

## Oracle Server X5-8

### Frequently Asked Questions

#### Overview

Oracle Server X5-8, a 5U eight-socket system, revolutionizes the x86 market with leading performance, outstanding scalability, and unmatched reliability, availability, and serviceability (RAS). It's the most powerful and expandable system of Oracle's x86 servers, ideal for very large databases in-memory, scale-up applications, and enterprise workloads requiring extreme I/O bandwidth, memory, and core count.

With 144 cores, 6 TB of memory, up to 9.6 TB of internal storage, up to 12.8 TB of flash, and 16 PCIe Gen 3 slots, Oracle Server X5-8 is the densest system, and it is the newest performance leader in the x86 enterprise market. When combined with Oracle's rich portfolio of software, storage, services, and network switches, Oracle Server X5-8 reduces cost and complexity in an enterprise environment while accelerating time-to-revenue. With its large core density, Oracle Server X5-8 is the ideal database consolidation candidate for the Oracle Multitenant option, allowing many database instances to be supported on a single server. With its large memory footprint and high-speed memory bandwidth, the server also is an ideal candidate for Oracle Database In Memory (based on Oracle Database12c), reducing query processing times for very large databases.

#### Breakthrough Advancements in the x86 Enterprise Market

Oracle Server X5-8 introduces a new elastic processor SKU, the Intel® Xeon® processor E7-8895 v3, which 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 Oracle innovations in the system BIOS and operating system kernel

software, enables 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 than the standard processor is capable of. The ability to change the characteristics of the server for varying workloads offers cost savings and power efficiencies. The ability to choose between maximum throughput and maximum single-thread performance in the same design enables users of Oracle Server X5-8 to have the most flexible eight-socket x86 infrastructure.

#### Most Reliable x86 Server for Mission-Critical Applications

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

#### Customer Benefits

The modular design and breakthrough high-availability features of Oracle Server X5-8 make it easy to deploy and maintain data centers while saving costs and maximizing uptime.

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### Quick to Deploy, Quick to Upgrade

The unique, hot-swappable I/O design simplifies initial deployments and gives users a new level of reliability. This differentiates Oracle Server X5-8 from competing solutions, allowing for nondisruptive I/O upgrades and repairs.

### Save Time, Save Money, Save Power

Upgrading Oracle Server X5-8 can be done quickly and easily. Processors and memory are added via the front-accessible CPU modules. Hot-swappable disk drives can be installed without downtime. These simple upgrades reduce maintenance costs and do not need to be performed by highly technical staff.

The flash storage options featured in Oracle Server X5-8 provide an affordable way to dramatically accelerate application I/O performance and significantly increase power efficiency over conventional hard disk drives (HDDs). These flash storage options enable applications to run more efficiently while consuming less energy, resulting in faster response and lower energy cost.

Oracle Server X5-8 supports both conventional solid-state drives (SSDs) as well as NVM Express (NVMe)-based flash. NVMe support is implemented in the form of the hot-swappable LP-PCIe form factor Oracle Flash Accelerator F160 PCIe Card with up to 12.8 TB of flash capacity per server. These accelerator cards offer more than a half million IOPS and accelerate Oracle Database transaction processing when the Database Smart Flash Cache feature of Oracle Database is enabled.

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. The remote temperature sensors are designed into key areas of this server to ensure appropriate fan usage in zones such as power supply units, PCIe slots, Ethernet ports, exiting air, and entering air. Oracle Advanced System Cooling helps reduce energy consumption.

### Maximize Uptime, Minimize Administration

Oracle Integrated Lights Out Manager (Oracle ILOM) is an integrated service processor that provides standard interfaces for managing the server. Oracle ILOM provides full, remote KVMs, together with remote media functionality. Oracle ILOM provides remote administration via an intuitive browser-based GUI; DTMF-style command-line interface (CLI); remote console; and SNMP v1, v2c, and v3, or IPMI v2.0, protocols. Through the dedicated Ethernet management port for Oracle ILOM, the system administrator can remotely control the power usage of the system, monitor system field replaceable unit (FRU) status, and load system firmware. From the host operating system, the system administrator also can connect to Oracle ILOM to monitor system status and control system power down.

Oracle ILOM is complimented by Oracle Hardware Management Pack, which includes an SNMP agent for in-band monitoring of the platform and a powerful family of utilities. The cross-platform toolset includes a firmware updating utility for both BIOS and Oracle ILOM. The cross-platform configuration tools allow setting of BIOS, Oracle ILOM, and RAID configurations and can be used standalone or combined with a customer's own provisioning platforms. These tools also allow record and

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replay of customer-specific configurations for multinode deployments.

Oracle Server X5-8 is designed with mission-critical applications in mind by supporting hot-swappable and redundant RAID-enabled disks, cooling fans, and power supply units. Combining these enterprise-class RAS capabilities with Oracle ILOM, Oracle Server X5-8 is designed to maximize uptime, simplify system management, and minimize administration cost.

