

## SUN SPARC ENTERPRISE M9000 SERVER

MAINFRAME RELIABILITY WITH  
INDUSTRY-LEADING VIRTUALIZATION  
AND EXTREME SCALABILITY

### KEY FEATURES

- Optimized for 24x7 mission critical computing and large shared memory applications
- Mainframe class reliability, availability, serviceability (RAS)
- Unmatched investment protection with no forklift upgrades - upgrade individual components, not the whole system
- 100% binary compatibility with earlier versions of your applications
- Mix and match up to 32 or 64 quad-core SPARC64 VII/VII+ processors and/or dual-core SPARC64 VI processors in the same system
- Built-in, no-cost, and flexible virtualization technology
- Ideal consolidation platform with up to 24 Dynamic Domains and support for thousands of Oracle Solaris Containers
- Expands from 32 CPUs to 64 CPUs by adding an expansion cabinet
- Up to 288 PCIe or PCI-X slots with the external I/O expansion unit

*With mainframe-class features, the high-end Sun SPARC Enterprise® M9000 server is Oracle's highest performance and largest multiprocessor Enterprise server delivering massive scalability, up to 64 processors and 256 cores to handle the largest workloads. Built on advanced SPARC64 VII/VII+ quad-core or SPARC64 VI dual-core processors and Oracle Solaris 10 operating system as its foundation, the Sun SPARC Enterprise M9000 server is optimized for enterprise-class applications such as ERP, CRM, BIDW, large databases, HPC/scientific/engineering applications, and large-scale OLTP that require mission-critical RAS features.*



The Sun SPARC Enterprise M9000 Server delivers mainframe reliability and extreme scalability for the largest workloads.

### Investment Protection, RAS, and Scalability Features

Oracle's Sun SPARC Enterprise M9000 server provides the highest reliability and unmatched investment protection with no forklift upgrades that enterprise customers require. Sun's long term SPARC Enterprise roadmap, binary compatibility and mix and match of different speeds/generations of SPARC64 processors, provide the level of investment protection and reliability not offered by IBM or HP.

In addition, mainframe-class RAS features come standard in the Sun SPARC Enterprise M9000 server, including automatic recovery with instruction retry, up to 4 TB of system memory error- correcting code (ECC) protection with extended ECC support, guaranteed data-path integrity, total SRAM and register protection, configurable memory mirroring, and many more. What's more, major system components are redundant and hot-swappable, for increased availability and serviceability.

### Oracle Solaris: The World's Most Advanced Operating System

Only Oracle legally assures investment protection with Oracle Solaris with 100% binary compatibility for the past 15 years and counting. The SPARC Enterprise M9000 server is preinstalled with Oracle Solaris 10. Oracle Solaris 10 also delivers revolutionary features,

including Dynamic Tracing (DTrace), Oracle Solaris ZFS, cryptographic infrastructures, IP filter, and User and Process Rights Management.

### Advanced Virtualization and Consolidation

Sun SPARC Enterprise servers are among the industry's best consolidation virtualization platforms. The Sun SPARC Enterprise M9000 server supports as many as 24 Dynamic Domains, enabling massive server consolidation and virtualization. Each physical domain can be further optimized via Oracle Solaris Containers, supporting thousands of software partitions.

### Sun SPARC Enterprise M9000 Server Specifications

| Processor                            |   |
|--------------------------------------|---|
| CPU                                  | Choice of as many as 32 SPARC64 VII+/VII quad-core or 32 SPARC64 VI dual-core processors (up to 64 processors with expansion cabinet)   |
| SPARC V9 architecture, ECC-protected |   |
| Cache per SPARC64 Level 1            | <ul style="list-style-type: none"> <li>SPARC64 VII+/VII: 64 KB D-cache and 64 KB I-Cache</li> <li>SPARC64 VI: 128 KB D-cache and 128 KB I-Cache</li> </ul>  |
| Cache per SPARC64 Level 2            | <ul style="list-style-type: none"> <li>SPARC64 VII+: 12 MB on chip</li> <li>SPARC64 VII: 6 MB on chip</li> <li>SPARC64 VI: 5 MB – 6 MB on chip</li> </ul>   |
| Clock speed                          | <ul style="list-style-type: none"> <li>SPARC64 VII+: 3.0GHz</li> <li>SPARC64 VII: 2.88 GHz</li> <li>SPARC64 VI: 2.28 GHz – 2.4 GHz</li> </ul>   |
| System                               |   |
| System bus                           | <ul style="list-style-type: none"> <li>High-speed, low-latency interconnect with redundant data, address, and response crossbar</li> </ul>  |
| Two redundant service processors     |   |
| As many as 24 Dynamic Domains        |   |
| 32-CPU System                        |   |
| CPU                                  | <ul style="list-style-type: none"> <li>As many as eight CPU memory boards; as many as four processors and up to 256 GB memory per board, based on 8 GB DIMMs</li> </ul>   |
| Main memory                          | <ul style="list-style-type: none"> <li>Up to 2 TB</li> </ul>  |
| I/O                                  | <ul style="list-style-type: none"> <li>As many as eight I/O units (IOUs) with eight PCIe slots each/64 PCIe slots per system; up to 224 PCIe and PCI-X slots with the optional External I/O Expansion Unit</li> </ul> |
| System bus bandwidth (memory)        | <ul style="list-style-type: none"> <li>368 GB/sec peak, 114.9 GB/sec stream (copy)</li> </ul>   |
| System bus bandwidth (I/O)           | <ul style="list-style-type: none"> <li>122 GB/sec peak</li> </ul> Note: Calculated theoretical maximum value  |
| 64-CPU System                        |   |
| CPU                                  | <ul style="list-style-type: none"> <li>As many as 16 CPU memory boards; as many as four processors and up to 256 GB memory per board, based on 8 GB DIMMs</li> </ul>  |
| Main memory                          | <ul style="list-style-type: none"> <li>Up to 4 TB</li> </ul>  |

