AssuredSAN®

4004 - 8 Port FC, iSCSi, SAS Arrays

BENEFITS

RealStor™ 2.0

RealStor™ Software Features

- SSD read-cache
- Autonomic real-time SSD tiering
- Thin provisioning
- Data protection with virtual snapshots
- Rapid RAID rebuild

Scalable Performance

- 6400 MB/s throughput and 120,000 IOPS from disk
- SimulCache™ - Low latency cache mirroring
- Data rates up to 16Gb/sec. FC, 10Gb/sec. iSCSI or 12Gb/sec. SAS
- Up to 7 expansion units per system
- Support for SAS, Nearline SAS, SSDs
- Max 248 drives - 4524, 4824, 96 - 4534, 4834

Built in Redundancy

- Dual RAID controller
- Redundant, hot swap components
- RAID 0, 1, 3, 5, 6, 10, 50

Certifications

- Microsoft, VMware certified
- Veeam certifications planned

Green Features

- Energy Star certified
- EcoStor™ battery-free cache backup
- RoHS-6 and WEEE compliant

Rugged Chassis

- NEBS Level 3 Compliant
- MIL STD 810G Compliant (Storage Requirements)
- European Telco Compliant

NEXT GENERATION HYBRID STORAGE

RealStor™ Enabled for Performance and Flexibility

Dot Hill's AssuredSAN® Solutions offer a smart, simple approach to storage management. The AssuredSAN Solutions combine high performance and high capacity storage hardware with the next generation RealStor™ software to create the optimum balance of affordability, capacity and performance.

RealStor offers a range of performance options including optimizing data streaming, I/O enhanced with read-cache and autonomic real-time SSD Tiering. The AssuredSAN 4004 arrays with RealStor delivers a truly responsive and affordable storage infrastructure to support multiple users, applications and servers.

In common with all AssuredSAN storage arrays, the 4004 models boast 99.999% availability due to stringent design standards, testing and diagnostics.

M&E Workflows

The AssuredSAN 4004 models set a new storage standard for postproduction workflows. Offering 6400 megabytes per second sequential reads and 5300 megabytes per second sequential writes, this series is ideal for video editing, finishing, rendering, streaming and broadcast.

The 4004 models are shared storage systems that work with shared file systems like StorNext and Xsan to easily support multiple simultaneous streams of 2K, 4K, HD and 3D content, without dropping frames.

High Performance Computing & Telecommunications

Similarly, the 4004 models have high performance and low latency characteristics to meet data capture requirements for modern telecommunications digital networks and broadcast applications.

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AssuredSAN® 4004

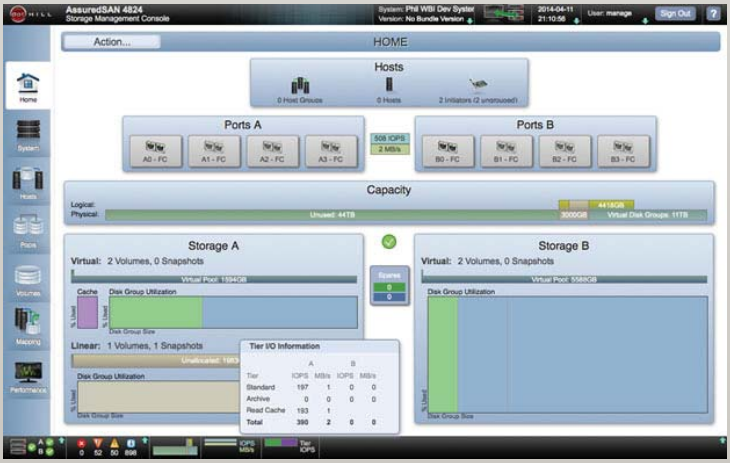
High Performance Computing (continued...)

High performance computing (HPC) applications, cloud storage and virtual server environments require powerful storage with the ability to deliver quick response to random workloads. The AssuredSAN 4004 system delivers industry-leading sequential throughput, as well as an impressive 100,000 IOPS sustained from disk for real time access to business critical data, such as databases and business analytics.

RealStor™ Storage Software

Take storage solutions to the next level with RealStor virtulization software. With RealStor, you can access the industry's first and only autonomic real-time tiering, expanded read-cache, superior data protection, thin provisioning, and rapid RAID rebuild.

Using 10 percent SSDs with 90 percent HDDs along with RealTier™ creates a tiered storage solution that boosts overall IO by 2.5 times.



Management Interfaces

AssuredSAN arrays are easy to configure and manage with either management interface:

• The Storage Management Console (above) can manage all array functions including these advanced RealStor features: SSD tiering, read-cache, rapid RAID rebuild, thin provisioning and virtualized snapshots.

