RAM-SAN™

5-TB

The World's Fastest Storage®

RamSan-620

- **1-5 TB Flash Storage**
- **3 Gigabytes per Second**
- **250,000 IOPS**
- **2-8 FC Links (4Gb)**

Flash

RamSan-620

RamSan-620

Very Fast Solid State Disk (SSD)

The RamSan-620 storage system is the World's Fastest Flash Storage system. With a capacity of 5-TB, 3-GB/sec bandwidth, and 250,000 IOPS, the RamSan-620 sets the bar for Enterprise Flash storage. Reliability and system management is very important. The RamSan-620 incorporates 2 Error Correcting Circuits (ECC) and has the many standard management features inherent in all RamSan storage systems. As is the case with all previous RamSan systems, the RamSan-620 is easy to install.

Features

The RamSan-620 has the features you expect:

- A Complete Flash storage system in a 2U rack
- Low Overhead, Low Power, High Performance
- High IOPS, Bandwidth, Capacity
- Standard Management Capabilities
- Active Spare for ultimate system reliability
- Two Flash ECC Correction Levels
- Includes Super Caps for orderly power down
- Easy to Install
- Fibre Channel controllers
- Scalable, Expandable, Flexible
- Low initial cost of ownership
- Low incremental upgrade cost
- Add performance and capacity incrementally

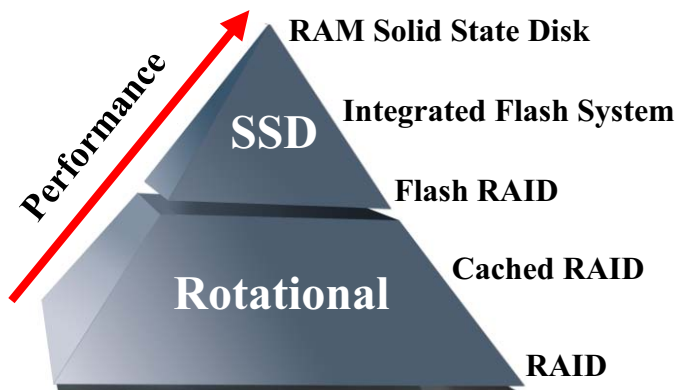### Automatic Error Checking

Storage data integrity is provided by the use of **SLC** Flash chips with two independent methods of ECC. Each Flash chip incorporates an ECC data field within the chip for initial checking. Additionally, each set of flash chips is organized as a board-level RAID; thereby eliminating any single chip failure from corrupting data. At the system-level, a board can be designated an *Active Spare*. In the event of a Flash chip failure, Active Spare migrates the data from the flash card with a degraded RAID onto the designated Active Spare to return to fully redundant state without the need for unscheduled maintenance.

Applications for the RamSan-620

Databases	**Hot Files**
Video Editing	**Index Files**
Lookup Table	**Rendering**
Data Warehousing	**Web Content**
Financial Modeling	**Check Points**
Data Acquisition	**Simulations**

Performance

RAM Solid State Disk

SSD

Integrated Flash System

Flash RAID

Cached RAID

Rotational

RAID

Call or Email TMS at Sales@RamSan.com

Texas Memory Systems, Inc.

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ENTERPRISE FLASH STORAGE
- The RamSan-620 uses the most reliable type of NAND Flash: Single Layer Cell (SLC).
- The RamSan-620 system has three levels of protection:
  - Level 1: Proprietary error correcting code (ECC) that detects and corrects single bit errors for each 128 byte chunk of data.
  - Level 2: RAID algorithm to ensure that the failure of a Flash memory chip does not result in data corruption.
  - Level 3 (optional): In the event of a Flash chip failure, Active Spare migrates the data from the flash card with a degraded RAID onto the designated Active Spare to return to fully redundant state.
- A sophisticated wear leveling algorithm built in to keep the system from wearing out for over 12 years under demanding write conditions.

DATA RETENTION
- Completely nonvolatile solid state disk.

FLEXIBLE DATA MANAGEMENT
- A LUN can be created that accesses a single card or set of cards in the RamSan-620. This flexibility allows you to mirror LUNs for maximum data protection. These LUNs can then be seen externally by servers, storage appliances, or controllers.
- The RamSan-620 can utilize all of its 8-20 Flash cards. This mode will deliver the best possible performance but would usually require external mirroring of an entire RamSan-620 chassis to another RamSan-620 chassis.

RamSan-620

SCALABILITY
- 1 to 5-TB SLC Flash Storage
- Multiple RamSan-620s can be used to scale to higher capacities: one 40U rack can hold 100-TB

LUN SUPPORT
- 1 to 1024 LUNS with variable capacity per LUN
- Flexible assignment of LUNs to ports

MANAGEMENT
- Browser-enabled system monitoring, management, and configuration
- SNMP support
- Telnet management capability
- Front panel displays system status and provides basic management functionality

FIBRE CHANNEL CONNECTION
- 4-Gb (2-Gbit capable) Fibre Channel controllers
- 2 ports standard; up to 8 ports available
- Supports point-to-point, arbitrated loop, and switched fabric topologies
- Interoperable with most Fibre Channel Host Bus Adapters, switches, and operating systems

Specifications

Capacity	1-5 TB SLC Flash
I/Os per second read/write	250,000 (random)
Bandwidth	3-GB/second
Latency	80 μs
Enterprise Protection	Board-level RAID
	Chip-level ECC
Power Supplies	Redundant Hot-Swap
Size	3.5" (2U) x 18"
Power Consumption	230 Watts (typical)
Weight (maximum)	35 lbs
Interfaces: Fibre Channel	2-8 (2/4-Gb)

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Disclaimer: Texas Memory Systems acknowledges that individual RamSan products have single points of failure. If you require a High Availability SSD solution, please contact info@ramsan.com for *Storage Best Practices*.