Frequently Asked Questions
SPARC T7 and SPARC M7 Servers:
SPARC T7-1, T7-2, T7-4, M7-8, M7-16

Overview

The following servers based on Oracle's SPARC M7 processor are the most advanced systems for enterprise computing, with unique capabilities for information security and extreme database and Java acceleration: SPARC T7-1, SPARC T7-2, SPARC T7-4, SPARC M7-8, and SPARC M7-16. Using revolutionary Software in Silicon technology and breakthrough integration of Oracle hardware and software, Oracle's family of SPARC servers is ideal for database, middleware, and enterprise applications, and the servers' rich feature set offers the best value for secure cloud infrastructures and business-critical deployments.

Servers based on SPARC M7 offer end-to-end network and data encryption and can detect and prevent unauthorized access to application memory, all in real time and with near-zero performance impact. The most important advance in computing in the last decade, Oracle's Software in Silicon technology can stop security breaches through hardware, providing less application downtime while creating a unique barrier to malicious memory attacks and software errors. Coupled with the security features in the Oracle Solaris 11 operating system, storage, database, and application software, Oracle provides a layered defense strategy across the entire stack to protect your environment from business-damaging attacks.

With unique Software in Silicon technology, Oracle extends its database and hardware integration to the SPARC M7 processor, creating a converged infrastructure that's ready to deploy immediately – no waiting on software to catch up. You can run both OLTP and data analytics on Oracle's SPARC servers with in-memory processing and enable real-time analytics on dynamically changing databases for better business insight.

Powered by the SPARC M7 processor, the SPARC family of servers is the fastest in the world, accelerating database performance and developer productivity to help achieve greater efficiency and scalability for your IT infrastructure. With the innovative servers based on the SPARC M7 processor, you can move faster, make data-driven decisions without delays, and transform your business

Customer Benefits

New Technology Takes Security to a Whole New Level

Addressing data security issues is becoming an increasingly critical function for any IT organization. Servers based on SPARC M7 processors include a feature called Silicon Secured Memory to protect data from either intrusive memory attacks or programming errors. It is the first-ever end-to-end implementation of memory-access validation in hardware, enabling hardware monitoring of memory requests by software processes in real time. It also helps accelerate code

development and helps ensure software quality, reliability, and security. The servers also offer integrated on-chip cryptographic support that provides wire-speed encryption capabilities for secure data center operation; you do not have to pay a performance penalty for encrypting large amounts of data.

Run Your Software Faster. Run Your Business Faster.

Oracle's portfolio of servers based on SPARC M7 processors provides extreme performance to compete in today's high-speed, always-on world. Innovative SQL in Silicon technology implements accelerators directly into the processor to deliver a rich feature set that enables databases and applications to run fast and reliably. Inline decompression units in the Data Analytics Accelerators (DAX) engines significantly increase usable memory capacity by allowing compressed databases to be stored in memory while being accessed and manipulated at full performance.

Efficiency and Value for the Real-Time Enterprise

Complex IT infrastructures have become more difficult and expensive to manage and maintain, yet organizations are under pressure to drive down costs, increase operating efficiencies, and in turn, deliver innovative technologies that can generate new revenue streams. With the engineering efficiency and value built into servers based on the SPARC M7 processor, you can shift computing costs away from underlying systems and software and focus on the productive business use of your workloads.

Frequently Asked Questions

Q: What are servers based on the SPARC M7 processor?

A: The servers are the world's most powerful systems designed for virtualized cloud infrastructures and business-critical enterprise applications. Based on the revolutionary Software in Silicon technology found in the SPARC M7 processor, the servers enable the real-time enterprise through unprecedented levels of security, performance, and efficiency.

Q: How many products comprise the family of servers based on the SPARC M7 processor?

A: There are five servers in the product family, ranging from 1 to 16 processors.

SPARC T7-1: The SPARC T7-1 server offers a single processor, with 32 cores in a 2U chassis. It scales up to 512 GB of memory, offers up to eight 2.5" hot-serviceable

SAS HDD/SSD drives, up to four NVMe SSDs, and has six PCIe 3.0 slots.

SPARC T7-2: The SPARC T7-2 server offers two processors, a total of 64 cores, in a 3U chassis. It scales up to 1 TB of memory, supports up to six 2.5" hot-serviceable SAS HDD/SSD drives, up to four NVMe SSDs, and has eight PCIe 3.0 slots.

SPARC T7-4: The SPARC T7-4 server offers two or four processors, up to 128 cores in a 5U chassis. It scales up to 2 TB of memory, supports up to eight 2.5" hot-serviceable SAS HDD/SSD or NVMe SSD, and has 16 PCIe 3.0 slots utilizing hot-plug carriers.

SPARC M7-8: The SPARC M7-8 server offers up to eight SPARC M7 processors in a single physical domain. The server scales up to 4 TB of memory and has up to 24 PCIe 3.0 (x16) slots.