• RAIDar 2.0 is Dot Hill's legacy web based interface that provides storage setup and monitoring without the need for host-based software. RAIDar 2.0 saves time with configuration and installation wizards, schedulers and administration of DMS data protection software.

Self Encrypting Drives

Dot Hill offers self encrypting drive (SED) capability that protects your data when removed from its original array. Available in 1.2TB small form factor (2.5") or 4 TB large form factor (3.5"), these SED drives provide instant data destruction via cryptographic erase. In normal use, you do not need to maintain authentication keys (otherwise known as credentials or passwords) to access the drive's data. The SED will encrypt data being written to the drive and decrypt data being read from it, all without requiring an authentication key from the owner.

When it's time to retire or repurpose the drive, the owner sends a command to the drive to perform a cryptographic erase. Cryptographic erase simply replaces the encryption key inside the encrypted drive, making it impossible to ever decrypt the data encrypted with the deleted key.

AssuredSAN Architecture

Rugged Storage Solutions

The 4004 models ensure that there is no "single point of failure." Automatic failover mechanisms facilitate the highest levels of data protection, service and disaster recovery. Support for industry high-availability software guarantees seamless integration within the rest of the enterprise. The 4004 2U12, 2U24 and Ultra56™ models are suitable for mobile applications with NEBS Level 3 and MIL-STD 810G compliance. Some models meet NEBS air filtration standards.

Environmentally Responsible

Utilizing Dot Hill's patented EcoStor™ technology, these systems have completely eliminated cache batteries, using instead supercapacitors and flash memory to provide infinite cache backup during a power loss, all while being environmentally-friendly.

The AssuredSAN 4000 Series also features energy-saving drive spin-down. With drive spin-down, mixed drive type support and dual protocol interfaces, users can create different performance and energy usage profiles within the same physical unit.

Enhanced Performance

The storage systems leverage patented SimulCache™ technology that instantly and simultaneously mirrors cache between RAID controllers, leading to significant performance improvements over traditional implementations.

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AssuredSAN® 4004

support

Warranty

AssuredSANs come with a three year standard hardware warranty, a 90 day software warranty and Bronze level support, which provides expert 24x7 technical telephone support, access to online support and the Customer Resource Center, which contains articles, product documentation and firmware upgrades.

Gold and Platinum Support Programs

Gold and Platinum levels of support offer maximum responsiveness anywhere in the world. These programs include options for same day advance shipment, parts depot access, next business day and 4-hour onsite service. Extended hardware warranties and extended software support packages are also available.

ordering information

Channel models described in this datasheet ship with the array, disk drives, a rail kit, cables, Installation Guide and Bronze support. They come with AC Power. A DC power option is available in the driveless chassis.

Dot Hill SFP's are required for iSCSI and Fibre Channel and available in 4-packs. Two (2) 4-packs are needed for each RAID unit. Choose from 1G iSCSI, 10G iSCSI, 8G Fibre Channel, or 16G Fibre Channel.

For assistance, call **(800) 872-2783**, extension **3575**.

OEM Models

OEM models are available for volume OEM customers. For specific information on models, availability and power supplies, contact our OEM sales team.

models

Models - 4824 Fibre Channel or iSCSI, 4524 SAS

With twenty four 2.5" Drives

Drives per chassis:	up to 24
Max capacity per chassis:	48TB

PHYSICAL

Depth (excluding cables):	20.46 inches / 51.9 cm
Height:	3.5 inches / 8.9 cm
Width:	17.6 inches / 44.7 cm
Width w/ ear mounts:	18.99 inches / 48.24 cm
Chassis weight:	36.4 lb / 16.5 kg
Chassis weight with drives:	51.8 lb / 23.5 kg

Models - 4834 Fibre Channel or iSCSI, 4534 SAS

With twelve 3.5" Drives

Drives per chassis:	up to 12
Max capacity per chassis:	96TB

PHYSICAL

Depth (excluding cables):	20.57 inches / 52.25 cm
Height:	3.43 inches / 8.71 cm
Width:	17.6 inches / 44.7 cm
Width w/ear mounts:	18.99 inches / 48.24 cm
Chassis weight:	43 lb / 19.5 kg
Chassis weight with drives:	62 lb / 28 kg

For more information visit: www.dothill.com

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AssuredSAN® 4004

Features

HOSTS

External Ports	4 per controller/8 maximum
Fibre Channel	
Host speed	16Gb, 8Gb Fibre Channel
Interface Type	SFP+
iSCSI Models	
Initiators	10Gb NIC or 1Gb, 10Gb iSCSI
Interface Type	SFP+
SAS	
Initiators	12Gb, 6Gb SAS 3.0 (Serial-attached SCSI)
Interface Type	Mini-SAS HD (8643/8644)

