

## SUN SERVER X4-4

### KEY FEATURES

- Compact 3U enterprise-class server
- Four Intel Xeon processor E7-8895 v2 processors
- Ninety-six DIMM slots with maximum memory of 3 TB
- Six 2.5" disk drive bays for HDDs or SSDs
- Eleven PCIe Gen3 I/O expansion slots capable of housing up to 4.8 TB Sun Flash Accelerator F80 PCIe Cards
- Hot-swappable and redundant disks, cooling fans, and power supply units
- Oracle ILOM and Oracle System Assistant

### KEY BENEFITS

- Minimize real estate costs with the most compact system design
- Maximize system power efficiency with Oracle's optimized memory implementation
- Boost application performance, improve business response, and reduce power consumption with Oracle's enterprise flash technology
- Reduce energy consumption with Oracle Advanced System Cooling
- Increase network bandwidth and reduce cost with four onboard 10GBase-T ports
- Reduce operating expenses through a common system management stack across Oracle's systems portfolio
- Maximize IT productivity and minimize operational expenses by running Oracle software on Oracle hardware



*Oracle's Sun Server X4-4 is coengineered to work with Oracle software, making it the most compact four-socket platform for running Oracle operating systems, Oracle*

*Database, Oracle Fusion Middleware, and Oracle Applications. With the highest reliability, availability, and serviceability features in the four-socket space, the Sun Server X4-4 is the ideal x86 virtualization platform for enterprise applications and in-memory databases that require large amounts of memory and I/O. The new Sun Server X4-4 packs 50 percent more cores and 50 percent more memory slots, while simultaneously increasing I/O bandwidth. Oracle's unique industry-leading 3U form factor allows for 40 percent higher rack-level core and dual inline memory module (DIMM) slot density than the competition.*

### Product Overview

This server is powered by two or four Intel Xeon processor E7-8895 v2, 15-core, 2.8 GHz, 37.5 MB LLC CPUs, with up to 3 TB of memory, 4.8 TB of PCIe flash, and 2.4 TB of solid state drives (SSDs) or 7.2 TB of hard disk drives (HDDs). By offering a combination of the highest performance processor and memory bandwidth coupled with the largest farm of I/O expansion slots in a single server, the Sun Server X4-4 provides you with a perfect balance among compute power, memory density, and I/O footprint. It delivers outstanding virtualization capacity to increase server utilization, and it can reduce your data center footprint by allowing up to 14 Sun Server X4-4 servers to fit in a 42U rack compared to only 10 servers from the competition.

The Sun Server X4-4 averages more than 50 GB of memory capacity, more than 5,600 MB/sec of memory bandwidth, and more than 3,000 MB/sec I/O bandwidth per core, enabling consolidation of both small and large virtual machines. When combined with Oracle Fabric Interconnect and Oracle SDN, the Sun Server X4-4 server packs in the most VMs per rack while enabling faster live migration and cable consolidation.

Further, the Sun Server X4-4 introduces a new flexible processor that allows a server to be reconfigured and repurposed remotely for varying workloads, without changing the physical components. This flexible processor technology simplifies infrastructure requirements and enables greater server reuse. The ability to change the characteristics of the server for varying workloads, by time of day, offers tremendous flexibility.

### Higher Performance, Less Power Consumption

With Oracle's optimized memory subsystem design, the Sun Server X4-4 runs faster and consumes less power than the previous four-socket server and competitive four-socket servers. In Performance Mode, the DIMMs achieve 1,333 MHz at 1 DIMM per channel (DPC), 2DPC, and 3DPC, all with low-voltage DIMMs.

Following the previous-generation server, the Sun Server X4-4 continues to offer two flash integration options for application and database acceleration: Oracle's Sun Flash Accelerator F80 PCIe Card and SSDs. The flash options deliver the I/O performance of up to 400 conventional HDDs, turbo-charging applications while eliminating bottlenecks and reducing power consumption. When compared with the previous-generation system, the Sun Server X4-4 triples the memory capacity to 3 TB and doubles the storage capacity to 7.2 TB, enhancing the system's virtualization capabilities. In addition, an increase of 50 percent in processor cores and threads produces better performance at the same maximum system power, making this server the densest and fastest performing in its class.

