



*GigaSecond has developed a technique, coupled with embedded software solutions, which reduces the cost of producing mass storage devices. Although our SAN devices are offered at very competitive price points, we do not sacrifice the enterprise features organizations expect.*

## FireSAN tSeries



The FireSAN tSeries is an Enterprise class iSCSI SAN at an Entry-Level price. We have combined some of the best hardware and software technologies available into a cost efficient device. This solution is equipped to meet your virtualization, storage, and file sharing needs. It can be used as a SAN or as a NAS. The web-based front end allows for easy administration of the entire storage device.

The FireSAN tSeries is an affordable solution for your virtualization & storage needs.

### SAN Highlights:

- Upgradeable to 114TB!
- iSCSI, FC, InfinBand Functionality
- Hardware RAID 0, 1, 5, 6, 10
- Access Control Lists
- Snapshot support
- Block-level Remote Replication
- High-Availability Clustering
- Virtualization ready for VMware, Citrix XEN, Microsoft Virtual Server, & Sun xVM

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simplifying **STORAGE**

## TECHNICAL SPECIFICATIONS

### Hardware

- 2U Rack Mount SAN Array
- 12 Hot-swappable 3.5" Drive Bays
- 24 TB Maximum SATA Storage - (12 x 2000GB 7.2k RPM Hard Drives)
- 7.2 TB Maximum SAS Storage - (12 x 600GB 15k RPM Hard Drives)
- Upgradeable to 114 TB storage capacity via Xpander

- Dual Redundant Power Supplies
- Hardware RAID Controller
- Maximum RAM Memory 64GB DDR2

### Connectivity

- 1Gb Ethernet
- 10Gb Ethernet
- Fiber Channel
- InfiniBand

### Dimensions

- Height: 3.6"
- Width: 17.5"
- Depth: 26.1"
- Weight: 54.09 lbs

### Warranty

- 3 Year FireSAN Array Hardware Warranty
- 5 Year Hard Disk Manufacturer's Warranty

## FireSAN OS ADMINISTRATION

### Powerful and Intuitive Web-based User Interface

The web-based Graphical User Interface (GUI) of the FireSAN makes remote management of the storage device a simple task. By using a web-browser, the DSS can be easily managed from anywhere within the network.

### Secured Administration Access

FireSAN OS is accessed and configured through a web-based, password-protected GUI over Secured Socket Layer (SSL) administration access.

### Console Tool

FireSAN OS can be managed by using the console tool. For security reasons some advanced and critical administrator tasks like "removing and restoring volumes" and "checking and repairing the file system", can only be managed from the console. Through the console tool, an administrator monitors the status of the network and memory usage, install drivers and hardware and perform other tasks.

### Remote Access of Console Tool

The FireSAN supports remote access of the console tool enabling management of the server from anywhere in the network.

### Tuning Tools

The performance of the FireSAN array can be increased by changing the settings of disk, network, file system or network using "Tuning Tools".

### Multiple Management Levels

The FireSAN supports three levels of administrative rights: Full Access, Maintenance and Administration.

### Update System (Local or Internet)

Update downtime is reduced with the new Update System feature making it possible to reboot from the old system.

## NETWORK MANAGEMENT

### Standard Network Gateway Support

The FireSAN can be used with structured networks in business environments and has an optional data access via Intranet or Internet.

### DHCP Client

Assigning IP addresses in a network can be centrally managed and automated through using Dynamic Host Configuration Protocol (DHCP).

### Multiple Network Interface Card (NIC) Support

The FireSAN supports usage of two or more network cards to access separate sub-networks or to increase the bandwidth and allows administrators to select services to be enabled on a specified NIC.

### Adapter Fault Tolerance (AFT)

AFT assures greater reliability by providing a secondary network adapter that automatically takes over, should the primary network adapter fails.

### Adaptive Load Balancing (ALB)

ALB enhances data throughput by automatically routing data through alternative paths as the application changes.

### 10 Gb Ethernet with TCP/IP Offload Engine (TOE)

To improve the data throughput and latency, the FireSAN supports 10 GbE to increase bandwidth, improve overall performance, and reduce message latency across connections. The FireSAN supports some 10GbE cards with TCP/IP.

### InfiniBand Support

FireSAN OS supports InfiniBand cards that increase bandwidth, improved overall performance, and reduced message latency across connections.

### Proxy Settings

The FireSAN allows the configuration of the Proxy Server for Internet connections.

