Controller
FORM FACTOR	2U Rack	2U Rack	3U Rack	3U Rack
HOST INTERFACE	GbE iSCSI	GbE iSCSI	GbE iSCSI	GbE iSCSI
DISK INTERFACE	Supports Intermmix SAS & SATA 3.0			
RAID CONTROLLERS	1	2	1	2
CACHE MEMORY	512 MB per controller (Up to 2 GB per controller)			
CACHE BATTERY (BBU)	Included with Dual (redundant) Controller models; Optional for Single Controller Models			
ACTIVE/ACTIVE FAILOVER	No	Yes	No	No
HOT-SWAP CONTROLLER	No	Yes	No	Yes
HOST PORTS	2 RJ-45 ports	8 RJ-45 ports (4 per controller)	4 RJ-45 ports	8 RJ-45 ports (4 per controller)
COM PORTS (RS232)	2 (1-Mgmt, 1-UPS)			
10/100 RJ-45 (MGMT)	1	2 (1 per controller)	1	2 (1 per controller)
EXPANSION PORTS	1 SAS 4x SFF-8088	2 SAS 4x SFF-8088 (1 per controller)	1 SAS 4x SFF-8088	2 SAS 4x SFF-8088 (1 per controller)
MAX SCALABILITY	Up to 4 12-Bay JBODs	Up to 3 12-Bay JBODs	Up to 4 16-Bay JBODs	Up to 3 16-Bay JBODs
MAX # OF DRIVES	60	48	80	64
CORRESPONDING JBOD	H2S12000S1	H2S12000S2	H2S16000S1	H2S16000S2
RAID ENGINE	ASIC 400			
CPU	800 MHz RISC 64 bit			
MAX NUMBER OF LOGICAL DRIVES	16 if configured with less than 1GB Cache; 32 if configured with 1GB or more			
MAXIMUM NUMBER OF PARTITIONS PER LD	16 if configured with less than 1GB Cache; 64 if configured with 1GB or more			
MAXIMUM NUMBER OF LUNs	128 if configured with less than 1GB Cache; 1024 if configured with 1GB or more			
MAX LD SIZE	64 TB			
SANWATCH (MGMT)	JAVA based			
RAIDWATCH (MGMT)	Embedded			
EONPATH SUPPORT	No	Yes	No	Yes
SNAPSHOT	Optional			
EVENT NOTIFICATION	Email / Fax / LAN Broadcast / SNMP traps / SMS / MSN			
RAID MANAGEMENT	JAVA-based SANWatch / Browser-based Embedded RAIDWatch / RS-232 / Telnet / LCD			
EXT. CONNECTIONS	2 – RJ-45 GbE Host 1 – SFF-8088 Exp. 1 – RJ-45 10/100 2 – RS-232	8 – RJ-45 GbE Host 1 – SFF-8088 Exp. 2 – RJ-45 10/100 2 – RS-232	4 – RJ-45 GbE Host 1 – SFF-8088 Exp. 1 – RJ-45 10/100 2 – RS-232	8 – RJ-45 GbE Host 1 – SFF-8088 Exp. 2 – RJ-45 10/100 2 – RS-232
POWER SUPPLIES	2 – 350W Redundant, Hot Swap with PFC	2 – 530W Redundant, Hot Swap with PFC	2 – 530W Redundant, Hot Swap with PFC	2 – 530W Redundant, Hot Swap with PFC
COOLING MODULES	2 (Embedded in P/S)			
COOLING FANS	4 (2 in each module)	2 (1 in each module)	4 (2 in each module)	4 (2 in each module)
INPUT VOLTAGE	90VAC – 260VAC			
INPUT FREQUENCY	47 – 63 Hz			
OPERATING TEMPERATURE	0° – 35°C (32° – 95° F)			
NON-OPERATING TEMPERATURE	-40° – 60°C (-40° – 140° F)			
RELATIVE HUMIDITY	5-95%, non-condensing			
OPERATING ALTITUDE	Sea level to 12,000 ft			
POWER CONSUMPTION	350W	530W	530W	530W
MAX HEAT DISSIPATION	1197 BTU/hour	1615 BTU/hour	1807 BTU/hour	1807 BTU/hour
HEIGHT (mm/in.)	88 / 3.46	88 / .46	131 / 5.16	131 / 5.16
WIDTH (mm/in.)	482 / 18.98	482 / 18.98	482.6 / 19	482.6 / 19
DEPTH (mm/in.)	498 / 19.61	516 / 20.31	504.3 / 19.85	504.3 / 19.85
SHIPPING DIMENSIONS	390H x 570W x 780D mm 15.35 x 22.44 x 30.71 in	390H x 575W x 780D mm 15.35 x 22.64 x 30.71 in	423H x 567W x 772D mm 16.7 x 22.32 x 30.4 in	423H x 567W x 772D mm 16.7 x 22.32 x 30.4 in
SHIPPING WEIGHT	34 kg / 75 lbs	34.9 kg / 77 lbs	47.1 kg / 104 lbs	48 kg / 106 lbs
CERTIFICATIONS	IEC, MIL-STD, ISTA, ISO, RoHS, CE, FCC, BSMI, UL, MS WHQL WS2003			

