# SAS® Scalable Performance Data Server® on the Sun Fire™ X4500

## The Ultimate Intelligence Platform

Decision makers who rely on business and analytic intelligence solutions are looking for one thing: accurate answers when they need them. Unfortunately, the information that drives these answers is often locked within mountains of data.

Sun and SAS have achieved a new milestone in meeting this challenge with the availability of the SAS® Scalable Performance Data Server (SPDS) on Sun's high storage density Sun Fire™ X4500 AMD Opteron based Hybrid Server. This cost-effective, highly-performant solution provides users with precise control over loading, managing, and retrieving their data.

### Highlights:

- Revolutionary. Reduces the costs and complexity related to implementing and managing an enterprise Business Intelligence solution.
- The best in analytics, business intelligence and data management. Provides the combined value of powerful SAS analytics, high performance AMD processors taking advantage of the world class performance and reliability of Solaris™ 10 and ZFS file system.
- Integrated SAS Enterprise Intelligence solutions. Integrates data from any source, making it available for analytical processing and advanced reporting.
- SAS SPDS offers incredible performance in a range exceeding 3tb/hour throughput
- Easy to implement and support. Helps to dramatically reduce system complexity for easy implementation, administration, and maintenance.

### SAS Intelligence Storage

SAS Intelligence Storage includes the SAS Scalable Performance Data Server (SPDS), that is designed for intelligence applications. SPDS benefits SAS IT Managers with large amounts of data by significantly speeding up their analytics and business intelligence applications or shortening ETL times for their data warehouses, irrespective of the amount of data held within the enterprise. SPDS was built for swift delivery of subsets of information from huge data mountains and leveraging SAS Intelligent Storage with SAS Scalable Performance Data Server (or SPDS) as the hub of this platform.

### Sun Fire X4500 data server

As the world's first hybrid server, the Sun Fire X4500 server combines the functions of a high-performance, four-way x64 server, network fabric and switch, and the highest density storage available, with up to 24 TB in 4U of rack space, into a single integrated system. This system delivers extremely high data throughput rates for about half the cost of traditional solutions.

The Sun Fire X4500 server is ideal for applications such as SAS Intelligence Storage requiring:

- Very high bandwidth to access large amounts of storage
- The application to be closely coupled to the data
- The data to be accessible online
- Virtually unlimited scalability

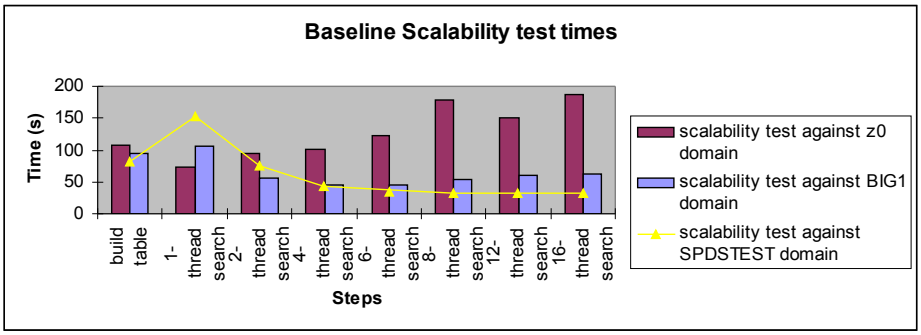
### An integrated solution for applications and data

The Sun Fire X4500 server combined with SAS SPDS provides a single platform for both applications and data. With enterprise server reliability features and extremely high throughput rates, the Sun Fire X4500 data server is an ideal platform for SAS SPDS.

