



AssuredSAN™

4004 - 8 Port Fibre Channel, iSCSI, SAS
Storage Systems

BENEFITS

Scalable Performance

6400 MB/s throughput and 100,000 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 192 drives - 4524, 4824, 96 - 4534, 4834

Built in Redundancy

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

Assured Data Protection

AssuredSnap™ - 1000 snapshots
AssuredCopy™ - 1024 volume copies
AssuredRemote™ - remote replication

Certifications Planned

Citrix, Data Core, Microsoft, StorNext, Veeam, VMware

Green Features

EcoStor™ battery-free cache backup
Drive spin-down
RoHS-6 and WEEE compliant

Rugged Chassis

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

WICKED FAST STORAGE

ADVANCED HOST CONNECTION SPEEDS

Dot Hill's AssuredSAN™ Solutions offer a smart, simple approach to storage management. The AssuredSAN™ Solutions combine high performance and high capacity storage with the ease of the RAIDar management GUI which provides a complete set of features and tools to ensure easy storage administration.

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

The AssuredSAN 4004 was designed for value and flexibility. In addition to a SAS interface option, you can mix FC/iSCSI in a single system allowing use of FC for your data needs while simultaneously using iSCSI for remote replication. You can also choose multiple connection speeds, that provide the best value for today, while allowing easy and inexpensive upgrades in the future.

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 and streaming, as well as 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.

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

High Performance Computing

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



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.

Rugged Storage Solutions

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

Assured Data Protection

AssuredRemote™ - Easy Remote Replication for SMB's

Dot Hill's AssuredSAN™ solutions offer an innovative and comprehensive view of storage management — store, back up and restore instantly. Equipped with AssuredRemote™ remote replication software, these systems provide the easiest array-to-array remote replication solution on the market today, enabling disaster recovery protection and business continuity with support for up to 1000 snapshots per storage array.

By providing centralized, array-level replication, AssuredRemote offloads backup operations from critical application servers, and aids IT managers in complying with regulations such as the HIPAA and Sarbanes-Oxley acts.

With AssuredRemote replication software and VMware's Site Recovery Manager, you can implement a complete site failover solution.

AssuredCopy™ and AssuredSnap™

The AssuredSAN data protection and disaster recovery solution has optional licensing of AssuredSnap™ and AssuredCopy™ data protection software. With up to 1000 snapshots capability, AssuredSANs offer necessary protection for business critical applications such as email, databases, and file sharing.

AssuredSnap instantly takes volume snapshots, creating point-in-time backups that can be used to instantly restore your data after a system failure. In addition, AssuredCopy protects against disk failures.

Self Encrypting Drives (Q1 availability)

Need additional data security on your drives? Dot Hill offers full drive encryption (FDE) capability that protects your data when removed from their original array. Available in 1.2TB small form factor (2.5”) or 4 TB large form factor (3.5”), these FDE 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) in order to access the drive's data. The FDE 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

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, while being environmentally friendly.

The AssuredSAN 4000 Series also features energy-saving drive spin-down. With the addition of drive spin-down, mixed drive type support and dual protocol interfaces, users can now combine both high performance primary volumes and secondary storage with different performance and energy usage profiles in 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.

Storage Made Easy

AssuredSAN arrays are easy to configure and manage with RAIDar 2.0, our intuitive web based interface which provides storage setup and monitoring without the need for host based software. RAIDar 2.0 saves time with configuration and installation wizards, and schedulers.

- Easy to set up
- Configuration, Installation Wizards simplify management
- EcoStor™ eliminates routine battery maintenance
- Modular field replaceable power supplies, fans, and controllers



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 containing 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.

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	28.8TB

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
w / drives	51.8 lb / 23.5 kg

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 - 4834 Fibre Channel or iSCSI, 4534 SAS

With twelve 3.5" Drives

Drives per chassis	up to 12
Max capacity per chassis	48TB

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	58.2 lb / 26.9 kg
w / drives	78.2 lb / 35.5 kg

For more information visit: www.dothill.com

Subject to change at any time.



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

4120 (1 RAID, 7 JBOD) 192 DRIVES
4130 (1 RAID, 7 JBOD), 96 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 4GB per controller
Virtual disks per System 32
Volumes per virtual disk 256
Volumes per System 1024
Mirrored Cache Yes - SimulCache™
Supercapacitor Cache Backup Yes
Cache Backup to Flash Yes - Non-volatile

MANAGEMENT

Interface Types 10/100 Ethernet, Mini USB
Protocols Supported SNMP, SSL, SSH, SMTP, SMI-S Provider,
HTTP(S)
Management Consoles WEB GUI, CLI
Management Software RAIDar 2.0
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

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% @ 20% load
86% @ 80% load
85% @ 100% 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 (USA)
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 (U.S.A.)
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

Flicker EN61000-3-2 (EU)
Immunity EN 61000-3-3 (EU)
EN 55024 (EU)
EN 300 386 (EU Telco)
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



© 2013 Copyright Dot Hill Systems Corporation. All rights reserved. Dot Hill Systems Corp., Dot Hill, the Dot Hill logo, and AssuredSAN are trademarks or registered trademarks of Dot Hill Systems. All other trademarks are the property of their respective companies in the United States and/or other countries. 11.5.13