

# Oracle Server X5-8



Oracle Server X5-8 is the most powerful and advanced eight-socket x86 server with leading performance, outstanding scalability, and unmatched reliability, availability, and serviceability (RAS). It is ideal for very large memory-optimized databases, scale-up applications, and enterprise workloads requiring extreme I/O bandwidth, memory, and core count. It packs in 20 percent more cores, supports 20 percent higher memory bandwidth, and doubles the flash capacity compared to the last generation. Oracle's unique industry-leading 5U form factor supports 60 percent higher rack-level core and memory slot density than competitors.

## Product Overview

Using a modular system design, Oracle Server X5-8 is powered by four or eight processor modules, each containing one Intel® Xeon® processor E7-8895 v3 and 24 memory slots. With 18 cores per socket, this server delivers extreme compute density in a compact 5U enclosure, making it the ideal candidate for Oracle Database 12c with Oracle Multitenant feature. When compared with the previous-generation server, this system adds 20 percent additional cores and correspondingly increases memory bandwidth by 20 percent. This increased memory bandwidth, along with its large memory footprint, makes Oracle Server X5-8 the ideal candidate for Oracle Database In-Memory. With a total of 144 cores and substantial I/O bandwidth, Oracle Server X5-8 provides the highest level of scale-up throughput computing, making it the densest and fastest performing server in its class.

Oracle Server X5-8 supports the Intel Xeon processor E7-8895 v3, which has all of the recent innovations in elastic computing jointly developed by Intel and Oracle. Elastic computing allows a server to be reconfigured and repurposed remotely for varying workloads, without any change to the physical configuration of the server. The Intel Xeon processor E7-8895 v3, combined with continual Oracle innovations in the system BIOS and operating system kernel software, enable a unique elastic feature that allows this processor to run up to 600 MHz faster than the standard Intel Xeon processor E7-8890 v3. This flexible processor technology simplifies infrastructure requirements and enables greater server reuse, thereby reducing both capital and operational expenses.

With Oracle's optimized memory implementation, Oracle Server X5-8 runs faster than competitive eight-socket servers. The dual inline memory modules (DIMMs) achieve 1,600 MT/sec at one DIMM per channel (1 DPC) and at two DIMMs per channel (2 DPC), and 1,333 MT/sec at three DIMMs per channel (3 DPC), all with low-voltage DIMMs.



### KEY FEATURES

- Compact 5U, eight-socket, glueless enterprise-class server supporting four or eight Intel® Xeon® processor E7-8895 v3 processors
- 192 DIMM slots with maximum memory capacity of 6 TB
- Eight 16-lane plus eight 8-lane hot-swappable PCIe Gen 3 I/O slots
- Eight 2.5" drive bays for hard disk drives or solid state drives
- Up to 12.8 TB flash with Oracle Flash Accelerator F160 PCIe Card
- Hot-pluggable I/O, hot-swappable and redundant disks, cooling fans, and power supply units
- Oracle ILOM and Oracle System Assistant

**KEY BENEFITS**

- Increase performance through innovative design
- Receive leading reliability with unmatched RAS features
- Boost application performance, improve business response, and reduce power consumption with Oracle's enterprise flash technology
- Reduce energy consumption with Oracle Advanced System Cooling
- 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

With up to 396 GB/sec worth of I/O bandwidth, Oracle Server X5-8 is an ideal platform for I/O-intensive enterprise applications. The system consists of 16 industry-standard, low-profile PCIe Gen 3 slots providing I/O flexibility and a wide range of connectivity choices, such as Fibre Channel, InfiniBand, or Ethernet. This innovative system design enables hot-pluggable functionality, implemented through the use of up to eight dual PCIe card carriers (DPCC) that each contains up to two PCIe Gen 3 cards. This feature helps to eliminate downtime typically needed to perform I/O upgrades and maintenance.

Oracle Server X5-8 offers two flash integration options for application and database acceleration: Oracle Flash Accelerator F160 PCIe Card and a conventional solid-state drive (SSD). These flash options deliver more than 1,000,000 IOPS, significantly reducing SQL latencies and turbo-charging flash-aware applications.