## Frequently Asked Questions

### What is Oracle Server X5-8?

Oracle Server X5-8 redefines the x86 server space with leading performance, outstanding scalability, and unmatched RAS capabilities. This innovative system is the industry's leading enterprise-class eight-socket x86 5U server based on the new Intel Xeon processor E7-8895 v3.

### How does Oracle Server X5-8 compare to Oracle's Sun Server X4-8?

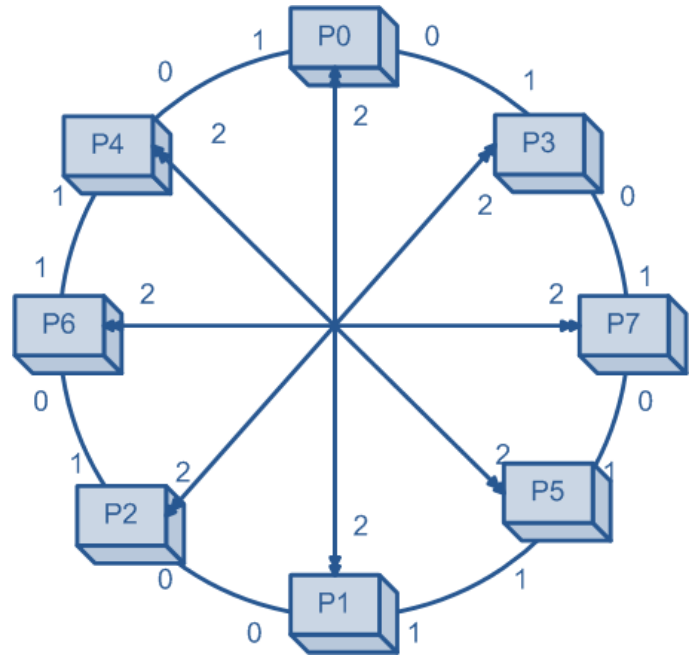
Compared to the previous generation, Oracle Server X5-8 supports 20 percent more processing cores for a total of 144 cores. It supports up to 6 TB of low-voltage memory, with a 20 percent increase in memory bandwidth, and it doubles the flash capacity for a total of 12.8 TB.

### What kind of applications and workloads is Oracle Server X5-8 best suited to run?

With 6 TB memory capacity, leading processing power, and exceptional I/O expandability, Oracle Server X5-8 is ideal for very large databases, scale-up applications, and scale-up enterprise workloads requiring extreme I/O bandwidth, memory, and core count. This server excels in data warehousing applications, including real-time financial data reporting due to the compute power and memory capacity in a very dense form factor.

### How are the eight CPU modules interconnected in Oracle Server X5-8?

Oracle Server X5-8 is designed from the ground up for eight-socket glueless interconnect between the processors. The QPI interfaces from each processor are routed on a completely passive midplane in a twisted hypercube topology as shown in the figure below. Since there are no active components in the QPI paths, these interfaces run at the full rated speed of 9.6 GT/sec and provide the lowest latency and highest bandwidth compared to any system in their class.



### What memory, storage, and expansion options are supported on Oracle Server X5-8?

Oracle Server X5-8 includes 196 low-voltage DDR3 dual inline memory module (DIMM) slots, eight internal 2.5-inch HDD or SSD slots, and 16 PCIe Gen 3 slots.

### How many memory DIMMs are required per processor?

Oracle Server X5-8 requires 4, 8, 16, or 24 memory DIMMs per processor. All processors in a single system must coexist with the same quantity and same type of memory DIMMs. Memory options include 16 GB and 32 GB DDR3 low-voltage DIMMs.

### What HDD options are supported on Oracle Server X5-8?

Oracle Server X5-8 supports up to eight 600 GB or 1.2 TB 2.5-inch SAS-3 hard disk drives.

### What SSD options are supported on Oracle Server X5-8?

Oracle Server X5-8 supports up to eight 400 GB 2.5-inch SAS-3 solid state drives.

### What NVMe options are supported on Oracle Server X5-8?

Oracle Server X5-8 supports up to eight 1.6 TB Oracle Flash Accelerator F160 PCIe Card. These LP-PCIe form factor cards are installed into the standard hot-swappable I/O slots of the system.

#### What operating systems are certified to run on Oracle Server X5-8?

Oracle Server X5-8 is certified to run Oracle Linux, Oracle VM, Oracle Solaris, Red Hat Enterprise Linux, VMware, and Microsoft Windows.

For a list of supported operating system versions, visit: [Oracle Server X5-8 OS](#).

#### What software is preinstalled on Oracle Server X5-8?

A choice of Oracle Solaris, Oracle Linux, or Oracle VM, to be preinstalled on the server in the factory, is offered through Oracle's configuration tool.

