SPARC M5-32 SERVER

Oracle's SPARC M5-32 server is a massively scalable symmetric multiprocessor (SMP) architecture data center server with the highest availability features. It is designed specifically for very large business-critical, 24/7, enterprise workloads and for server consolidation. The SPARC M5-32 server is powered by the 6-core, 8 threads-per-core SPARC M5 processor with a 48 MB shared level 3 cache. The SPARC M5-32 delivers high performance per processor core and extreme system throughput with up to 1,536 total processor threads and up to a staggering 32 TB of shared system memory in a 32-processor configuration. Combined with Oracle Solaris, the SPARC M5-32 server delivers leading performance and unmatched reliability, availability, and serviceability (RAS) with the most comprehensive virtualization capabilities offered in an enterprise-class server.

Product Overview

Building on more than 25 years of SPARC heritage, the SPARC M5-32 server combines the best of business-critical data center server technology with the best of the high throughput SPARC T-Series to deliver the most powerful and scalable enterprise-class server in the Oracle product family. This unique combination of technologies includes the binary compatible SPARC S3 processor core, high RAS features and the advanced virtualization technologies of

Dynamic Domains, Oracle VM Server for SPARC, and Oracle Solaris Zones. The SPARC M5-32 server is managed using the common Oracle Integrated Lights Out Manager (Oracle ILOM) system management used in the SPARC T-Series family and in Oracle engineered systems.

The massively scalable SPARC M5-32 server is designed to meet current and future mission-critical workload requirements by utilizing a new highly configurable server enclosure that is optimized for reliability, availability, and serviceability. The SPARC M5-32 server can expand up to 32 processors, 32 TB of system memory, 32 internal disk storage devices, and 64 PCIe 3.0 I/O expansion slots. With the SPARC M5 processor and its extra large shared 48 MB level 3 cache, the SPARC M5-32 server improves single-thread performance by over 150 percent and system throughput performance by over 600 percent versus the previous generation SPARC Enterprise M-Series servers. Additionally, system I/O performance is increased by 400 percent with the 64 PCIe 3.0 hot-pluggable expansion slots providing a high level of I/O connectivity without the need for additional I/O enclosures or storage racks.

Unmatched system virtualization capabilities on the SPARC M5-32 server include Dynamic Domain hardware partitions, and Oracle VM Server for SPARC logical domains. Dynamic Domains are also referred to as physical domains, or PDoms. Additionally, Oracle Solaris

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Zones can be configured within the PDoms or Oracle VM Server for SPARC logical domains for greater system virtualization and increased system utilization. Up to four Dynamic Domains are supported on the SPARC M5-32 server, and up to 512 logical domains can be created. All SPARC M5-32 server virtualization technologies are included with the system at no additional cost.

The SPARC M5-32 provides the highest level of enterprise-class RAS features including redundancy and hot-plug capability of most major components. Other key high-availability features include use of Dynamic Domains for hardware fault isolation, end-to-end ECC memory protection, and Oracle Solaris Fault Management Architecture. These capabilities enable server self-healing, and no single system failure can prohibit system recovery, which is a requirement for mission-critical computing.

All Oracle servers ship with full function server management tools at no additional cost. Oracle ILOM utilizes industry-standard protocols to provide secure and comprehensive local and remote management. Oracle ILOM includes power management and monitoring, fault detection, and notification. The integrated Oracle System Assistant guides system administrators through rapid server deployment, firmware updates, hardware configuration, and operating system installation with Oracle certified hardware drivers.

The SPARC M5-32 server is part of Oracle's most powerful and efficient SPARC-based server family ever. Based on SPARC M5, SPARC T5, and SPARC T4 processors—which all share the same processor core—the SPARC-based server family provides seamless scalability from 1 up to 32 processors and is designed with mission-critical applications in mind. All of the servers in the SPARC-based family run the Oracle Solaris operating system—the best UNIX system for Oracle deployments. They share the same virtualization capabilities through Oracle VM Server for SPARC and leverage the same systems management framework through Oracle Enterprise Manager Ops Center. This leads to unprecedented simplicity in the deployment of all enterprise workloads, enabling reduction of business risk, delivering savings in management costs, and unlocking flexibility to grow your business to any scale, while maximizing reliability and uptime.

Oracle's Premier Support customers have access to My Oracle Support and multiserver management tools in Oracle Enterprise Manager Ops Center. Oracle Enterprise Manager Ops Center, a system management tool, detects, provisions, and monitors servers, storage, and networking components. Oracle Enterprise Manager Ops Center also features an automated service request capability, whereby potential issues are detected and reported to Oracle's support center without user intervention, assuring the maximum service levels and simplified support.

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SPARC M5-32 Server Specifications

Key Applications
• Enterprise Applications: Oracle E-Business Suite; Oracle's Siebel Customer Relationship Management (Siebel CRM); Oracle Business Intelligence Suite, Enterprise Edition; Oracle's PeopleSoft applications; JD Edwards Enterprise One applications from Oracle; SAP R/3
• Middleware: Oracle WebLogic Server, Oracle WebCenter suite, IBM WebSphere, JBoss, Apache
• Database: Oracle Database 11g Release 2, IBM DB2, Sybase IQ