### Oracle Advanced System Cooling

With an advanced cooling system unique to Oracle, the Sun Server X4-4 achieves system efficiencies that result in power savings and maximum uptime. Oracle Advanced System Cooling utilizes remote temperature sensors for fan speed control, minimizing power consumption while keeping optimal temperatures inside the server. These remote temperature sensors have been designed into key areas of this server to ensure appropriate fan usage in zones which include power supply units, PCIe slots, Ethernet ports, exiting air, entering air, and thermal diodes. This feature helps reduce energy consumption in a way that other servers cannot.

### Simple System Management

System management is simplified with Oracle Integrated Lights Out Manager (Oracle ILOM), which comes standard in every Sun Server X4-4. Oracle ILOM centralizes system management locally or remotely to ease system configuration, software provisioning, and updates, providing a consistent interface across the entire x86 product line.

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 capabilities also include 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 hardware drivers certified by Oracle.

Oracle 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 critical component of Oracle's application-to-disk system management tool, coordinates servers, storage, and networking for a complete cloud infrastructure as a service (IaaS). 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.

### Optimal Performance and Reliability

Oracle x86 systems are the best enterprise x86 platforms for running Oracle software. They provide optimal performance and reliability based on an integrated and fully supported Oracle stack, as well as everything you need for a cloud deployment. Every Oracle x86 system comes complete with virtualization, choice of operating systems, cloud provisioning, and Oracle's unique application-to-disk management environment—all at no extra charge—resulting in lower overall TCO. Oracle x86 systems also serve as a key building block for Oracle's

engineered systems, such as Oracle Exadata and Oracle Exalytics, which have achieved a 10x performance gain through integration and optimization.

### Trade-In Program

The Upgrade Advantage Program (UAP) is a trade-in program that offers up-front discounts on new Oracle systems for the trade-in of older, eligible systems from Oracle and competitors. Oracle also provides free return shipping and free state-of-the-art recycling of the old system so you needn't worry about the disposal of hazardous waste.

### Sun Server X4-4 Specifications

<b>Architecture</b>
<b>Processor</b>
Two or four Intel® Xeon® processor E7-8895 v2 processors Up to 15 cores per processor
<b>Main Memory</b>
<ul style="list-style-type: none"> <li>Up to 96 DIMMs (24 DIMMs per processor)</li> <li>8 GB, 16 GB DDR3 ECC registered low-voltage DIMMs or 32 GB DDR3 ECC registered low-voltage LRDIMMs</li> <li>Two memory riser cards required per processor</li> <li>Maximum memory capacity of 3 TB</li> </ul>
<b>Interfaces</b>
<b>Standard I/O</b>
<ul style="list-style-type: none"> <li>Four 10 GbE on-board Ethernet copper ports</li> <li>One dedicated 10/100/1000Base-T Ethernet copper management port</li> <li>One RS-232 RJ-45 serial port</li> <li>Six USB 2.0 ports (two front, two rear, two internal)</li> <li>Eleven PCI Express (PCIe) slots: two x16 slots; nine x8 slots</li> <li>Front-accessible DVD-RW drive slot (optional)</li> </ul>
<b>Storage</b>
<ul style="list-style-type: none"> <li>Six 2.5" SAS-2 / SATA-3 front-accessible, hot-swappable disk bays</li> <li>All bays can be populated with SAS-2 HDDs or SATA-3 SSDs</li> <li>Optional RAID levels: 0, 1, 1E, 10, 5, 5EE, 6 with battery backed write cache (BBWC) via optional HBA PCIe card</li> <li>Up to six units of optional Sun Flash Accelerator F80 PCIe Card</li> </ul>
<b>Graphics</b>
<ul style="list-style-type: none"> <li>VGA 2D graphics controller embedded, which support resolutions up to 1,600 x 1,200 x 16 bits @ 60 Hz (1,024 x 768 when viewed remotely via Oracle ILOM remote keyboard, video, mouse, and storage (RKVMS))</li> <li>Rear and front accessible HD15 VGA port</li> </ul>
<b>Systems Management</b>
<b>Interfaces</b>
<ul style="list-style-type: none"> <li>Dedicated 10/100/1000BaseT Ethernet network management port</li> <li>In-band, out-of-band, and sideband network management access via any one of the four main ports of the server or the dedicated port</li> <li>RJ-45 serial management port</li> </ul>
<b>Service Processor</b>

