# RAM-SAN™

## The World's Fastest Storage®

## RamSan-120

- **400 MB per Second**
- **70,000 IOPS**
- **8 GB Storage**
- **2 FC Links (2Gb)**
- **Slim 1U form factor**



### RamSan-120

### Entry-level Solid State Disk

For the RamSan-120, the key word is small– small in size, small in price, and ideal for accelerating the small capacity database, database log or email queue. But while the 1U RamSan-120 is small, it is also powerful. The RamSan-120 provides two 2Gbit Fibre Channel ports capable of over 70,000 random I/Os per second and 400MB/second of bandwidth. Because the system uses DDR RAM for storage, the latency for data requests from servers is under 20 microseconds.

### Why Use Solid State Disk

A small solid state disk is used to remove I/O bottlenecks that persist even after memory is added to a server. Adding memory usually only resolves the most trivial of I/O problems including excessive paging or conditions where reads quickly follow writes (i.e. data is read from cache). The RamSan-120 is used to resolve the next class of I/O bottlenecks: a small database with a high number of concurrent users, a small database or database log with tremendous write queues, or a small data warehouse or temporary working space that is overloaded with queries. Solid state disks eliminate I/O bottlenecks for these frequently accessed files by responding with data with extremely low latency. This low latency means less I/O wait time for the server, higher CPU utilization, and better application performance.

### Installation and Management

The RamSan-120 is as easy to install as a disk drive. In its simplest configuration, it provides a direct link to one server through a host bus adapter (HBA). In its expanded configuration, it can be linked through Fibre Channel switches to a storage area network (SAN). Basic

management operations, including shutdown and alerts, are available from the front panel screen. Full monitoring and configuration capabilities are available over any browser via a Java applet. The RamSan-120 is fully SNMP compatible.

### Highly Reliable Storage

With any storage device, reliability is a primary concern. The RamSan-120 is the first and only solid state disk to implement ECC-protected DIMMS as a RAID (redundant array of independent DIMMs). Similar to disk-based RAID, the data is protected even if an entire DIMM fails.

### Non-Volatile Backup Methods

The RAM chips used to give the RamSan-120 such high performance are inherently volatile, but that doesn't prevent full data persistence. To ensure non-volatility, the RamSan-120 includes batteries and an internal backup hard disk. If external power fails, the unit will backup data from memory to the internal backup disk drive.



**Solid State Disk**
Hot Files

PERFORMANCE

**RAID**
Common Files

**Tape**
Archived Files

### Typical Storage Hierarchy

## FIBRE CHANNEL CONNECTION

- 2-Gigabit Fibre Channel (1-Gigabit capable)
- 2 ports standard
- Supports point-to-point, arbitrated loop, and switched fabric topologies
- Interoperable with Fibre Channel host bus adapters, switches, and operating systems

## MANAGEMENT

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

## LUN SUPPORT

- 1 to 64 LUNS with variable capacity per LUN
- Flexible assignment of LUNs to ports
- Hardware LUN masking

## RELIABILITY AND AVAILABILITY

- No moving parts in the data path
- ECC memory error protection
- Hot swappable power supply
- Backup hard disk drive



# RamSan-120

## DATA RETENTION

- Non-volatile solid state disk
- DDR RAM storage RAID-protected against individual DIMM failures
- Internal batteries power the system after power loss
- Automatically backs up data to disk if power is lost

## ABOUT TEXAS MEMORY SYSTEMS

Since 1978, Texas Memory Systems (TMS) has specialized in high bandwidth, low latency, I/O-intensive storage systems. While the primary feature of our products has always been high performance, we achieve this performance without resorting to overly complex circuitry or unwieldy protocols. This emphasis on simplicity allows TMS to deliver outstanding performance using mature technologies and readily available off-the-shelf components.

TMS systems were originally designed to meet the needs of the U.S. defense industry. This market has always demanded the ultimate in performance and TMS has always delivered it. RamSan solid state disks deliver a level of performance and efficiency previously unavailable in a commercial storage product.

## Specifications

| | |
|---|---|
| **I/Os per second** | 70,000 |
| **Capacity (addressable)** | 8 GB |
| **Bandwidth** | 400 MB/sec |
| **Fibre Channels:  1Gb, 2Gb** | 2 Ports |
| **Latency** | <20 microseconds |
| **Disk Drive** | Internal Backup |
| **Power Supply** | Hot-Swap |
| **Batteries** | Dual internal |
| **Size** | 1.75" (1U) x 20" |
| **Power Consumption (peak)** | 250 Watts |
| **Weight (maximum)** | 45 lbs |

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