Architecture
Processor
• SPARC V9 architecture
• Up to 32 six-core 3.6 GHz SPARC M5 processors
• Up to 48 compute threads per processor for a maximum 1,536 threads per system
• Six floating-point units per SPARC M5 processor
• Six cryptography units per SPARC M5 processor
• On-chip Encryption Instruction Accelerators with direct nonprivileged support for 16 industry-standard cryptographic algorithms plus random number generation in each of the six cores: AES, Camellia, CRC32c, DES, 3DES, DH, DSA, ECC, Kasumi, MD5, RSA, SHA-1, SHA-224, SHA-256, SHA-384, SHA-512
Cache Per Processor
• Large shared 48 MB, 8 banked, Level 3 Cache
• 128 KB Level 2 unified cache per core
Main Memory
• System maximum of 32 TB shared using 32 GB 1,066 MHz DDR3 DIMMs
• 16 GB and 32 GB DIMMs are supported

Standard/Integration Interfaces
• Network: up to thirty-two 10 GbE (100 Mbps/1 Gbps/10 Gbps) using configured Base I/O cards
• Expansion bus: Sixty-four low-profile PCIe 3.0 (x8 wired) slots accessed via a PCIe hot-plug carrier
• Ports: Two RJ45 console ports on each SP (2): one serial management port, one 1 GbE network port

Mass Storage and Media	
Internal disk	Up to thirty-two 600 GB 2.5 in. SAS drives or 400 GB SSDs.
External storage	Oracle offers a complete line of best-in-class, innovative storage, hardware, and software solutions, along with renowned world-class service and support. For more information, please refer to oracle.com/storage.

Power Supplies
• Twelve hot-swappable AC 7,000 w redundant (6 + 6) power supplies
• Maximum operating input current per power cord (3-phase power, 3 + 3 total cords): 200-240 V AC, 48A; 380-415 V AC, 24A; 480 V AC, 20A

Key RAS Features
• Hot-plug disk drives
• Hot-plug PCIe cards
• Hot-plug service processor modules
• Redundant, hot-swappable power supplies and fans

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- Environmental monitoring

- Extended ECC, error correction, and parity checking for memory, address, and data paths

- Easy component replacement

- Electronic prognostics

- Dynamic Domains

- Fault Management Architecture including Predictive Self Healing, a feature of Oracle Solaris

Software	
Operating system	Oracle recommends Oracle Solaris 11 for enhanced performance and functionality • Oracle Solaris 11.1 • Oracle Solaris 10 1/13 (using Oracle Solaris guest domains) • Applications certified only for Oracle Solaris 8 or Oracle Solaris 9 may be installed in an Oracle Solaris legacy zone in an Oracle Solaris 10 guest domain
Software included	• Oracle Solaris 11.1 • Oracle VM Server for SPARC 3.0 • Oracle Solaris ZFS

Virtualization
Built-in, no-cost virtualization technologies include: • Oracle VM Server for SPARC (up to 512 logical domains) • Oracle Solaris Zones • Dynamic Domains (up to four)

Environment	
Operating temperature	• 5° C to 35° C (41° F to 95° F) up to 500 m (1,640 ft) • 5° C to 29° C (41° F to 84° F) up to 3,000 m (10,000 ft)
Nonoperating temperature	• 0° C to 50° C (32° F to 122° F), maximum altitude 12,000 m (40,000 ft.)
Operating relative humidity	• 20% to 80%, noncondensing, 27° C (81° F) wet bulb
Nonoperating relative humidity	• 93%, noncondensing, 38° C (100.4° F) wet bulb
Operating altitude	• 0 m to 3,000 m (0 ft. to 10,000 ft.) * * Except in China markets where regulations may limit installations to a maximum altitude of 2,000 m
Nonoperating altitude	• 0 m to 12,000 m (0 ft. to 40,000 ft.)
Cooling	• 90,000 Btu/hr / 4,200 CFM max

Regulations (Meets or Exceeds the Following Requirements)
• **Safety**: EN 60950-1: 2006+A11:2009, IEC 60950-1:2005+A1:2009 2nd Edition, UL 60950-1 2nd Edition, CSA C22.2 No. 60950-1-07 • **EMC**: EN55022:2010 Class A, EN55024:2010, EN61000-3-2:2006+A1:2009+A2:2009, EN61000-3-3:2008, ETSI EN300386:2012 (V1.6.1) for Telecommunications Centers and for Other Than Telecommunications Centers, 47 CFR15 Subpart B (FCC) Class A, ICES-003 Class A, AS/NZS CISPR22:2006 Class A, CISPR22:2008 Class A • **Regulatory markings**: CE, FCC, ICES-003, C-Tick, VCCI, GOST-R, BSMI, KC, cULus, S-Mark • **European Union directives:** Restriction of Hazardous Substances (RoHS) Directive

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2011/65/EU
Dimensions and Weight
• Height: 2,000 mm (78.7 in)
• Width: 904 mm (35.6 in.)
• Depth: 1,451 mm (57.1 in.), with front and rear doors
• Weight: Approx. 1,677 kg (3,697 lbs.) max., varies by configuration

Warranty

The SPARC M5-32 server comes with a one-year warranty. Visit http://www.oracle.com/us/support/policies/index.html for more information about Oracle's hardware warranty.

Support

With Oracle Premier Support, our customers get complete, integrated support to maximize the return on their Oracle investment—from software updates and operational best practices to proactive support tools and rapid problem resolution. Oracle Enterprise Manager Ops Center data center management software is also included with Oracle Premier Support.

For more information visit http://www.oracle.com/support

Contact Us

For more information about Oracle's SPARC M5-32 server, visit oracle.com or call +1.800.ORACLE1 to speak to an Oracle representative.

Hardware and Software, Engineered to Work Together

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