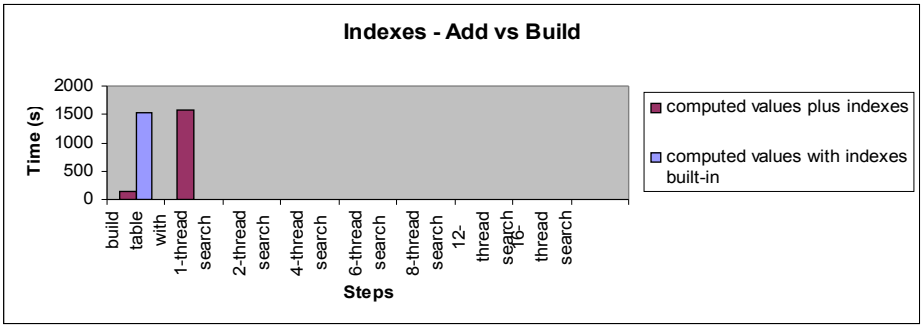
### A dream machine

During benchmarking of the Sun Fire X4500 several tests were conducted to characterize the performance of SPDS on this system. Baseline SPDS tests compared three SPDS domain configurations; index creation tests compared adding indexes to tables and building tables with pre-defined indexes; concurrency tests simulated multiple users; and append tests characterized the performance of adding records to a table.

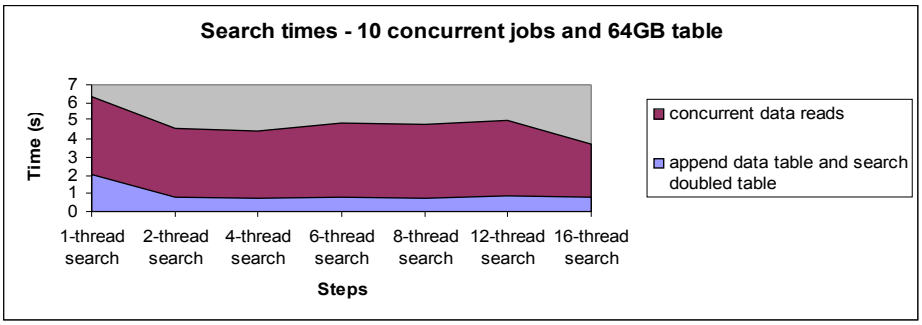
- Baseline SPDS tests compared the creation of a 32GB table and subsequent searches wit. various degrees of concurrency. The chart below shows the results of these tests.




- Index creation test compared the time required to build a table and subsequently add indexes to the time required to build a table with indexes built at table creation shown below.




- Concurrency tests simulated ten users retrieving a million records each from one table. The append tests characterized the times required to append 32GB to a 32GB table and run the same search against the new 64GB table shown below.




## Powered by the rock solid Solaris 10 operating system

As the only industrial-grade UNIX environment available for UltraSPARC, AMD Opteron, and Intel Zeon-based platforms, the Solaris 10 OS includes powerful and innovative features to help reduce costs and complexity. SAS Intelligence Storage environments take advantage of the Solaris ZFS new file system innovative approach to data integrity and tremendous performance improvements.

Learn More

www.sun.com/x64/x64/x4500
www.sun.com/solaris
www.sas.com/technologies/dw/storage/spds

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"The Sun Fire X4500 unit is an ideal platform for optimal SAS data storage in that it provides parallel access to multiple drives while giving the SAS Scalable Performance Data Server (SPDS) the ability to control drive utilization. Unlike larger, more expensive storage solutions, the Sun Fire X4500 in concert with ZFS reduces interference between SPDS and the spindles. Excellent performance was achieved with read times in the range of 1GB/sec. The Sun Fire X4500 is well suited for SPDS based on cost, control, and performance."

**Joseph Costanzo, CTO**

**Zencos Consulting**

## Conclusion

SAS 9 data integration, intelligence storage and advanced analytics on the Sun X4500 server with Solaris 10 X64 provides a robust and cost-effective solution at 15k to $20K per usable TB and performance in the range of 1GB/second. The combination of the unit's cost, precise control and exemplary performance make SPDS on the Sun Fire X4500 server ultimate analytics platform for optimal SAS data storage.

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