Oracle Server X5-8 includes RAS features that increase overall server uptime. Real-time monitoring of the health of the CPU, memory, and I/O subsystems, coupled with offlining capability of failed components, increases the system availability. The modular system design enables hot-swappable components such as LP-PCIe I/O cards, Oracle Flash Accelerator F160 PCIe Card, disk drives, fans, and power supplies to be serviced from the front or rear of the system. There is no need for top access to service any of the system subassemblies. Exhaustive system diagnostics and hardware-assisted error reporting and logging enable identification of failed components for ease of service.

With an advanced cooling system unique to Oracle, Oracle Server X5-8 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 are designed into key areas of this server to ensure appropriate fan usage in zones that 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.

All Oracle servers ship with full-function server management tools at no additional cost. Oracle Integrated Lights Out Manager (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.

Oracle's x86 systems are the best enterprise x86 platforms for running Oracle software, and they are 30 percent more reliable when running an Oracle operating system. They provide optimal performance and reliability based on an integrated and fully supported

Oracle stack, as well as everything needed for a cloud deployment. Every x86 system from Oracle comes complete with virtualization, choice of operating systems, cloud provisioning, and Oracle's unique application-to-disk management environment—all at no extra charge. Oracle's x86 systems also serve as a key building block for Oracle's engineered systems, such as Oracle Exadata, which achieve a 10x performance gain through integration and optimization.

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 users needn't worry about the disposal of hazardous waste.

## Oracle Server X5-8 Specifications

### CPU MODULE ARCHITECTURE

---

#### CPU Module—Processors

---

- 4 or 8 CPU modules, each with one Intel® Xeon® processor E7-8895 v3 product family CPU
- 18 cores per processor

#### CPU Module—Memory

---

- Up to 192 DIMMs (24 per CPU module)
- 16 GB DDR3-1,600 GHz ECC registered DIMMs or 32 GB DDR3-1,600 GHz load-reduced ECC DIMMs (LRDIMM)
- 6 TB maximum memory capacity

### INTERFACES

---

#### Standard I/O

---

- Two 1 GbE network ports via RJ-45 connectors
- VGA: 1 VGA 1,600 x 1,200 x 16 bits @ 60 Hz graphics controller port
- USB: 4 USB ports (two external, two internal)
- Serial: 1 serial management RS232 RJ-45 port
- 16 PCIe Gen 3 slots (8x8 slots, 8x16 slots), hot swappable via DPCC

#### Internal Storage

---

- Eight 2.5" SAS-3 front-accessible, hot-swappable drive bays
- All bays can be populated with SAS-3 HDDs or SSDs for up to 9.6 TB of internal storage
- 12 Gb/sec RAID HBA supporting levels: 0, 1, 5, 6, 10, 50, 60 with 1 GB of DDR3 onboard memory with flash memory backup via embedded internal SAS-3 HBA PCIe card

#### Graphics

---

- VGA 2D graphics controller embedded: 8 MB
- Resolution: up to 1,600 x 1,200 x 16 bits @ 60 Hz (1,024 x 768 when viewed remotely via Oracle ILOM)

### SYSTEMS MANAGEMENT

---

#### Interfaces

---

- Dedicated 10/100/1 GbE network management port via RJ-45 connector
- In-band, out-of-band, and sideband network management access
- RJ-45 serial management port

#### Service Processor

---

Oracle Integrated Lights Out Manager (Oracle ILOM) provides:

- Remote keyboard, video, mouse redirection
- Full remote management through command-line, IPMI, and browser interfaces

The Oracle Server X5-8 system offers leading reliability with unmatched x86 RAS features, making it the most powerful of Oracle's x86 servers.

#### RELATED PRODUCTS

Oracle Server X5-4

#### RELATED SERVICES

The following are available from Oracle Support Services:

- Support
- Installation
- Eco-optimization services

- Remote media capability (USB, DVD, CD, ISO image)
- Advanced power management and monitoring
- Active Directory, LDAP, RADIUS support
- Dual Oracle ILOM flash
- Direct virtual media redirection
- FIPS 140-2 mode using OpenSSL FIPS certification (#1747)

#### Installation

- Oracle System Assistant provides:
  - Task-driven hardware updating and configuration
  - OS installation
  - Simple download of latest Oracle firmware, drivers, tools, and documentation
- Cross-OS command-line tools for RAID, BIOS, and Oracle ILOM configuration
- Cross-OS firmware updating tool

#### Monitoring

- Comprehensive fault detection and notification
- In-band and out-of-band SNMP monitoring V1, V2c, V3
- Syslog and SMTP alerts
- Automatic creation of a service request for key hardware faults with Oracle's automated service request (ASR)

