Oracle Server X8-8
Eight-Socket Configuration

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x86 SERVERS

Oracle Server X8-8 is a powerful and advanced eight-socket x86 server with leading performance, outstanding scalability, and unmatched reliability, availability, and serviceability (RAS). The Oracle Server X8-8 eight-socket configuration is ideal for very large memory-optimized databases, scale-up applications, and enterprise workloads requiring extreme I/O bandwidth, memory, and core count.

Product Overview

Using a modular system design, Oracle Server X8-8 is a resilient server powered by eight Intel® Xeon® Scalable Processor Second Generation Platinum 8200 series processors and 96 memory slots. With 24 cores per socket, this server delivers extreme compute density in a compact 5U enclosure, making it the ideal candidate for use with the Oracle Exadata Multitenant feature of Oracle Database 12*c* and above. With a total of 192 cores and substantial I/O bandwidth, Oracle Server X8-8 provides the highest level of scale-up throughput computing, making it the densest and fastest performing server in its class.

Oracle Server X8-8 includes features that increase overall server uptime. Real-time monitoring of the health of the CPU, memory, and I/O subsystems, coupled with an offlining capability for failed components, increases the system availability. The modular system design enables hot-swappable components such as LP-PCIe I/O cards, disk drives, fans, and power supplies to be serviced from the front or rear of the system. Exhaustive system diagnostics and hardware-assisted error reporting and logging enable identification of failed components for ease of service.

Oracle Server X8-8, with its pool of 192 cores, 6 TB of memory, and 16 PCIe slots is an ideal platform for consolidating multiple database instances onto a single platform. These resources allow databases to consume system resources elastically during peak operating conditions. The elimination of individual physical servers reduces transaction latencies because communication paths benefit from the higher bandwidth offered by the UPI connections between the processors instead of using network bandwidth. This reduction in the use of network bandwidth also results in a reduction of infrastructure costs.

Oracle continues to engineer Oracle Database together with the latest NVMe devices, operating systems, device drivers, and server technology to deliver unbeatable performance and reliability by innovatively using flash technology. The Oracle Server X8-8 eight-socket configuration uniquely supports up to 51.2 TB of NVMe flash in an

KEY FEATURES

- Compact 5U, eight-socket glueless enterprise-class server
- Modular design that allows front and rear access to serviceable components
- Eight Intel® Xeon® Scalable Processor Second Generation Platinum 8200 series processors
- Ninety-six DIMM slots with maximum memory capacity of 6 TB
- Sixteen hot-pluggable PCIe Gen 3 I/O expansion slots
- Eight on-board 10GBase-T ports
- Oracle Integrated Lights Out Manager (Oracle ILOM)
- Resilient server with highest levels of RAS in an energy-efficient footprint

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LP-PCIe form factor. This design delivers an aggregate bandwidth of 128 GB/sec, which is double the bandwidth achievable using an equivalent number of standard NVMe solid-state drives (SSDs). Oracle Server X8-8 offers integration for application and database acceleration. Oracle Flash Accelerator F640 PCIe Card delivers approximately 650K random read IOPS and approximately 280K random write IOPS (4KB block size) per device, significantly reducing SQL query latencies and turbo-charging flash-aware applications..

Oracle Server X8-8 has eight 10GBase-T ports and sixteen configurable PCIe slots—eight 16-lane and eight 8-lane per server. These PCIe slots are housed in Oracle's unique PCIe card carrier modules that enable hot pluggability of standard PCIe cards. This design approach allows for maximum application uptime by enabling hot-plug service of the I/O subsystem.

Oracle Server X8-8 ships with Oracle ILOM 4.0, a cloud-ready service processor designed for today's security challenges. Oracle ILOM provides real-time monitoring and management of all system and chassis functions as well as enables remote management of Oracle servers. The latest version of Oracle ILOM uses advanced service processor hardware with built-in hardening and encryption as well as improved interfaces to reduce the attack surface and improve overall security. Oracle ILOM has improved firmware image validation through the use of improved firmware image signing. This mechanism provides silicon-anchored service processor firmware validation that cryptographically prevents malicious firmware from booting. After Oracle ILOM's boot code is validated by the hardware, a chain of trust allows each subsequent firmware component in the boot process to be validated.   Finally, with a focus on security assurance, using secure coding and testing methodologies, Oracle is able to maximize firmware security by working to prevent and remediate vulnerabilities prior to release.

With an advanced cooling system unique to Oracle, Oracle Server X8-8 achieves system efficiencies that result in significant 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, and entering air.

Oracle Premier Support customers have access to My Oracle Support and multiserver management tools in Oracle Enterprise Manager 13*c*. Oracle Enterprise Manager 13*c*, a critical component of Oracle's applications-to-disk system management tool, coordinates servers, storage, and networking for a complete cloud infrastructure as a service (IaaS). Oracle Enterprise Manager 13*c* also features an automated service request capability, whereby potential issues are detected and reported to Oracle's support center without user intervention, ensuring the maximum service levels and simplified support.

With industry-leading in-depth security spanning its entire portfolio of software and systems, Oracle believes that security must be built in at every layer of the IT environment. In order to build x86 servers with end-to-end security, Oracle maintains 100 percent in-house design, controls 100 percent of the supply chain, and controls 100

percent of the firmware source code. Oracle's x86 servers enable only secure protocols out of the box in order to prevent unauthorized access from the point of installation. For even greater security, customers running Oracle Ksplice on Oracle's x86 servers will benefit greatly from zero-downtime patching of the Oracle Linux kernel.