SPARC M7-16: The SPARC M7-16 server offers one to four reconfigurable physical domains, up to 16 SPARC M7 processors and 512 cores capable of running more than 4,000 simultaneous hardware threads. The server scales up to 8 TB of memory and has up to 48 PCIe 3.0 (x16) slots.

Q: What are the common characteristics of servers based on SPARC M7 processors?

A: The servers contain the following common characteristics:

- SPARC M7 processor with innovative Software in Silicon features

- DDR4 memory: fast and low power consumption

- Dual inline memory module (DIMM) sparing: enabled with fully populated memory slots, increasing system reliability and uptime

- x16 capable PCIe 3.0 slots: more I/O throughput

Q: What is Software in Silicon?

A: A: Software in Silicon is a technology that places software functions directly into the processor chip, implemented as coprocessors or off-load engines. Because specific functions are performed in hardware, a software application runs much faster. And because the cores of the processor are freed to perform other functions, overall operations are speeded up as well. The first processor that incorporates this revolutionary technology is the SPARC M7 processor.

Q: What are the key features of the SPARC M7 processor?

A: A: Some of the key features of the SPARC M7 processor include:

Security in Silicon includes two concepts: Silicon Secured Memory and Cryptographic Acceleration

- Silicon Secured Memory: This Software in Silicon functionality ensures that an application is able to access only its own memory region, which lets software programmers identify issues related to memory allocation. Designed to help prevent security bugs such as Heartbleed from putting systems at risk, it enables hardware monitoring of memory requests by software processes in real time. And it stops unauthorized access to memory whether that access is due to a programming error or a malicious attempt to exploit buffer overruns. It also helps accelerate code development and helps ensure software quality, reliability, and security.

- Cryptographic Acceleration: Crypographic Acceleration enables wire speed encryption capabilities for secure datacenter operation without a performance penalty. This is enabled by the SPARC on-chip crypto accelerators and Solaris Cryptographic Framework.

SQL in Silicon refers to In-Memory Query Acceleration and In-Line Decompression. Both of these functions are performed by the Data Analytics Accelerator (DAX) engines

- In-Memory Query Acceleration: This feature increases the performance of in-memory database queries by operating on data that is streamed directly from memory via extremely high-bandwidth interfaces — with speeds up to 160 GB/sec — resulting in large performance gains. The innovative Software in Silicon technology is implemented in the SPARC M7 processor through multiple acceleration engines.

- Inline Decompression: Inline Decompression is a feature that significantly increases usable memory capacity. The SPARC M7 processor runs data decompression with performance that is equivalent to 16 decompression PCI cards or 60 CPU cores. This capability allows compressed databases to be stored in memory while being accessed and manipulated at full speed.

Data Analytics Accelerators (DAX) are additional on-chip accelerator engines that off-load both In-Memory Query Acceleration and In-Line Decompression from the processor cores. There are 8 accelerators per SPARC M7 processor, each with 4 pipelines. That makes 32 in-silicon accelerator engines which are available to all 32 processor cores.

Q: What types of applications are ideal for the servers based on the SPARC M7 processor?

A: The servers are ideal platforms for database, Java, middleware, and application workloads. They offer exceptional throughput performance and memory bandwidth.

Q: Can I run in-memory applications on the servers based on the SPARC M7 processor?

A: Absolutely! The outstanding performance of the innovative SPARC M7 processor coupled with high-memory footprint allows many applications to run in-memory on these servers. Running Oracle In-Memory Applications on the servers provides significant application performance boosts.

Q: Is Oracle Software in Silicon technology open?

A: Yes, software developers can leverage Silicon Secured Memory, crypto instruction accelerators, as well as the Data Analytics Accelerators (DAX). Oracle has released open APIs for both Silicon Secured Memory and DAX. In addition, the cryptographic accelerators are enabled via industry standard API's such as PKS#11, OpenSSL and more, and by using the Oracle Solaris Cryptographic Framework.

Q: Is there a way to test my applications on this family of servers with Software in Silicon technology without having to purchase a system?

A: Yes, you can access the revolutionary Software in Silicon technology to dramatically improve reliability and security and accelerate application performance. The Oracle [Software in Silicon Cloud](#) is available today and allows developers access to a secure environment to test and improve their software and exploit the unique advantages of Oracle's Software in Silicon technology.

Q: Where can I get more information on the Software in Silicon Developer Program?

A: Whether you want to enhance your application data security or develop the next generation of high performance analytics applications, Software in Silicon can help. A developer program, open APIs, the Software in Silicon Cloud and a host of other developer resources are available to help reach your goal. Learn more [here](#).

Q: Is there a choice in system configurations?

A: Yes, servers based on SPARC M7 processors can be customized to the configuration required through the Oracle assemble-to-order process.

Q: What operating systems are certified to run on the servers?

A: Oracle Solaris 11.3 or later is certified in a control domain on SPARC T7-1, T7-2, T7-4, M7-8, and M7-16 servers.

