



# Sun™ x64 Systems

## Powerful Database Solutions



### Solution overview:

- Sun Fire™ V40z, Sun Fire™ X4100, and Sun Fire™ X4200 servers — featuring the AMD Opteron™ processor, now available in dual-core configurations
- With attractive pricing and horizontal scalability, these systems deliver industry-leading performance, reduced data center complexity, maximum resource utilization, and reliable data management
- Offering the flexibility to run 32-bit and 64-bit applications with Solaris™ OS, Windows, or Linux, these systems deliver optimal investment protection and return on assets (ROA)
- Sun StorEdge™ 5210 NAS and 5310 NAS — delivering easy data management in collaborative environments
- Solaris™ 10 Operating System — the most advanced operating system in the industry, delivering unmatched security, Solaris Containers for virtualization and application consolidation, Predictive Self-Healing, Dynamic Tracing (DTrace) for system tracking and fine-tuning, and world-record performance



“We are committed to providing customers with choice and flexibility when it comes to Grid Computing. Our work with Sun around Oracle® Database 10g continues to focus on delivering solutions that maximize asset utilization and decrease overall IT costs — a value proposition that resonates with organizations of all sizes, in all industries.”

— Prem Kumar, Vice President, Server Technologies, Oracle Corporation

### A high-performance system for maximum resource utilization

IT managers know how challenging it can be to balance the need for robust capabilities with the need to control costs. Database management is a particular challenge, especially at the enterprise level, where data centers and database technologies become increasingly complex. As workloads such as customer relationship management, data warehousing, and data management have grown more complex along with the data center, administrators often find themselves struggling to coordinate components to manage the workload and maintain smooth operations. To implement a successful management strategy, enterprise database administrators need to deliver and manage data for business processing, decision support, and departmental customer support. Maximizing resource utilization is a key component of data center effi-

ciency in environments where demands on resources constantly increase amid budget constraints. Sun x64 systems running the Solaris 10 Operating System (OS), with Predictive Self-Healing and DTrace, maximize resource utilization, delivering optimal ROA.

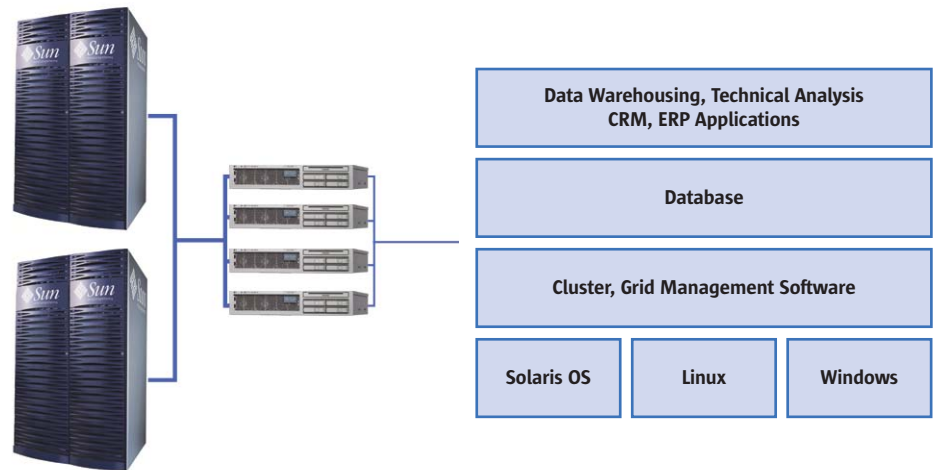
Sun x64 systems deliver the world-class performance of the AMD Opteron processor. The record-setting AMD Opteron processor powers the Sun x64 systems for maximum performance. Sun x64 systems have set the standard, performing 60 percent better than IBM Power5-based systems, according to the Standard Performance Evaluation Corporation (SPEC) benchmark for integer computation.<sup>1</sup> Building on its past success, Sun has introduced the new Sun Fire X4100 and Sun Fire X4200 servers, capturing the top 10 benchmarks in their class and once again advancing industry-standard x64 computing. With out-

standing world-record results on several industry-standard benchmarks, the new servers have proven to perform at least 28 percent better than any other x64 Intel-based server in its class and over 12 percent faster than competitors' systems powered by AMD Opteron processors<sup>1</sup>. These systems reduce data center complexity through simplified management with total remote capability.

Sun x64 systems run industry-standard applications on Linux and Windows, as well as the secure, enterprise-class, high-performance Solaris 10 OS. This flexibility means you can expand on existing resources within tight budget constraints. The flexible, scalable architecture means you can seamlessly scale up to thousands of processors and systems within the same infrastructure. Companies with pressing needs to manage input and output can take advantage of the system's incremental bandwidth when adding processors. In addition, Sun Storage Area Network products and support for high-speed interconnects such as Infiniband and Gigabit Ethernet ease workload management, with Sun™ Services available for planning, design, and deployment of your infrastructure as well as subsequent maintenance and operational support.

