Oracle Server X5-2L
Frequently Asked Questions

Overview

Oracle Server X5-2L is powered by two Intel® Xeon® processor E5-2600 v3 product family CPUs and 24 memory slots. With up to 18 cores per socket, this server supports the highest performing processor and delivers extreme compute density in a compact 2U enclosure. When compared with the previous-generation server, this system increases memory capacity by 50 percent, to 768 GB, and increases memory bandwidth by 33 percent. With more than 50 percent increase in processing power and 13 percent increase in I/O bandwidth versus the previous generation, Oracle Server X5-2L is the perfect integration of compute and storage in a single two-rack unit (2U) enclosure for clustered database and virtualized business applications.

Organizations today are faced with limited budgets, resources, and capacity. Global initiatives to go green increase the pressure to operate at the highest efficiencies. Database deployments in remote offices/branch offices benefit significantly from having a large amount of direct-attached storage to deploy single instance database servers. Customers are increasingly deploying storage servers based on Oracle Solaris and ZFS file system. In these scenarios, the data center infrastructure benefits by taking advantage of systems that have easy deployment, high performance, and continued expandability and efficiency. Oracle Server X5-2L fits ideally into this scenario, offering superior scalability in compute performance, memory capacity, storage density, network and I/O bandwidth, and featuring flash storage options for the acceleration of I/O-

intensive applications. This server packs extensive expandability and ultimate storage flexibility.

In order to achieve accelerated performance for Oracle Database and Oracle Solaris with ZFS file system, Oracle Server X5-2L introduces hot-swappable, high-bandwidth flash that is ideal for implementations of Database Smart Flash Cache, a feature of Oracle Database, as well as a target for ZFS intent logs and second-level adaptive replacement caches. Using Oracle's unique NVM Express design, Oracle Server X5-2L supports up to four small form factor NVMe drives in the eight and twenty-four disk chassis options, for a total capacity of 6.4 TB.

The compact Oracle Server X5-2L offers outstanding flexibility in three chassis configurations and offers superior scalability, up to 98.4 TB of disk storage or 10.4 TB of flash storage, and six PCIe 3.0 I/O expansion slots.

Oracle's x86 systems are the best x86 platforms for running Oracle software. Not only do they provide optimal performance and reliability based on an integrated and fully supported Oracle stack, they also include everything needed for a cloud deployment. With the purchase of Oracle Premier Support, every x86 system from Oracle comes complete with virtualization, choice of operating system, cloud provisioning, and Oracle's unique application-to-disk system management environment—all at no extra charge. As a result, Oracle's x86 systems deliver up to 50 percent cost savings over three years when compared to similarly configured multivendor configurations[1]. Oracle's x86 systems serve as a key building block for Oracle engineered systems, such as Oracle Exadata, which have achieved a 10x performance gain through integration and optimization.

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[1] Source: Edison Group, "The Oracle x86 Portfolio: Competitive Advantages in Total Cost of Ownership." First publication July 2012.

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Customer Benefits

Oracle Server X5-2L provides the following key customer benefits.

Superior Application and Database Performance

Oracle Server X5-2L can easily harness the required horsepower to run storage resource-intensive, single instance databases, made possible by flash storage options and two of the highest performing Intel Xeon processor E5-2600 v3 product family CPUs.

Abundant Storage

Similar to the previous-generation server, Oracle Server X5-2L offers flexibility in storage options, eight or twenty-four 2.5-inch or twelve 3.5-inch front-accessible disk bays plus two additional rear-accessible 2.5-inch drive bays. This new server is able to support up to 98.4 TB disk capacities and up to 10.4 TB flash capacities in a 2U enclosure.

Energy Efficiencies

With an advanced cooling system unique to Oracle, Oracle Server X5-2L 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. Oracle Advanced System Cooling helps reduce energy consumption in a way that other servers cannot.

Best-in-Class Manageability

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 features 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 Server X5-2L offers hot-swappable and redundant RAID-enabled cooling fans, disks and power supply units. Combining these enterprise-class reliability, availability, and serviceability (RAS) capabilities with integrated and cloud-ready management tools, Oracle Server X5-2L is designed to maximize uptime, simplify system management, and reduce operational expenses.

Frequently Asked Questions

What is Oracle Server X5-2L?

Oracle Server X5-2L is a two-socket, 2U enterprise-class x86 rackmount server based on the Intel Xeon processor E5-2600 v3 product family.

How does Oracle Server X5-2L compare with Oracle's Sun Server X4-2L?

Compared to Sun Server X4-2L, Oracle Server X5-2L offers 50 percent more cores (up to 18 cores per processor). It is based on the Intel Xeon Processor E5-2600 v3 product family and supports increased memory capacity of 50 percent and increased memory bandwidth of 33 percent, more storage options, and up to 768 GB memory at a full 2,133 MHz bandwidth, using new 32 GB load-reduced dual inline memory modules (DIMMs). In addition, each Oracle Server X5-2 includes choice of either a RAID-capable SAS3 (12 Gbps) controller or a

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SAS3 (12Gbps) controller in one of the 8-lane PCIe slots and includes eight small form factor drive bays. In order to achieve accelerated performance for Oracle Database, Oracle Server X5-2L introduces hot-swappable, high-bandwidth flash that is ideal as Oracle's Database Smart Flash Cache. Using Oracle's unique NVM Express design, Oracle Server X5-2L supports up to four small form factor NVMe drives for a total capacity of 6.4 TB. Significant generational improvements enable faster execution of enterprise workloads and flexible systems functioning in storage server workloads.