DRIVE SUPPORT

4524, 4824	SAS, Nearline SAS, SSD
4534, 4834	Nearline SAS

* For most current drive support information visit http://www.dothill.com/storage-arrays/drive-options/

EXPANSION JBODS

J6G12 (2U12)
J6G24 (2U24)
J6G48 (2U48)
J6G56 (2U56)
MAXIMUM OF 7 JBODS OR 248 DRIVES

HIGH-AVAILABILITY FEATURES

Redundant Hot-Swap Controllers
Redundant Hot-Swap Disk, Fans, Power
Dual Power Cords
Hot Standby Spare
Automatic Failover
Multi-Path Support

PROTOCOLS AND STANDARDS

IP (RFC, 894, 1092)	SCSI-2 and SCSI-3

SUPPORT

Software Warranty	90 days
Standard Hardware Warranty	3 years

RAID

Levels Supported	0, 1, 3, 5, 6, 10 and 50

SYSTEM CONFIGURATION

Cache Memory	6GB per controller
Virtual disks per System	32
Volumes per System	1024
Mirrored Cache	Yes - SimulCache™
Supercapacitor Cache Backup	Yes
Cache Backup to Flash	Yes - Non-volatile

MANAGEMENT

Interface Types	10/100/1000 Ethernet, Mini USB
Protocols Supported	SNMP, SSL, SSH, SMTP, SMI-S Provider, HTTP(S)
Management Consoles	WEB GUI, CLI
Management Software	RealStor Storage Managment Console

Remote Diagnostics
Non-disruptive Updates
Volume Expansion

COMPLIANCE AND STANDARDS

NEBS Level 3, MIL SPEC 810G
IP (RFC, 894, 1092) SCSI-2 AND SCSI-3

Note: Subject to change at any time.

Detailed Specifications

POWER REQUIREMENTS - AC INPUT

Input Power Requirements	100-240VAC 50/60Hz
Max Input Power	375W maximum continuous - 4534, 4834
Max Input Power	400W maximum continuous - 4524, 4824
Heat Dissipation	1488 BTUs/hour
	Bronze Rated - high efficiency
	82 percent @ 20 percent load
	86 percent @ 80 percent load
	85 percent @ 100 percent load

POWER REQUIREMENTS - DC INPUT

Voltage	-39 to -72VDC, -48/-60V nominal
Max Input Power	500W maximum continuous
Heat Dissipation	1706 BTU/hour

TEMPERATURE AND HUMIDITY RANGES

Operating Temperature	41°F to 104°F (5°C to 40°C)
Shipping Temperature	-40°F to 158°F (-40°C to 70°C) Note: Derate 2°C for every km, up to 3000 meters
Operating Humidity	10% to 90% RH @ 104°F (40°C), non-condensing
Non-Operating Humidity	Up to 93% RH @ 104°F (40°C), non-condensing

DECLARED ACOUSTIC NOISE LEVELS

Sound Power	LWAd=6.75 B
Sound Pressure	LpAm - 55dB$_A$

SHOCK AND VIBRATION

Shock, Operational	3G's for 10 ms, half sine
Shock, Non-Operational	10G 11ms, half sine
Vibration, Operational	5Hz to 500Hz, 0.21Grms flat spectrum
Vibration, Non-Operational	3-365-3Hz, 1.22 Grms, z-axis, 0.85 Grms, X&Y axis shaped spectrum

Note: Dot Hill AssuredSAN disk arrays chassis, power supplies and controllers support NEBS, ETSI, and MIL-STD-810G shock and vibration standards. Hard disk drive selection may alter ability to achieve full compliance with these specifications as HDDs have varying S&V performance characteristics.

REGULATORY

Safety	UL 60950-1, 1st edition (United States) CAN/CSA-C22.2 No.60950-1 (Canada) EN 60950-1 (European Union) IEC 60950-1 (International) EN 60950-1 (GS Mark,Germany) CCC Mark China PRC)
Electromagnetic Compatibility	
Emissions	CFR 47 Part 15 Subpart B Class A (United States) ICES-003 Class A (Canada) EN 55022 Class A (EU) EN 300 386 Class A (EU Telco) AS/NZS CISPR 22 Class A (Australia, New Zealand) VCCI Class A (Japan) GOST R 51318.22 Class A (Russia) KN 22 Class A (S. Korea) CNS 13438 Class A (Taiwan)
Harmonics	EN61000-3-2 (EU)
Flicker	EN 61000-3-3 (EU)
Immunity	EN 55024 (EU) EN 300 386 (EUTelco) GOST R 51318.24 (Russia) KN 24 (S. Korea)
RoHS and WEEE	RoHS-6/6 Compliance, China RoHS, WEEE
Country Approvals	United States, Canada, European Union (EU), Australia/New Zealand, Japan, China (PRC), Russia, Mexico, Germany, South Korea, Taiwan, India