### Power on demand to grow with your needs

Sun x64 servers for database management can employ Sun's Grid Computing technology, which allows separate systems to be pooled and managed as a single computing resource. Grid technology scales horizontally, allowing you to add server nodes as needed to keep up with increased computing demands. Multiple servers act as one, distributing the workload to available computing power for maximum efficiency and resource utilization. Grid Computing brings the ability to expand incrementally, so your system can grow with your business. You can start small at low cost and build the data-



Reliable data storage on Sun StorEdge systems

Redundant, high-performance database running on Sun x64 servers connected through InfiniBand

## Horizontal Database Architecture

*Sun x64 systems, featuring AMD Opteron processors, deliver high-performance data management with high data availability and scalability.*

management infrastructure as you grow — no need to start out with a large investment. Grid technology provides a flexible, scalable architecture so the entire computing infrastructure is managed as a single, unified resource. The grid infrastructure uses a fast network to connect computers and storage devices, managing them with distributed management software. Grid Computing facilitates enterprise resource planning (ERP), data warehousing, and technical data management by coordinating the sharing of distributed and dynamic resources, including hardware and software, data archives, and remote components.

### Your data is your business: Be safe with Oracle on Sun x64 for reliable database management

Oracle Corporation has fine-tuned database management in its state-of-the-art Oracle 10g Real Application Clusters (RAC). And Sun x64 systems deliver optimal performance of RAC's robust features. Sun x64 servers are ideal for supporting Oracle's grid pools, which use standard nodes and modular disk arrays to distribute the workload. Sun x64 systems

enhance the high availability of the cluster and support Oracle 10g RAC's built-in failover feature by speeding the redistribution of the load. If any one node fails, the system redirects the work and keeps running.

Sun's scalable systems facilitate Oracle 10g RAC's dynamic provisioning of nodes, storage, CPUs, and memory, seamlessly maintaining service levels and improving utilization and efficiency. The Oracle 10g RAC automates workload and resource management, and eases monitoring through a single system image. The speed and power of Sun x64 servers featuring AMD Opteron processors optimize the 10g RAC's data integration, for fast disaster recovery. In addition, Sun x64 servers boost the performance of the 10g RAC cluster verification and diagnostic tools. The Sun/Oracle combination translates into cost savings by maximizing both the efficiency of database management and the utilization of resources. Sun/Oracle helps you transform database management from an unwieldy process that relies on substantial capital investment in components that render separate islands of computation, to an

integrated system of enterprise Grid Computing with unified management. Oracle 11i Business Suite, SAP, Siebel, or Java™ Web Services can also be run as a grid for optimal synchronization of applications. Rather than maintain high costs and configure cumbersome, disparate components for peak use, managers can deliver capacity on demand through shared servers—and add resources as needed.

### Sun has the solutions for your data management needs

As technologies evolve, many companies are considering x86-based, industry-standard systems for their enterprise computing and database management needs. The introduction of the Sun Fire X4100 and Sun Fire X4200 servers represents another step in the evolution of Sun innovation in advancing industry-standard x64 computing. Building on the performance of the Sun Fire V40z, Sun delivers the same binary compatibility and platform choice in an architecture designed to simplify management and reduce complexity. The enterprise-class features of these servers, including total remote management and state-of-the-art operational efficiency, make it ideal for database management and lend themselves to Grid Computing solutions that maximize resource utilization and speed time to market.

What sets Sun apart from the competition is its expertise in building entire systems, and the commitment to building them to meet the specific needs of the customer. In addition to the base hardware, OS, and database, Sun has many ISV and service deployment partners who can put together the entire solution to data warehousing, CRM, ERP, and technical data management problems. Sun begins with a thorough analysis of the data center environment and specific customer needs and

configures a total, perfect-fit system that can grow with the customer's business. Sun combines hardware, software, and services to create a unified, manageable system for database management.

With extensive experience building reference architectures, Sun is uniquely qualified to assess and meet customer-computing needs. Sun Reference Architectures define recommended sets of applications, storage, and server configurations, building functionality tailored to your business needs. The Sun Enterprise Grid Reference Architecture from Sun and Oracle, for example, provides a robust, scalable infrastructure platform that runs on Linux and is geared to reduce cost and improve service levels. Sun x64 servers featuring AMD Opteron processors deliver high-performance data management with high data availability and scalability.

Sun can build a customized architecture that harnesses the power of the AMD Opteron processor and Sun x64 systems for a perfect-fit solution. System options also include running Solaris 10 OS for optimal 64-bit performance, or taking advantage of Sun's agreement with Microsoft, which promotes interoperability between Windows and Solaris. Sun systems can ease the transition from 32-bit to 64-bit applications, and the AMD Opteron processor can deliver simultaneous 32-bit and 64-bit computing.

### Sun Client Solutions

Sun understands that each customer faces unique challenges, needs, and demands. The Sun Client Solutions group is an organization dedicated to working with you and gaining an understanding of your specific business and

#### Learn More

Learn more about Sun's x64 systems featuring the AMD Opteron processor. Visit [sun.com/amd](http://sun.com/amd), or talk to your local Sun representative about scheduling a half-day session.

technical needs. Sun aligns the right products and services to those requirements and delivers an optimal, perfect-fit solution.

### Sun makes IT simple

Not all database management systems boast the same results. With Sun x64 AMD Opteron processor-based systems, the possibilities are endless for a custom-made, high-performance system that can increase efficiency, increase ROI, and translate to cost savings—no matter what your business needs.

1. On the SPEC OMPM2001 benchmark, the Sun Fire V40z server with four dual-core chips produced a score of 17,230 and set the new world record in eight-thread category, overstepping the dual-chip, dual-core, Power5-based IBM eServer OpenPower 720 score of 10,750, by over 60 percent.