<p>Oracle Integrated Lights Out Manager (Oracle ILOM) provides:</p> <ul style="list-style-type: none"> <li>• RKVMS redirection</li> <li>• Full remote management through command-line, IPMI, and browser interfaces</li> <li>• Remote media capability (USB, DVD, CD, ISO image)</li> <li>• Advanced power management and monitoring</li> <li>• Active Directory, LDAP, RADIUS support</li> <li>• Dual Oracle ILOM flash</li> <li>• Signed Oracle ILOM</li> <li>• Direct virtual media redirection</li> </ul>
<p><b>Installation</b></p> <ul style="list-style-type: none"> <li>• Oracle System Assistant provides: <ul style="list-style-type: none"> <li>• Task-driven hardware updating and configuration</li> <li>• OS installation</li> <li>• Simple download of latest Oracle firmware, drivers, tools, and documentation</li> </ul> </li> <li>• Cross-OS command-line tools for RAID, BIOS, and Oracle ILOM configuration</li> <li>• Cross-OS firmware updating tool</li> </ul>
<p><b>Monitoring</b></p> <ul style="list-style-type: none"> <li>• Comprehensive fault detection and notification</li> <li>• In-band and out-of-band SNMP monitoring V1, V2c, V3</li> <li>• Syslog and SMTP alerts, WS-MAN</li> <li>• Automatically create a service request for key hardware faults with Oracle's automated service request (ASR)</li> </ul>
<p><b>Oracle Enterprise Manager Ops Center</b></p> <ul style="list-style-type: none"> <li>• Deployment and provisioning of server bare metal</li> <li>• Cloud and virtualization management</li> <li>• Inventory control and patch management</li> <li>• OS observability for performance monitoring and tuning</li> <li>• Automated service request generation</li> <li>• Connects to Oracle Enterprise Manager Cloud Control application management</li> <li>• Enables control of native Oracle Solaris, Oracle Linux, Red Hat Linux, SUSE Linux, and Microsoft Windows when running in virtual machines</li> </ul>
<p><b>Software</b></p>
<p><b>Operating Systems</b></p> <ul style="list-style-type: none"> <li>• Oracle Solaris (preinstall option)</li> <li>• Oracle Linux (preinstall option)</li> <li>• Oracle VM (preinstall option)</li> <li>• Red Hat Enterprise Linux</li> <li>• SUSE Linux Enterprise Server</li> <li>• VMware</li> <li>• Microsoft Windows Server</li> <li>• For more information on software, go to:  <a href="https://wikis.oracle.com/display/SystemsComm/Home#tab:x86-Systems-Options-and-Downloads">https://wikis.oracle.com/display/SystemsComm/Home#tab:x86-Systems-Options-and-Downloads</a> </li> </ul>
<p><b>Virtualization</b></p> <ul style="list-style-type: none"> <li>• Oracle VM (preinstall option)</li> <li>• VMware</li> </ul>

The Sun Server X4-4, which is powered by up to four Intel Xeon processor E7-8895 v2 processors, up to 3 TB of memory, and up to 7.2 TB of internal storage, is the best platform for enterprise consolidation and virtualization for business applications.