### HeritageRAID-2S RAID SAS HOST MODEL SPECIFICATIONS

Part Number	H2S12100S	H2S12200S	H2S16100S	H2S16200S
DESCRIPTION	12 Bay SAS-SAS/SATA Single Controller	12 Bay SAS-SAS/SATA Dual Controller	16 Bay SAS-SAS/SATA Single Controller	16 Bay SAS-SAS/SATA Dual Controller
FORM FACTOR	2U Rack		3U Rack	
HOST INTERFACE	SAS (wide link)			
DISK INTERFACE	Supports Intermix SAS & SATA 3.0			
RAID CONTROLLERS	1	2	1	2
CACHE MEMORY	512 MB per controller (up to 2 GB per controller)			
CACHE BATTERY (BBU)	Included with Dual (redundant) Controller models; Optional for Single Controller Models			
ACTIVE/ACTIVE FAILOVER	No	Yes	No	Yes
HOT-SWAP CONTROLLER	No	Yes	No	Yes
HOST CHANNELS	2	4	2	4
HOST PORTS	2 SFF-8088 ports	4 SFF-8088 ports	2 SFF-8470 ports	4 SFF-8470 ports
COM PORTS (RS232)	2 (1-Mgmt, 1-UPS)			
10/100 RJ-45 (MGMT)	1	2 (1 per controller)	1	2 (1 per controller)
EXPANSION PORTS	1 SAS 4x SFF-8088	2 SAS 4x SFF-8088	1 SAS 4x SFF-8470	2 SAS 4x SFF-8470
MAX SCALABILITY	Up to 4 12-Bay JBODs	Up to 3 12-Bay JBODs	Up to 4 16-Bay JBODs	Up to 3 16-Bay JBODs
MAX # OF DRIVES	60	48	80	64
CORRESPONDING JBOD	H2S12000S1	H2S12000S2	H2S16000S1	H2S16000S2
RAID ENGINE	ASIC 400			
CPU	800 MHz RISC 64 bit			
MAX NUMBER OF LOGICAL DRIVES	16 if configured with less than 1GB Cache; 32 if configured with 1GB or more			
MAXIMUM NUMBER OF PARTITIONS PER LD	16 if configured with less than 1GB Cache; 64 if configured with 1GB or more			
MAXIMUM NUMBER OF LUNS	128 if configured with less than 1GB Cache; 1024 if configured with 1GB or more			
MAX LD SIZE	64 TB			
SANWATCH (MGMT)	JAVA based			
RAIDWATCH (MGMT)	Embedded			
EONPATH SUPPORT	No	Yes	No	Yes
SNAPSHOT	Optional			
EVENT NOTIFICATION	Email / Fax / LAN Broadcast / SNMP traps / SMS / MSN			
RAID MANAGEMENT	JAVA-based SANWatch / Browser-based Embedded RAIDWatch / RS-232 / Telnet / LCD			
EXT. CONNECTIONS	2 – SFF-8088 Host 1 – SFF-8088 Exp. 1 – RJ-45 10/100 2 – RS-232	4 – SFF-8088 Host 2 – SFF-8088 Exp. 2 – RJ-45 10/100 2 – RS-232	2 – SFF-8470 Host 1 – SFF-8470 Exp. 1 – RJ-45 10/100 2 – RS-232	4 – SFF-8470 Host 2 – SFF-8470 Exp. 2 – RJ-45 10/100 2 – RS-232
POWER SUPPLIES	2 – 350W Redundant, Hot Swap with PFC	2 – 530W Redundant, Hot Swap with PFC	2 – 530W Redundant, Hot Swap with PFC	2 – 530W Redundant, Hot Swap with PFC
COOLING MODULES	3	2 (Embedded in P/S)	2 (Embedded in P/S)	2 (Embedded in P/S)
COOLING FANS	3 (1 in each module)	4 (2 in each module)	4 (2 in each module)	4 (2 in each module)
INPUT VOLTAGE	90VAC – 260VAC			
INPUT FREQUENCY	47 – 63 Hz			
OPERATING TEMPERATURE	0° – 35°C (32° – 95° F)			
NON-OPERATING TEMPERATURE	-40° – 60°C (-40° – 140° F)			
RELATIVE HUMIDITY	5-95%, non-condensing			
OPERATING ALTITUDE	Sea level to 12,000 ft			
POWER CONSUMPTION	350W	530W	530W	530W
MAX HEAT DISSIPATION	1197 BTU/hour	1615 BTU/hour	1807 BTU/hour	1807 BTU/hour
HEIGHT (mm/in.)	88 / 3.46	88 / 3.46	131 / 5.16	131 / 5.16
WIDTH (mm/in.)	482 / 18.98	482 / 18.98	482 / 18.98	482 / 18.98
DEPTH (mm/in.)	505 / 19.88	516 / 20.31	504.3 / 19.85	504.3 / 19.85
SHIPPING DIMENSIONS	390H x 570W x 780D mm 15.35 x 22.44 x 30.71 in	390H x 575W x 780D mm 15.35 x 22.64 x 30.71 in	423H x 567W x 772D mm 16.7 x 22.32 x 30.4 in	423H x 567W x 772D mm 16.7 x 22.32 x 30.4 in
SHIPPING WEIGHT	34.9 kg / 77 lbs	34 kg / 75 lbs	48 kg / 106 lbs	47.1 kg / 104 lbs
CERTIFICATIONS	IEC, RoHS, CE, FCC, BSMI, UL, MS WHQL WS2003			