|   |  |
|---|--|
| I/O   | <ul style="list-style-type: none"> <li>As many as 16 IOUs with eight PCIe slots each/128 PCIe slots per system; as many as 288 PCIe and PCI-X slots with the optional External I/O Expansion Unit</li> </ul>   |
| System bus bandwidth (memory)   | <ul style="list-style-type: none"> <li>737 GB/sec peak, 224.401 GB/sec stream (copy)</li> </ul>  |
| System bus bandwidth (I/O)  | <ul style="list-style-type: none"> <li>244 GB/sec peak</li> </ul> <p>Note: Calculated theoretical maximum value</p>  |
| <b>Storage</b>  |  |
| External boot devices supported   | <ul style="list-style-type: none"> <li>Oracle's Sun StorageTek 2540, 3120, 3510FC, 9980, 9985</li> </ul>   |
| External  | <ul style="list-style-type: none"> <li>Direct, SAN, or NAS attached to Sun StorageTek-compatible tape libraries and disk arrays, including the Sun StorageTek 3X00, 5X00, 6X00, and 9X00 families</li> </ul>   |
| 32-CPU system   | <ul style="list-style-type: none"> <li>As many as 32 internal 2.5-in. SAS boot disks/4 per IOU</li> </ul>  |
| 64-CPU system   | <ul style="list-style-type: none"> <li>As many as 64 internal 2.5-in. SAS boot disks/4 per IOU</li> </ul>  |
| <b>Resource Management</b>  |  |
| Dynamic Domains   |  |
| Oracle Solaris 10 Resource Manager, including Oracle Solaris Containers |  |
| <b>Software</b>   |  |
| Operating system  | <ul style="list-style-type: none"> <li>SPARC64 VII+ (3.0 GHz): Oracle Solaris 10 (9/10), (10/09), or Solaris 10 versions (5/09), (10/08), (5/08) and (8/07) with Oracle Solaris 10 10/09 Patch Bundle and the Sun Alert Patch Cluster</li> <li>SPARC64 VII (2.88GHz): Oracle Solaris 10 (9/10), (10/09) or Oracle Solaris 10 versions (5/09), (10/08), (5/08), and (8/07) with Oracle Solaris 10 10/09 Patch Bundle and the Sun Alert Patch Cluster</li> <li>SPARC64 VI (2.28GHz, 2.4GHz): Oracle Solaris 10 (11/06) or later</li> </ul> |
| Languages   | <ul style="list-style-type: none"> <li>C, C++, Pascal, FORTRAN, Java</li> </ul>  |
| Networking  | <ul style="list-style-type: none"> <li>ONC/NFS, TCP/IP, SunLink, NetWare</li> </ul>  |
| System monitoring   | <ul style="list-style-type: none"> <li>Sun Management Center</li> <li>Oracle Solaris Web Start</li> <li>Solstice Domain Manager</li> <li>Solstice Enterprise Manager</li> <li>Solstice Backup</li> <li>Oracle Enterprise Manager Ops Center 11g</li> </ul>   |
| Value-added software  | <ul style="list-style-type: none"> <li>VERITAS File System</li> <li>VERITAS Volume Manager</li> <li>Sun Cluster</li> <li>Sun HPC ClusterTools</li> <li>Sun Java Enterprise System</li> </ul>   |
| <b>Environmental</b>  |  |
| <b>32-CPU System</b>  |  |