### IP-Sec

The FireSAN supports the Secure Internet Protocol (IPsec). This protocol secures data transmitted across a network, preventing confidential and personal information being intercepted or modified.

## STORAGE MANAGEMENT

### Automatic Failover for iSCSI Volumes

FireSAN OS provides fault tolerance via iSCSI Volume Replication. Data is copied in real time to the primary server and every change is immediately mirrored to a secondary server and in the event of a failure of the primary server FireSAN OS automatically switches operations to the secondary server.

### Cross Data Synchronization

FireSAN OS synchronizes files and directories from one NAS server to another. Disaster recovery or Disk-to-Disk backup synchronization utilizes block-based data transfer that minimizes network traffic. FireSAN OS can synchronize data in both directions: the FireSAN can be the source and destination of files at the same time, allowing to cross-backup data on several servers.

### SCSI-3 Persistent Reservation

Support for persistent reservation commands. This enables support for Windows 2008 and Windows Cluster.

### Sys check

Enables you to check the performance of your system.

### Hardware and Software iSCSI Initiator

FireSAN OS supports hardware iSCSI Initiators and has a software iSCSI Initiator for easily expanding the storage capacity of the NAS server. New units and logical volumes can be added by connecting an iSCSI storage system to the NAS server.

### Hardware and Software RAID Support

The FireSAN supports Serial Attached SCSI (SAS) and Serial ATA controllers. The integrated software RAID 0, 1, 5, 6 provides more flexibility and cost savings while creating storage solutions. By mirroring two hardware RAID arrays, the probability of failure can be reduced. The FireSAN offers highest flexibility in redundancy, performance, costs and storage volume.

### Software RAID Degraded Mode

The FireSAN OS boasts a means for creating a RAID when a Hard Disk Drives (HDD) is missing or broken.

### E-mail Notification for RAID Issues

Email alerts are sent to the system administrator in case of issues with the RAID through the FireSAN OS.

### Self-Monitoring, Analysis and Reporting Technology (S.M.A.R.T.) Support

The FireSAN includes S.M.A.R.T support for detecting and reporting the status of the Hard Disk Drives (HDD) anticipated on failures.

### E-mail Notification for S.M.A.R.T.

Email alerts are sent to the system administrator in case of HDD problems through the FireSAN.

### Support for over 2TB Physical and Logical Volumes (LV)

The FireSAN supports logical volumes greater than 2TB and a physical size of up to 16TB in 32bit mode.

### Snapshot

Snapshot is an immediate point-in-time image of the logical volume. The snapshot image can be used for both consistent and temporary backup, while users still have uninterrupted and complete access to the LV. Files can be recovered from previous snapshots should a file be accidentally deleted or modified.

### Multiple Snapshots with Scheduling Function

The FireSAN supports "Multiple Snapshot with Scheduling" to create snapshots at predefined points in time (e.g. automatically every hour).

### Multiple Logical Volume & Groups

Logical volume groups allow storage administrators to create logical storage pools that span multiple physical disk drives. With its support of multiple logical volume groups, the FireSAN makes it easier to meet the changing needs of users and applications while making the maximum use of available physical disk space.

### Online Logical Volume Expansion

Online logical volume expansion allows administrators to change the size of storage volumes as needed without having to restart the application, recreate the volume, and backup and restore data to the volume.

### Support for Online Capacity Expansion

A hardware RAID controllers' expansion capability supports the increase of size of existing units without removing data.

## MONITORING

### Hardware Monitoring

FireSAN OS monitors hardware status such as temperature, voltage and fan speed provided by the motherboard's sensors.

### Simple Network Management Protocol (SNMP) (v2 & v3)

The FireSAN uses SNMP for monitoring data throughput, Central Processing Unit (CPU) and Random Access Memory (RAM) usage to name a few.

### Email Notification

In the event of a technical failure of the storage device, administrators are alerted by Email.

### Log Function

The FireSAN log file is an effective instrument in analyzing and solving technical issues.

### Network UPS Support

The FireSAN is capable of using the Simple Network Management Protocol (SNMP) interface for communication with other SNMP-enabled servers (e.g. FireSAN OS DSS) for a smooth server

shutdown in the event of a power failure. The server with the UPS sends a power failure signal through the network to other servers (in slave mode) and will shut down all servers in the network.