#### What system management options are available for Oracle Server X5-8?

Oracle Server X5-8 includes an embedded service processor, known as Oracle Integrated Lights Out Manager (Oracle ILOM). Oracle ILOM helps to simplify data center management, system configuration, and lifecycle management by providing a rich set of management interfaces for monitoring the health of the server and for remote management.

Each Oracle Server X5-8 also includes another embedded tool called Oracle System Assistant. Oracle System Assistant is a built-in utility that simplifies firmware updates, configuration, and installation of supported operating systems: Oracle Linux, Oracle Solaris, Red Hat Enterprise Linux, and Microsoft Windows Servers.

Oracle System Assistant assists in the installation and configuration of Oracle Server X5-8. The Oracle System Assistant bootable utility can be initiated either from the Oracle ILOM interface or by selecting the Oracle System Assistant utility through the BIOS boot menu. Oracle System Assistant helps with the following: system configuration, installation, and ongoing maintenance operations.

Oracle Hardware Management Pack is a set of command-line tools and agents that assist with automating server configuration through tools running on the host operating system. These tools provide a means for scripting RAID, BIOS, and Oracle ILOM configuration as well as updating all embedded firmware. In addition, Oracle Hardware Management Pack provides agents that monitor the health of the storage subsystem and provide remote SNMP monitoring.

Finally, Oracle Enterprise Manager Ops Center is an enterprise tool that can discover and manage all Oracle servers. This tool provides complete lifecycle control of servers by configuring the server, installing the operating system, and configuring virtual machines.

For more information on Oracle Enterprise Manager Ops Center, visit [Oracle.com](#).

#### Is there a choice in system configurations?

Yes, Oracle Server X5-8 can be fully customized through Oracle's factory assemble-to-order (ATO) process.

#### What high-availability features are available in Oracle Server X5-8?

This enterprise-class x86 server is designed with reliability, availability, and serviceability (RAS) in mind. It offers hot-swappable I/O and redundant RAID-enabled disks, cooling fans, and power supply units. The CPU modules also are hot pluggable. Service actions on the CPU modules require server reboot. Combining these RAS capabilities with Oracle ILOM, Oracle Server X5-8 is designed to maximize uptime, simplify system management, and reduce administration costs.

#### Where can I find more information about Oracle Server X5-8?

Contact an Oracle sales representative directly or call 1-800-Oracle1 or contact an Oracle authorized reseller.

For more information, visit:

[Oracle Server X5-8](#)

Please go to [Oracle x86 Servers](#) to see all of Oracle's x86 rack servers.

### What are the power and cooling requirements for Oracle Server X5-8?

The online power calculator provides an estimate on the idle and operating power level of the server.

[Oracle Server X5-8 power calculator](#)

### What features in Oracle Solaris add value to Oracle's x86 server products?

While the majority of features in Oracle Solaris are common across both x86 and SPARC platforms, please visit the following URL for details on how the OS is optimized for x86:

[Oracle Solaris 11 Technology Spotlights](#)

### What features in Oracle Linux add value to Oracle's x86 server products?

Oracle engineers from both the Linux and systems teams have worked together to embed a Linux fault management architecture (FMA) engine. When Oracle Linux is running on one of Oracle's x86 servers, this fault management engine constantly monitors, logs, and triages faults across the various hardware subsystems of the server. When possible, this engine is able to offline faulty components, keep the system running, and prevent service disruption. If automated service request (ASR) support is enabled, requests are generated automatically. This feature reduces downtime by 30 percent compared with running Oracle Linux on a third-party x86 server, and it significantly reduces the time required to identify failed components.

### What is the automated service request support for Oracle Premier Support customers?

Automated service request is one of the capabilities available in Oracle Enterprise Manager Ops Center, whereby potential issues are detected and reported to the Oracle support center without user intervention, ensuring maximum service levels and simplifying support. Oracle Enterprise Manager Ops Center is included at no extra charge for Oracle x86 Premier Support customers.

### What is included with Oracle Premier Support for Systems?

For more information, please see:

[Oracle Premier Support](#)

### What is included with the Oracle Server X5-8 base chassis package?

The 5U base chassis includes eight CPU modules or CMODs—four CMODs in the four-socket configuration; system module or SMOD; eight disk bays; eight dual PCIe card carriers or DPCCs, which include one 16-lane and one 8-lane low-profile PCIe Gen 3 slots; four 3,000 W platinum-rated power supplies; and one slide rail kit. Each base chassis can support up to four or eight CMODs that include one processor socket and 24 DIMM slots. The SMOD includes one Oracle ILOM service processor, one HBA, two GbE ports, one serial port, one video port, one management port, two internal (one can be preloaded for Oracle System Assistant) and two external USB 2.0 ports.

### Where can I find more information about the warranty and support for this system?

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

[Oracle Technical Support Policies](#)

With Oracle Premier Support, Oracle 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. For more information, visit:

[Oracle Support](#)

### When will this system be available to order and ship?

Oracle Server X5-8 is currently orderable and shipping.



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