

Write Accelerator

Statspack Analyzer

Introducing the Write Accelerator

The Write Accelerator works on a simple premise: performance of write intensive databases is limited by two factors – latency and throughput. The Write Accelerator offers a unique blend of performance, ease of installation, reliability, and affordability to address troublesome Oracle database write issues.

The Problem

Oracle database transactions are growing larger, more numerous, and more complex. Oracle *redo logs*, *temporary tablespaces*, and *undo tablespaces* see a considerable increase in write contention, leading to database wait events that can cause performance degradation in mission critical enterprise applications.

When writes account for a significant portion of the overall database traffic, Oracle 10g and later Automatic Storage Management documentation recommends a SAME (Stripe And Mirror Everywhere) approach, including segregating redo logs and temp and undo tablespaces on separate storage to avoid write contention and overall database performance degradation. But moving these performance sensitive files to hard disk-based storage may prove expensive, complex, and ultimately ineffective due to the unavoidably slow response times (latency) of mechanical storage

The Solution

The Write Accelerator offers a unique new alternative. It can be deployed quickly, making it as easy to implement as provisioning the much slower storage of traditional arrays. The Write Accelerator can be directly attached to database servers, network attached, or deployed in a storage area network and will quickly be recognized by the operating system as just another disk drive. Most importantly, it costs a fraction of what enterprise-grade hard disk storage normally costs, while providing many times the performance benefits.



The Write Accelerator consists of two separate but bundled units, enabling complete support for SAME and allowing even the most demanding enterprises in the world 5-nines reliability for the solution. These two systems can be mirrored from the operating system or through Oracle's ASM.

StatspackAnalyzer.com

To determine if an Oracle application suffers from write contention or other I/O performance issues, database administrators turn to the Statspack Analyzer sponsored by Texas Memory Systems and Burleson Consulting. This free, easy to use online tool (StatspackAnalyzer.com) provides actionable performance tuning advice in seconds. Oracle Statspack and Automated Workload Repository (AWR) reports are loaded with large quantities of data. Statspack Analyzer sifts through the data, applies rules created by a panel of Oracle experts, and outputs easy to implement recommendations for improving Oracle performance, including advice on when and how to deploy the Write Accelerator.



Statspack Analyzer

Write Accelerator

- **1.5 Gigabytes per Second**
- **200,000 IOPS**
- **32 GB Storage** (after mirroring)
- **4 FC Links (4-Gb)**
- **Hot-swap Modules**

Solid State Disk Storage

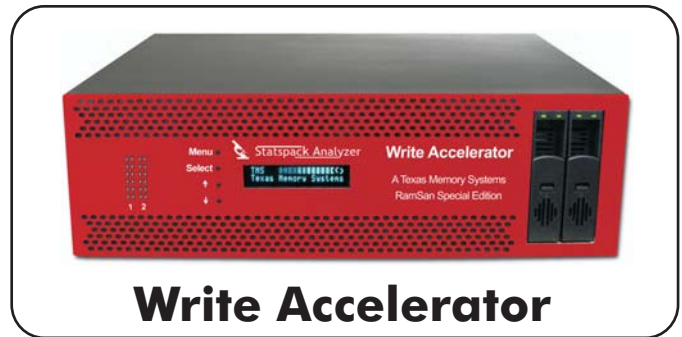
The Write Accelerator from StatspackAnalyzer.com is the reference standard in entry-level solid state disks. Its data storage is based on fast DDR RAM media instead of mechanical, rotating drives. Fully-loaded with four interface links, this system can sustain over 200,000 random I/Os per second and 1.5 GB/sec of bandwidth. Its low latency has two advantages: it provides users (or servers) with 50x faster response times and allows 50x more users or servers to access the same volume. The Write Accelerator provides an incredible performance improvement over the best disks.

Typical Storage Hierarchy

As computer performance increases faster than rotational disk performance, the traditional two-level storage hierarchy scheme needs a new performance level. The high-performance Write Accelerator fills this need by allowing users to implement a three tiered storage hierarchy. Even under heavy load conditions, the Write Accelerator's I/O power allows many computers to have immediate access to highly active data files simultaneously. The Write Accelerator is perfect for small databases, metadata storage, and transaction logs for larger databases.

Installation and Management

The Write Accelerator 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) or host channel adapter (HCA). In its expanded configuration, it can be linked through Fibre Channel or InfiniBand switches to hundreds of servers or workstations via SANs. Basic management operations, including manual shutdown and any alerts, are available from the front panel screen. Full monitoring and configuration capabilities are available over any browser via a Java applet.



Highly Reliable Storage

With any storage device, reliability is a primary concern. Each Write Accelerator module is designed to offer superior reliability to other solid state disks and RAID devices. Its standard features include: Chipkill-protected RAM, hot-swap power supplies, redundant internal batteries, and redundant, hot-swappable backup disks.

Non-Volatile Backup Methods

The RAM used to give the Write Accelerator record-breaking performance would generally lose its data if power was lost. To ensure non-volatility, the Write Accelerator includes batteries and copies SSD data at 60 MB/sec to the redundant, internal hard disks when external power is lost or the unit is shut down.

Specifications (per module)	
I/Os per second	200,000
Capacity	32 GB
Bandwidth	1.5 GB/sec
Fibre Channels: 4-Gb, 2-Gb	4 Ports
Latency	< 15 microseconds
Disk Drives	Redundant Hot-Swap
Power Supplies	Redundant Hot-Swap
Batteries	2 Redundant
Size	5.25" (3U) x 16"
Power Consumption (peak)	250 Watts
Weight (maximum)	70 lbs