|   |   |
|---|---|
| Power Option 1  | <ul style="list-style-type: none"> <li>AC power: 200 V AC – 240 V AC 1-phase (50/ 60 Hz), 30 A</li> <li>Power cords: five cords (10 with the optional dual power feed; 3 m (9.8 ft) long</li> <li>Plug: NEMA-L6-30P or EN60309 (32A)</li> </ul> |
| Power Option 2  | <ul style="list-style-type: none"> <li>AC power: 208 V AC 3-phase DELTA (50/60 Hz), 80 A</li> <li>Power cords: 2 direct-wired power connections; includes dual power feed</li> </ul>  |
| Power Option 3  | <ul style="list-style-type: none"> <li>AC power: 415 V AC 3-phase STAR (50/60 Hz), 50 A</li> <li>Power cords: two direct-wired power connections; includes dual power feed</li> </ul>   |
| <b>64-CPU System</b>  |   |
| Power Option 1  | <ul style="list-style-type: none"> <li>AC power: 415 V AC 1-phase (50/60 Hz), 30 A</li> <li>Power cords: 10 cords (20 with the optional dual power feed; 3 m (9.8 ft) long</li> <li>Plug: NEMA-L6-30P or EN60309 (32A)</li> </ul>               |
| Power Option 2  | <ul style="list-style-type: none"> <li>AC power: 208 V AC 3-phase DELTA (50/60 Hz), 80 A</li> <li>Power cords: two direct-wired power connections; includes dual power feed</li> </ul>  |
| Power Option 3  | <ul style="list-style-type: none"> <li>AC power: 415 V AC 3-phase STAR (50/60 Hz), 50 A</li> <li>Power cords: four direct-wired power connections; includes dual power feed</li> </ul>  |
| Operating temperature   | <ul style="list-style-type: none"> <li>5° C to 32° C (41° F to 89.6° F), 20% – 80% relative humidity, noncondensing</li> </ul>  |
| Nonoperating temperature  | <ul style="list-style-type: none"> <li>0° C to 50° C (32° F to 122° F), 8% – 80% relative humidity, noncondensing</li> </ul>  |
| Altitude  | <ul style="list-style-type: none"> <li>Up to 3,000 m (9,843 ft)</li> </ul>  |
| <b>Regulations (meets or exceeds the following requirements)</b>  |   |
| Safety  | <ul style="list-style-type: none"> <li>CSA/UL-60950, EN60950, IEC950 CB Scheme with all national deviations</li> </ul>  |
| RFI/EMC   | <ul style="list-style-type: none"> <li>EN55022/CISPR22 Class A, FCC CRF47 Part 15 Class A, EN61000-3-2, EN61000-3-3</li> </ul>  |
| Immunity  | <ul style="list-style-type: none"> <li>EN55024, EN61000-4-2, -4-3, -4-5, -4-6, -4-8, and -4/11</li> </ul>   |
| Regulatory markings   | <ul style="list-style-type: none"> <li>CE, FCC, ICES, C-tick, VCCI, GOST-R, BSMI, MIC, CSA/UL</li> </ul>  |
| Other marks   | <ul style="list-style-type: none"> <li>WEEE and Chinese RoHS</li> </ul>   |
| <b>Key RAS Features</b>   |   |
| <p>End-to-end ECC protection; guaranteed data path integrity; automatic recovery with instruction retry; total SRAM and register protection; ECC and Extended ECC protection for memory, memory mirroring, and Predictive Self-Healing; full hardware redundancy; fault-isolated dynamic domains; dynamic reconfiguration; autodiagnosis and recovery; online upgrades; concurrent maintenance; redundant network connections; redundant storage connections; live operating system upgrades; journaling file system; hardened I/O drivers; CPU offlining; memory page retirement; and cluster support.</p> |   |

| Dimensions and Weight   |                            |
|---|----------------------------|
| 32-CPU System   | 64-CPU System              |
| Height: 180 cm (70.9 in.)   | Height: 180 cm (70.9 in.)  |
| Width: 85 cm (33.5 in.)   | Width: 167.4 cm (65.9 in.) |
| Depth: 126 cm (49.6 in.)  | Depth: 126 cm (49.6 in.)   |
| Weight: 940 kg (2,072 lb)   | Weight: 1880 kg (4,136 lb) |
| Optional Power Expansion Cabinet                                      |                            |
| Required for 1-phase DPF or 3-phase power distribution                |                            |
| One cabinet required for the 32-CPU system, two for the 64-CPU system |                            |
| Height : 180 cm (70.9 in.)  |                            |
| Width: 31.7 cm (12.5 in.)   |                            |
| Depth: 124.4 cm (49 in.)  |                            |
| Weight: 350 kg (770 lb)   |                            |

### Warranty

Visit [oracle.com/sun/warranty](http://oracle.com/sun/warranty) for Oracle's global warranty support information on Sun products.

### Services

Complete Portfolio of Services from Installation to Operations Management

Oracle Advanced Customer Services offers complete lifecycle management from installation, configuration, management and support for your Sun SPARC Enterprise M9000 servers. Oracle product experts configure, integrate and test your new server technology using Oracle's implementation best practices. To increase the efficiency of your IT team, Oracle services experts offer Oracle Operations Management that provides 24x7 monitoring and management services across the entire IT infrastructure. And, Oracle Premier Support provides the award-winning support you need to maximize the return on your Sun SPARC Enterprise M9000 server investment. From unlimited 24/7 access to Sun system specialists, to critical patches, essential product updates, and exclusive online resources — only Oracle provides integrated support for your entire stack, applications to disk

Visit [oracle.com/acs](http://oracle.com/acs) for information on Oracle Advanced Customer Services offerings for Oracle server products.

### Contact Us

For more information about Oracle's Sun SPARC Enterprise M9000 server, please visit [oracle.com/sun](http://oracle.com/sun) or call +1-800-786-0404 to speak to an Oracle representative.



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