#### RELATED PRODUCTS

- Oracle's Sun Server X2-8

#### RELATED SERVICES

The following services are available from Oracle support services:

- Support
- Installation
- Eco-optimization services

Environment
<ul style="list-style-type: none"> <li>• Operating temperature: 5° C to 35° C (41° F to 95° F) at sea level; 5° C to 31° C (41° F to 88° F) at altitude</li> <li>• Nonoperating temperature: -40° C to 68° C (-40° F to 154° F)</li> <li>• Operating relative humidity: 10%–90% relative humidity, noncondensing</li> <li>• Nonoperating relative humidity: 93% relative humidity, noncondensing</li> <li>• Acoustic noise: LwAd: 8.9 B (idle and operating, room temp.), 8.9 B (max. ambient); LpAm: 75 dBA (bystander position, max. ambient)</li> </ul>
Power
<ul style="list-style-type: none"> <li>• Rated line voltage: 100–127 VAC (two-processor configuration); 200–240 VAC</li> <li>• Rated input current: 100–127 VAC 12A (two-processor configuration); 200–240 VAC 10A</li> <li>• Two hot-swappable rear accessible power supplies with N+N redundancy</li> <li>• <a href="#">Power Calculator</a></li> </ul>
Regulations
<ul style="list-style-type: none"> <li>• Safety: UL/CSA 60950-1, EN 60950-1, IEC 60950-1 (CB Scheme with all country differences), North America (NRTL), European Union (EU), International CB Scheme, 2006/95/EC (73/23/EEC) Low Voltage Directive</li> <li>• EMC: EN 55022, CNS-13438 Class A (Taiwan), FCC CFR 47 CFR 15B Class A (Code of Federal Regulations, Title 47, Part 15, Subpart B Class A (United States), ICES-003 (A) NMB-3 (A) Class A (Canada), ETSI EN300386 (V1.6.1), VCCI: 2008 Class A (Japan), KN 22 RRL Public Notice 2009-9 (Dec 21, 2009)</li> <li>• Immunity: EN55024 (Immunity), EN61000-3-2, EN61000-3-3</li> <li>• Other: Restriction of Hazardous Substances (RoHS) Directive 2011/65/EU, Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/EC, Low Voltage Directive 2006/95/EC, and EMC Directive 2004/108/EC</li> </ul>
Certifications
<ul style="list-style-type: none"> <li>• Safety Marks: UL</li> <li>• Regulatory Marks: CE, FCC, EAC, C-Tick, VCCI, BSMI, KCC, ICES-003 (A), NMB-3 (A), WEEE symbol, China RoHS symbol</li> <li>• Other: Altitude: <ul style="list-style-type: none"> <li>Operating altitude: 0 m to 3,000 m* (0 ft to 9,840 ft) maximum ambient temperature is derated by 1 degree C per 300 m above 900 m, except in China where regulations may limit installations to a maximum altitude of 2,000 m.</li> <li>Nonoperating altitude: 0 m to 12,000 m (0 ft to 40,000 ft)</li> </ul> </li> </ul>
Dimensions and Weight
<ul style="list-style-type: none"> <li>• Height: 129.9 mm (5.1 in.)</li> <li>• Width: 436.5 mm (17.2 in.)</li> <li>• Depth: 732.0 mm (28.8 in.)</li> <li>• Weight: 40 kg (88 lbs.) max.</li> </ul>
Installation Kits
<ul style="list-style-type: none"> <li>• Tool-less rack mounting slide rail kit</li> <li>• Cable management arm</li> </ul>

## Warranty

The Sun Server X4-4 comes with a one-year warranty. For more information, visit [oracle.com/goto/sun/warranty](http://oracle.com/goto/sun/warranty) for Oracle's global warranty support.

## Support

Only Oracle offers single-point accountability and complete, integrated support for the entire Oracle stack including 24/7 hardware service, expert technical support, proactive tools, and software updates. Visit [oracle.com/sun/services](http://oracle.com/sun/services) for information on Oracle's service program offerings for Sun products

## Contact Us

For more information about Oracle's Sun Server X4-4, please visit <http://www.oracle.com/goto/x4-4> or call +1.800.786.0404 to speak to an Oracle representative.



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**Hardware and Software, Engineered to Work Together**