#### Oracle Enterprise Manager Ops Center

- Deployment and provisioning of server bare metal
- Cloud and virtualization management
- Inventory control and patch management
- OS observability for performance monitoring and tuning
- Automated service request generation
- Connects to Oracle Enterprise Manager Cloud Control application management
- Enables control of native Oracle Solaris, Oracle Linux, Red Hat Linux, SUSE Linux, and Microsoft Windows when running in virtual machines

#### SOFTWARE

##### Operating Systems

- Oracle Solaris (preinstall option)
- Oracle Linux (preinstall option)
- Oracle VM (preinstall option)
- Red Hat Enterprise Linux
- Microsoft Windows Server
- VMware

For more information on software go to: [Oracle Server X5-8 Options and Downloads](#)

#### ENVIRONMENT

- Operating temperature: 5° C to 35° C (41° F to 95° F)
- Nonoperating temperature: -40° C to 70° C (-40° F to 158° F)
- Operating relative humidity: 10%–90%, noncondensing
- Acoustic noise: 7.7 B operating, 6.8 B idling–(LwAd: 1 B=10 dB)

#### POWER

- Rated line voltage: 200–240 VAC (50/60 Hz)
- Rated input current: 23 A (12 A max per cord)
- Four hot-swappable front accessible power supplies with N+N redundancy
- [Power Calculator](#)

#### REGULATIONS

- Product Safety: UL/CSA 60950-1, EN 60950-1, IEC 60950-1 CB Scheme with all country differences
- EMC:
  - » Emissions : FCC CFR 47 Part 15, ICES-003, EN55022, EN61000-3-2, EN61000-3-3
  - » Immunity: EN55024
- Emissions and Immunity: EN300 386

---

**CERTIFICATIONS**


---

- North America Safety (NRTL), European Union (EU), International CB Scheme, HSE Exemption (India), BSMI (Taiwan), RCM (Australia), MSIP (Korea), VCCI (Japan)
  - European Union Directives: 2006/95/EC Low Voltage Directive, 2004/108/EC EMC Directive, 2011/65/EU RoHS Directive, 2012/19/EU WEEE Directive
  - Other: Altitude:
  - Operating altitude: 0 m to 3,000 m (0 ft to 9,840 ft) maximum ambient temperature is derated by one degree C per 300 m above 900 m, except in China 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)
- 

**DIMENSIONS AND WEIGHT**


---

- Height: 219.25 mm (8.63 in.)
  - Width: 445 mm (17.5 in.)
  - Depth: 834 mm (32.8 in.)
  - Weight: 99.79 kg (220 lb.) maximum
- 

**INCLUDED INSTALLATION KITS**


---

- Tool-less rack mounting slide rail kit
- 

## Warranty

Oracle Server X5-8 comes with a one-year warranty. For more information, visit:

[Oracle Technical Support Policies](#)

## Support

Only Oracle offers a single point of 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 Support](#) for information on Oracle's service program offerings for Oracle products.

**CONTACT US**

For more information about Oracle Server X5-8, visit [oracle.com](#) or call +1.800.ORACLE1 to speak to an Oracle representative.


**CONNECT WITH US**

-  [blogs.oracle.com/oracle](#)
-  [facebook.com/oracle](#)
-  [twitter.com/oracle](#)
-  [oracle.com](#)

**Integrated Cloud Applications & Platform Services**

Copyright © 2015, Oracle and/or its affiliates. All rights reserved. This document is provided for information purposes only, and the contents hereof are subject to change without notice. This document is not warranted to be error-free, nor subject to any other warranties or conditions, whether expressed orally or implied in law, including implied warranties and conditions of merchantability or fitness for a particular purpose. We specifically disclaim any liability with respect to this document, and no contractual obligations are formed either directly or indirectly by this document. This document may not be reproduced or transmitted in any form or by any means, electronic or mechanical, for any purpose, without our prior written permission.

Oracle and Java are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners.

Intel and Intel Xeon are trademarks or registered trademarks of Intel Corporation. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. AMD, Opteron, the AMD logo, and the AMD Opteron logo are trademarks or registered trademarks of Advanced Micro Devices. UNIX is a registered trademark of The Open Group. 0615



Oracle is committed to developing practices and products that help protect the environment