What kind of applications and workloads is Oracle Server X5-2L best suited to run?

With superior scalability in compute performance, memory capacity, I/O bandwidth, and expandability, as well as flexibility in storage configurations, Oracle Server X5-2L is ideal for the following:

- Single-node Oracle Database

- Storage server with Oracle Solaris and ZFS

- Compute server in environments with power and cooling delivery challenges

What flash storage options are available on Oracle Server X5-2L?

Oracle Server X5-2L supports 400 GB, eMLC SATA-3 SSDs, with a total internal flash capacity up to 10.4 TB. These flash storage options turbo charge the server to run I/O-intensive applications more rapidly and efficiently while consuming up to 80 percent less power than traditional HDDs.

Oracle Server X5-2L supports up to four 1.6 TB small form factor high-bandwidth NVMe drives, for a total capacity of 6.2 TB. These drives are ideal for Database

Smart Flash Cache-enabled environments and Oracle Solaris with ZFS file system-based storage servers.

What memory and I/O expansion features are supported on Oracle Server X5-2L?

Oracle Server X5-2L includes 24 DDR4 DIMM slots, and can be configured with 8 GB or 16 GB RDIMMs or 32 GB LRDIMMs. Four onboard 10GBase-T ports are included with the server, as well as six low-profile PCIe 3.0 slots.

For more information on supported PCIe card support, visit the Systems wiki.

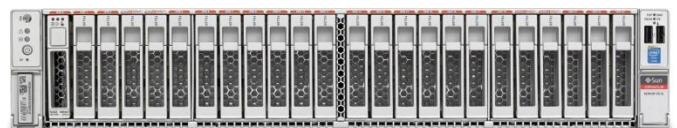**Does the memory for Oracle Server X5-2L support ECC (error-correcting code)?**

Yes.

What disk cage options are supported on Oracle Server X5-2L?

This server comes in three disk cage options:

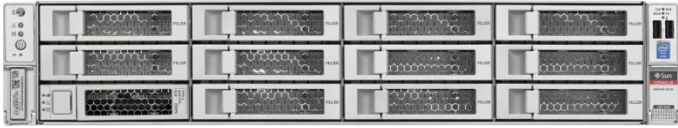Eight 2.5-inch SAS disk bays (HDDs or SSDs) plus DVD-R/W drive

Twenty-four 2.5-inch SAS disk bays (HDDs or SSDs)

Twelve 3.5-inch SAS disk bays (HDDs or SSDs)

Can I mix SAS2 & SAS3 in the same chassis?

Yes, it is allowed.

Can I populate HDDS or SSDs in NVMe **capable drive slots?**

Yes, it is allowed.

What operating systems have been certified to run on Oracle Server X5-2L?

Oracle Server X5-2L is certified to run Oracle Linux, Oracle VM, Oracle Solaris, Red Hat Enterprise Linux, SUSE Linux Enterprise Server, VMware, and Microsoft Windows.

For a list of supported operating system versions, visit the Systems wiki.

What software is preinstalled on Oracle Server X5-2L?

You have the option to request preinstallation of Oracle Linux or Oracle VM on the server in the factory.

What system management options are available for Oracle Server X5-2L?

Oracle Server X5-2L 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 X5-2L also can be configured with an optional embedded tool called Oracle System

Assistant, which assists with each step of configuring the server and provisioning the operating system. Oracle System Assistant checks for firmware and driver updates from Oracle, applies those updates, and then ensures that the operating system is installed correctly with the latest drivers. In addition, Oracle System Assistant can be used to configure RAID, BIOS settings, and Oracle ILOM settings.

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.

Can the server configuration options be customized?

Oracle Server X5-2L can be customized to the configuration you specify through the Oracle factory's assemble-to-order (ATO) process.

What high-availability features are available in Oracle Server X5-2L?

Oracle Server X5-2L offers hot-swappable and redundant RAID-enabled disks, cooling fans, and power supply units. Combining these enterprise-class RAS

capabilities with Oracle ILOM, Oracle Solaris, or Oracle Linux, the Oracle Server X5-2L is designed to maximize uptime, simplify system management, and reduce operational expenses.

Where can I find more information about Oracle Server X5-2L?

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

For more information, visit:

Oracle Server X5-2L

What are the power requirements for Oracle Server X5-2L?

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

Oracle Server X5-2L power calculator

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

Automated service request is one of the features 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's x86 Oracle Premier Support customers.

What is included with Oracle Premier Support for x86 systems?

For more information, please see:

Oracle Premier Support for Systems

What is included with the Oracle Server X5-2L base chassis package?

The 2U base chassis includes the motherboard, six low-profile PCIe 3.0 slots (two with 16 lanes and four with 8 lanes), Oracle ILOM service processor, Trusted Platform Module (TPM) version 1.2, four onboard 10GBase-T ports, six USB 2.0 ports (two front, two rear, and two internal; one can be preloaded for Oracle System Assistant), two 1,000 W platinum-rated power supplies with up to 91 percent efficiency, one tool-less slide rail kit, and one cable management arm.

Hardware and Software, Engineered to Work Together