Oracle is driven to produce the most reliable and highest performing x86 systems, with security-in-depth features layered into these servers, for two reasons: Oracle Cloud Infrastructure and Oracle engineered systems. At their foundation, these rapidly expanding cloud and converged infrastructure businesses run on Oracle's x86 servers. To ensure that Oracle's SaaS, PaaS, and IaaS offerings operate at the highest levels of efficiency, only enterprise-class features are designed into these systems, along with significant co-development among cloud, hardware, and software engineering. Judicious component selection, extensive integration, and robust real-world testing enable the optimal performance and reliability critical to these core businesses. All the same features and benefits available in Oracle's cloud are standard in Oracle's x86 standalone servers, helping customers to easily transition from on-premises applications to cloud with guaranteed compatibility and efficiency.

Oracle Server X8-8 Eight-Socket Configuration Specifications

ARCHITECTURE

Processors

- *8 CPU modules, each with one Intel® Xeon® Platinum 8268 or 8260 processor*
- *24 cores per processor*
- *Intel® Xeon® Platinum 8268 processor: 2.9 GHz, 24 cores, 205 watts, XCC, 35.75 MB L3 cache*
- *Intel® Xeon® Platinum 8260 processor: 2.4 GHz, 24 cores, 165 watts, XCC, 35.75 MB L3 cache*

Memory

- *Ninety-six DIMM slots (12 per CPU module) provide up to 6 TB of DDR4 ECC DIMM memory*
- *RDIMM options: 16 GB at DDR4-2666 and 32 GB at DDR4-2666*
- *LRDIMM option: 64 GB at DDR4-2666*

INTERFACES

Standard I/O

- *Eight 10 GbE onboard Ethernet copper ports*
- *Two 1 GbE onboard Ethernet copper ports*
- *Four USB 3.0 ports (two external, two internal)*
- *Sixteen PCIe Gen 3 slots (eight 16-lane; eight 8-lane)*
    - » *Rear-serviceable and hot swappable using dual PCIe card carrier (DPCC)*

Internal Storage

- *Eight 2.5-inch SAS-3 rear-accessible, hot-swappable drive bays*
- *All bays can be populated with SAS-3 HDDs or SSDs*
- *One embedded 12 Gb/sec SAS-3 RAID HBA supporting RAID levels 0, 1, 5, 6, 10, 50, and 60 with 2 GB of flash-backed write-back cache*

SYSTEMS MANAGEMENT

Interfaces

- *Dedicated 10/100/1000BaseT Ethernet network management port*
- *In-band, out-of-band, and sideband network management access via any one of the four main ports on the server or the dedicated port*

The Oracle Server X8-8 eight-socket configuration offers leading reliability with unmatched x86 RAS features, making it the most powerful of Oracle's x86 servers.

RELATED PRODUCTS

Oracle Server X8-8 dual 4-socket configuration

Oracle Server X8-2L

Oracle Server X8-2

RELATED SERVICES

The following Oracle Support services are available:

• Support

• Installation

• Eco-optimization services

- *RJ-45 serial management port*

Service Processor

Oracle ILOM provides:

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

- *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 v2c and v3*
- *Syslog and SMTP alerts*
- *Automatic creation of a service request for key hardware faults with Oracle Auto Service Request*

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*
- *Single pane of glass for management of all Oracle deployments, whether on premises or in Oracle Cloud Infrastructure*

SOFTWARE

Operating Systems

- *Oracle Linux*
- *Oracle Solaris*

For a complete list, go to Oracle Server X8-8 Options & Downloads.

Virtualization

Oracle VM

For a complete list, go to Oracle Server X8-8 Options & Downloads.

ENVIRONMENT

- *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*
- *Nonoperating temperature: -40° C to 68° C (-40° F to 154° F)*
- *Operating relative humidity: 10%–90% relative humidity, noncondensing*
- *Nonoperating relative humidity: 93% relative humidity, noncondensing*
- *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 limit installations to a maximum altitude of 2,000 m.*
- *Nonoperating altitude: 0 m to 12,000 m (0 ft to 40,000 ft)*
- *Acoustics*

Measured Condition (Fan Speed)	Declared Sound Power Level LWAd (1 B = 10 dB)	L_{pA} Sound Pressure Measurements (energy average of four bystander positions, Ref: 20 µPa)
60% PWM	8.7 B	70.5 dBA
100% PWM	9.7 B	80.1 dBA

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*
- *For more information on power consumption, go to: Oracle Server X8-8 Power Calculator*

REGULATIONS

- *Product Safety: UL/CSA 60950-1, EN 60950-1, IEC 60950-1 CB Scheme with all country differences*
- *EMC emissions: FCC 47 CFR 15, ICES 003, EN55032, EN61000-3-11, EN61000-3-12*
- *Immunity: EN55024*

All standards and certifications referenced are to the latest official version. For additional detail, please contact your sales representative.
Other country regulations/certifications may apply.

CERTIFICATIONS

- *North America Safety (NRTL)*
- *European Union (EU)*
- *International CB Scheme*
- *HSE Exemption (India)*
- *BSMI (Taiwan)*
- *RCM (Australia)*
- *MSIP (Korea)*
- *VCCI (Japan)*
- *Morocco*
- *Republic of Srpska*
- *Vietnam*

DIMENSIONS AND WEIGHT

- *Height: 219.25 mm (8.63 in.)*
- *Width: 445 mm (17.5 in.)*
- *Depth: 833 mm (32.8 in.)*
- *Weight: 114 kg (250 lb.) maximum*

INCLUDED INSTALLATION KITS

Tool-less static rack mounting rail kit
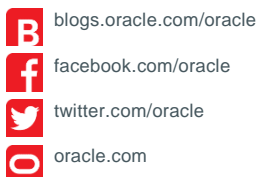
Integrated Cloud Applications & Platform Services

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