



● SOLID-STATE SAN DEVICE

Texas Memory Systems RamSan-320

PRICE As reviewed, £27,671 (exc VAT)

BASIC WARRANTY One year replacement

INTERNET www.texmemsys.com

SUPPLIER OpenPSL 0871 230 4507

VERDICT A solid-state storage device that delivers stunning performance supported by impressive fault tolerance and backup. Enterprises will be hard pushed to find a storage system faster than this.

Solid-state storage is the only choice if you want top performance.

Current hard disks can't compete with the data access speeds possible from SDRAM memory. Unfortunately, memory prices have always been a stumbling block, but the significant price drops in the past few years have made this technology a reality. The RamSan-320 from Texas Memory Systems (TMS) brings

solid state to the enterprise by offering 16GB to 64GB of storage implemented in fast SDRAM.

The RamSan-320 is very well built. Internal design is tidy, with the custom motherboard offering easy access to the PCI slots provided for plugging in extra memory boards. Network expansion options abound too, as the chassis supports up to four dual-port 2Gb/sec Fibre Channel cards, allowing it to be installed easily in a SAN (storage area network) or directly attached to servers. Redundant network paths



The fastest network storage device available.

during normal operations. On power removal, the system continues to run on UPS, while the data resident in memory is written out to the hard disks. Once this is completed, the system can be powered down without data loss. The third method is an optional feature that aims to reduce the time needed to restore data on power-up. Active Backup monitors the system and only secures data to the hard disks when it

For a storage solution that provides unbelievably fast access to data and a wealth of features, look no further than the RamSan-320

can also be created by designating the two channels of each card as primary and standby.

SDRAM volatility requires sophisticated backup facilities, and the RamSan-320 doesn't disappoint. A large bay at the front of the chassis is home to three UPS systems, each with their own battery. This setup offers up to 25 minutes of backup power in the event of a system shutdown, and is tied in with the trio of IDE hard disks in removable carriers in the front panel.

TMS provides three backup scenarios. In the first, a mirror mode is implemented by default, which backs up all memory write operations to the trio of hard disks in real-time. In the second, aware that the latter may have a detrimental effect on performance, TMS also offers a Data Sync option that carries out no write backups

won't have an impact on overall performance. As only a relatively small amount of data will need to be written to the disks to complete the backup, the system can be shut down much quicker. Either way, when the RamSan-320 is powered up, it will automatically reinstate the data to memory, and we found this only takes a few minutes.

Installation is easy. First, you assign the unit an IP address from the simple CLI, then move to remote management via the well-designed browser interface. This offers a complete graphic of the chassis and installed components, all with hotspots for swift access. Plus, there are no limitations on how storage is carved up, as you can create multiple partitions with individual LUNs (logical unit numbers). Each LUN may also

be assigned to specific Fibre Channel ports, allowing access to be controlled. Full access to network controller configuration is provided too, so you can select the type of SAN topology and connection speed for each port, or leave it to be auto-detected. You can also view the LUNs associated with each port, and a statistics graph keeps you updated on general data throughput. The hard disks and the dual redundant power supplies are displayed, and the interface even shows the status of all 12 internal cooling fans.

For testing, we introduced the appliance to our resident SAN built from a QLogic SAN Connectivity Kit (see issue 105, p194). Using a QLogic SANbox2 8 switch, we linked the TMS over a single 2Gb/sec connection to a pair of clients equipped with SANblade QLA2310F 2Gb/sec HBAs. Adding the RamSan-320 was easy, as the switch automatically recognised it and added it to the default zone, where it appeared to both servers as a fast hard disk that could be formatted from the Disk Management tool and accessed normally from Windows Explorer.

We tested transfer rates by running two instances of the open-source lometer utility configured with 64KB transfer requests and ten I/Os for each client. This reported top speeds of 98MB/sec and 110MB/sec respectively, which equals a cumulative total of 1,664Mb/sec – near wire-speed for a 2Gb/sec Fibre Channel connection. The RamSan-320 uses dedicated paths to memory for each Fibre Channel port, so to test this we created three LUNs, assigned them to different network ports and direct-attached three clients. Re-running lometer on each system saw transfer rates of 191MB/sec, 195MB/sec and 196MB/sec respectively for a staggering cumulative total of 4,656Mb/sec.

Although memory prices may be at an all-time low, for network storage the RamSan-320 is still a luxury item and the price puts it firmly in the enterprise space. But for a storage solution that provides unbelievably fast access to data and a wealth of features, look no further.

DAVE MITCHELL

PC PRO RATINGS

PERFORMANCE	★★★★★
FEATURES & DESIGN	★★★★★
VALUE FOR MONEY	★★★★☆
OVERALL	★★★★★

SPECIFICATIONS Solid-state storage appliance; 16GB ECC SDRAM memory expandable to 64GB; dual-port 2Gb/sec Fibre Channel host bus adaptor; 3 x Maxtor DiamondMax Plus 9 IDE hard disks in removable carriers; Mirror and Data Sync backup features; remote management card with 9-pin serial and 10/100BaseTX ports; 3 x UPS with battery backup; dual redundant power supplies; supports up to 64 LUNs; CLI and web browser management. Options: dual-port 2Gb/sec Fibre Channel card, £2,755; Active Backup, £2,755 per unit.