### HeritageRAID-2S RAID JBOD MODEL SPECIFICATIONS

Part Number	H2S12000S1	H2S12000S2	H2S16000S1	H2S16000S2
DESCRIPTION	12 Bay Single I/O Module	12 Bay Dual I/O Module	16 Bay Single I/O Module	16 Bay Dual I/O Module
FORM FACTOR	2U Rack	2U Rack	3U Rack	3U Rack
HOST INTERFACE	SAS (wide link)			
I/O PORTS	2 (1 IN & 1 OUT port per controller)	4 (2 IN & 2 OUT port per controller)	2 (1 IN & 1 OUT port per controller)	4 (2 IN & 2 OUT port per controller)
I/O MODULES	1	2	1	2
MAX # OF DRIVES	12	12	16	16
DISK INTERFACE	Supports Intermix SAS & SATA 3.0			
EXT. CONNECTIONS	2 – 4x SAS SFF-8470	4 – 4x SAS SFF-8088	2 – 4x SAS SFF-8470	4 – 4x SAS SFF-8470
POWER SUPPLIES	2 – 460W Redundant, Hot Swap	2 – 530W Redundant, Hot Swap	2 – 530W Redundant, Hot Swap	2 – 530W Redundant, Hot Swap
COOLING MODULES	2			
COOLING FANS	2	4 (2 in each module)	4 (2 in each module)	4 (2 in each module)
INPUT VOLTAGE	90 – 260V AC			
INPUT FREQUENCY	63/47 Hz			
OPERATING TEMP	0 to 35°C			
NON-OPERATING TEMP	-40° – 60°C (-40° – 140°F)			
RELATIVE HUMIDITY	5–90% non-condensing			
OPERATING ALTITUDE	Sea level to 12,000 ft			
POWER CONSUMPTION	460W	530W	530W	530W
MAX HEAT DISSIPATION	1391 BTU/hour	1615 BTU/hour	1807 BTU/hour	1807 BTU/hour
HEIGHT (mm/in.)	88/3.5 (2U)	88/3.5 (2U)	131/5.16 (3U)	131/5.16 (3U)
WIDTH (mm/in.)	482/19	482/19	482.6 / 19	482.6 / 19
DEPTH (mm/in.)	522/20.55	522/20.55	504.3/19.85	504.3/19.85
SHIPPING DIMENSIONS	390H x 570W x 780D mm 15.35 x 22.44 x 30.71 in	390H x 575W x 780D mm 15.35 x 22.64 x 30.71 in	423H x 567W x 772D mm 16.7 x 22.32 x 30.4 in	423H x 567W x 772D mm 16.7 x 22.32 x 30.4 in
SHIPPING WEIGHT	34 kg / 75 lbs	34.9 kg / 77 lbs	487.1 kg / 104 lbs	48 kg / 106 lbs
CERTIFICATIONS	IEC, RoHS, CE FCC, BSMI, UL, MS WHQL WS2003			

### Warranty & Support

#### HeritageRAID-2S ships with:

- 3 year warranty with first year advanced replacement for defective field replaceable components
- 3 Year, 9 x 5 toll-free technical support

#### Warranty uplifts are available for:

- 3 year advanced replacement warranty for defective field replaceable components
- 8 x 5 x NBD on-site with 24 x 7 tech support

**Note:** Product specifications subject to change without notice.  
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