### Uninterruptible Power Supply (UPS) Support

A UPS eliminates the effects of a temporary power outage and provides a safe shutdown, without loss of data, in case of power failure. The UPS device can be connected by Communications Port (COM-port) or Universal Serial Bus (USB) to the server.

## SPECIFIC NETWORK ATTACHED STORAGE (NAS) FUNCTIONALITY

### Windows Active Directory / Primary Domain Controller Support

FireSAN OS supports Windows Active Directory (AD), Primary Domain Controller (PDC), Lightweight Directory Access Protocol (LDAP) and AD & NIS User-/Group ID synchronization to leverage information about users, groups, systems and other resources stored in the Active Directory. The support of Access Control List (ACL) ensures that access rights of users are automatically taken over from the Domain.

### Support for Network Information Service (NIS)

The FireSAN supports NIS for easier and consistent access of information stored on any other data storage server using NIS directory service protocol by enabling distribution of system configuration data such as user and host names between computers on a computer network.

### File System with Journaling

Journaling support makes the file system more reliable and allows easier, faster recovery from unexpected shutdowns.

## BACKUP FUNCTIONALITY

### Task Mechanism with Scheduling

Easy and convenient unified task mechanism with scheduling for data and volume replication, backup and snapshot. Tasks are scheduled as to when to activate and may have many schedules.

### Virtual Tapes

Configure tape drive emulation on share or Dynamic Volume (e.g.

## OTHER

### SWAP Support

SWAP is used to store memory areas on hard drives instead of Random Access Memory (RAM). The FireSAN OS dumps memory to SWAP in case of additional memory is need (e.g. repairing the file system after a degraded RAID).

### Superuser Function

A "Superuser" account has unrestricted access to all the files and volumes and is an especially helpful

### User and Group Quota Control

Administrators can control users with large disk requirements by assigning a dedicated share or by restricting their individual usage through individual user quotas or to assign a quota to a group to which the user belongs.

### Antivirus (server's shares scanning)

FireSAN OS has an integrated Antivirus software tool for scanning shares on viruses at predefined points in time. The Virus Definition Database can be updated and is stored on the NAS device.

### Antivirus (online scanning)

The FireSAN also supports online scanning of files transferred via the SMB and FTP protocol.

### USB Storage Support for Dynamic Disk

USB Units connected to FireSAN OS can be used as a Dynamic Units – which can be easily used for local backups.

### Backup-Agents (Veritas, EMC Dantz, CA BrightStor) Support

FireSAN OS backup agents help administrators to backup and protect

dynamically attached hard drive) backup for tape drives is the same as backup on virtual tapes.

### Worm

Worm provides Write Once Read Many functionality for data archiving.

### Tape Library Support

Automate backups with use of tape drive libraries.

feature when certain directories or files are no longer accessible.

### Local Backup on Dynamic Units

Through the FIRESAN OS, a local HDD or a USB drive can be defined as a Dynamic Unit and acts like a normal tape drive which can backup the NAS server and be removed without shutting down the server.

### Cross Data Synchronization

FireSAN OS synchronizes files and directories from one NAS server to

data on NAS servers with backup software from Veritas, Dantz, or CA BrightStor ARCserve thus improving data transfer, network security and real-time directory browsing, monitoring tasks and supporting cross-platform backup support.

### Supported Network Clients and Network File Protocol

FireSAN OS supports the file based protocols CIFS (Common Internet File System)/SMB, NFS (Network File System), FTP (File Transfer Protocol), FTPS and Apple Talk enabling Windows, Linux, Unix and Macintosh clients to share data on the same server.

### External Lightweight Directory Access Protocol (LDAP)

The FireSAN supports external LDAP enabling administrators to configure and manage multiple FireSAN systems from one single point (either a FireSAN OS software with a LDAP database or any other LDAP server)

### Internal Database

Maintain all backup files including backup history.

### Tape Retention Time

Set schedule for tapes to be rewritten for new backup.

another. Disaster recovery or Disk-to-Disk backup synchronization utilizes block-based data transfer that minimizes network traffic. The FireSAN can synchronize data in both directions: the FireSAN can be the source and destination of files at the same time, allowing to cross-backup data on several servers.

### Read-only LUN

This function allows the user to set the LUN as a read-only device (for iSCSI Target only).

\*Gigabyte (GB) = 1 billion bytes when referring to hard drive capacity. Your computer's operating system may use a different standard of measurement and report a lower capacity. In addition, some of the listed capacity is used for formatting and other functions, and thus will not be available for data storage.