The following versions are supported in the guest domains: Oracle Solaris 11.3 or later

Oracle Solaris 10 1/13*
Oracle Solaris 10 8/11*
Oracle Solaris 10 9/10*

* Plus required patches

Applications certified for Oracle Solaris 9 or 8 only may be run in an Oracle Solaris 9 or 8 branded zone running within an Oracle Solaris 10 guest domain.

Q: What is the recommended operating system for the servers?

A: Oracle recommends the latest version of Oracle Solaris 11 for enhanced performance and functionality.

Q: What software is preinstalled on the servers?

A: Oracle Solaris 11, which includes Oracle VM for SPARC, is preinstalled.

Q: What virtualization technologies are supported on the servers?

A: With the use of Oracle VM Server for SPARC, multiple application stacks can be deployed on both Oracle Solaris 11 and Oracle Solaris 10, and they are fully supported side by side. Additionally, individual Oracle Solaris 11 and Oracle Solaris 10 instances can be virtualized with Oracle Solaris Zones for optimal utilization and application performance. Even applications running on Oracle Solaris 9 and Oracle Solaris 8 can be virtualized on legacy Oracle Solaris Containers. Physical domains provide an additional level of partitioning on SPARC M7-8 and M7-16 servers, featuring electrical isolation.

Q: What are the systems management options on the servers?

A: Servers based on SPARC M7 processors include Oracle Integrated Lights Out Manager (Oracle ILOM), which is driven by an integrated system service processor that also has power-management and power-capping capability to help reduce energy cost.

Oracle ILOM provides full remote keyboard, video, mouse, and storage (KVMS) support together with remote media functionality.

Oracle ILOM works together with Oracle Enterprise Manager Ops Center, which provides the most comprehensive management across Oracle servers, operating systems, and Oracle Solaris virtualization

technologies, and dramatically improves the efficiency of IT operations with its integrated lifecycle management and built-in automation.

In addition to Oracle ILOM, unified server virtualization management is achieved with Oracle VM Manager. Oracle VM Manager can be used to discover SPARC servers running Oracle VM for SPARC and perform virtual machine management tasks. Users can create SPARC server pools, virtual machines, as well as manage networking and storage.

Q: Can SPARC servers be managed with Oracle Enterprise Manager Ops Center 12c?

A: Yes. Oracle Enterprise Manager Ops Center 12c is an end-to-end management solution that can monitor and manage all aspects of hardware and virtualization configurations on the servers. It provides a complete cloud lifecycle management solution including self-service provisioning and integrated chargeback and capacity planning.

Q: What are the power and cooling requirements for the servers?

A: The online power calculator provides guidance for estimating the electrical and heat loads for typical operating conditions.

Q: Where can I obtain information about performance benchmarks?

A: Oracle's SPARC system benchmarks are available here.

Q: Where can I find official end-user documentation for the family of servers based on the SPARC M7 processor?

A: Product documentation can be found at docs.oracle.com.

Q: Are Oracle Optimized Solutions available for the servers?

A: Yes. Oracle Optimized Solutions dramatically reduce deployment time, effort, and risk while maximizing performance using tested and documented best practices. You can deliver cloud services "out of the box" using Oracle Optimized Solutions. Oracle Optimized Solutions provide templates that you can leverage to reduce operating costs on aging assets while delivering a more flexible service environment to internal applications users. You can quickly deploy enterprise cloud services with 24/7 availability, secure multitenancy, and a radically simplified management, patching, and support model. The result is an agile database environment that is better able to support business needs by enabling higher end-user productivity, increased utilization, and reduced IT costs.

See the Oracle Optimized Solutions page for more information.

Q: What is the hardware warranty on these servers?

A: The servers come with a one-year warranty. Visit oracle.com/us/support/policies for more information about Oracle's hardware warranty.

As with all product warranties, this warranty is designed to offer consumers basic recourse should a product defect be discovered. For more complete support, purchase the recommended support coverage at point-of-purchase to gain access to the services and resources you need and avoid potential reinstatement fees at a later date.

Q: What is the recommended support for the servers based on Oracle's SPARC M7 processor?

A: For all SPARC server products being used in critical production and test environments, Oracle recommends Oracle Premier Support for Systems. Features include:

- Award-winning, 24/7 service and support to help you keep your Oracle systems running at peak performance

- Comprehensive systems coverage that includes single-point accountability for Oracle server and storage hardware;

integrated software (for example, firmware); and operating system software (Oracle Solaris, Oracle Linux, and Oracle VM)

- Fast answers and prompt resolution with around-the- clock access to Oracle product experts, hardware service, and self-help technical resources

- Tools and resources to proactively mitigate risk, simplify day-to-day IT operations, and maximize system performance including Oracle Enterprise Manager Ops Center software

- Access to Oracle operating system patches, security updates, enhancements, and upgrades without additional license or support fees

For more information, visit the Oracle Premier Support for Systems on oracle.com.

Q: Where can I obtain additional information?

A: Contact your Oracle sales representative directly or call 1-800- Oracle1. Additional information about Oracle's SPARC servers is available on oracle.com.

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