SUN BLADE X4-2B SERVER MODULE

Oracle's Sun Blade X4-2B server module is the perfect integration of compute, memory, and storage in a single full-height blade form factor for running both virtual and physical workloads. It is the industry's unique and scalable enterprise-class two-socket x86 blade server with 24 DIMMs supporting the fastest CPU. This perfectly balanced blade leverages the unique I/O architecture of the Sun Blade 6000 chassis, making it easy to deploy, manage, and provision. When combined with Oracle's networking products, the Sun Blade X4-2B server module offers breakthrough performance and superior energy efficiency while also reducing cost and complexity of your data center.

Product Overview

The Sun Blade X4-2B, powered by the highest performing processors from the Intel Xeon processor E5-2600 v2 product family, is the ideal system for running both virtual and physical workloads. As part of Oracle's Sun Blade 6000 family, this blade leverages redundant power, cooling, and I/O infrastructure of the chassis. System performance and power efficiency are maximized with flash storage options that deliver high I/O performance and reduced energy consumption.

With industry-leading 24 dual inline memory module (DIMM) slots, the Sun Blade X4-2B can scale up to 768 GB of memory using 32 GB LRDIMMs. This blade can also support three 1.35V DDR3 1,600 MHz RDIMMs or LRDIMMs per channel operating at 1,600 MHz to easily meet the demands of current and future memory-intensive business workloads without compromising performance and power. This blade comes with four drive bays for superior storage scalability, and supports up to 4.8 TB of disk storage or 1.6 TB of flash storage to handle demanding enterprise business workloads. In addition, with an increase of 50 percent in processor cores and threads, the Sun Blade X4-2B produces up to 35 percent performance gains compared to its previous generation, making it more compute dense and better performing than the previous-generation blade.

Flexibility and a wealth of I/O options are available to the Sun Blade X4-2B. Two PCIe ExpressModules (EMs) can be connected per blade, uniquely providing a pair of dedicated I/O devices to each blade, similar to rackmount servers with PCIe cards. These EMs are hot swappable and enable users to upgrade I/O without downtime. Two Network Express Modules (NEMs) can be connected per blade. NEMs provide a common I/O to multiple blades, and aggregate I/O functions. When the blades are combined with the high-performance, low-latency NEM such as the Sun Blade 6000 Ethernet Switched NEM 24P 10 GbE, one can run more virtual machines efficiently while simplifying the IT infrastructure and lowering costs by eliminating an entire tier of data center switching and by reducing cables. The two embedded 10/100/1000 Base-T Ethernet ports provide additional connectivity to the

ORACLE®

blades through the NEMs.

The Sun Blade X4-2B receives cooling and power from the Sun Blade 6000 chassis. With an advanced cooling system in the Sun Blade 6000 chassis, the Sun Blade X4-2B receives the benefit of achieving system efficiencies which result in power savings. The advanced cooling system in the Sun Blade 6000 chassis utilizes remote temperature sensors in the chassis and blades for fan speed control, minimizing power consumption while keeping optimal temperatures inside the Sun Blade 6000 chassis. These remote temperature sensors have been designed into key areas of the blade to ensure appropriate temperature regulation in areas that include processor, memory, service processor, and fabric expansion module.

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 (OS) installation with Oracle-certified hardware drivers.

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, which detects and reports potential issues to Oracle's support center without user intervention, assuring the maximum service levels and simplified support.

Oracle's Sun 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 Sun x86 system comes complete with virtualization, choice of operating system, cloud provisioning, and Oracle's unique application-to-disk management environment—all at no extra charge. As a result, Sun x86 systems deliver up to 50 percent cost savings over three years when compared to similarly configured multivendor configurations.[1] Sun x86 systems also serve as a key building block for Oracle's engineered systems, such as Oracle Exadata, which have achieved a 10x performance gain through integration and optimization.

Sun Blade X4-2B Server Module Specifications

Architecture
Processor
• Two processors from Intel Xeon processor E5-2600 v2 product family • Up to 12 cores per processor
Cache
• Level 1: 32 KB instruction and 32 KB data L1 cache per core • Level 2: 256 KB shared data and instruction L2 cache per core • Level 3: Up to 30 MB shared inclusive L3 cache per processor

---

[1] Source: Edison Group, "The Optimized Stack: Reducing Total Cost of Ownership through Vertical Integration." First publication July 2012.

ORACLE®

Main Memory
• Twenty-four DIMM slots provide up to 768 GB of DDR3 LRDIMM memory
• Low voltage RDIMM options: 8 GB at 1,600 MHz and 16 GB at 1,600 MHz
• Low voltage load-reduced DIMM option: 32 GB at 1,600 MHz

Interfaces

Standard I/O
• Two 10/100/1000 Base-T Ethernet interfaces, using an Intel Ethernet Controller I350, one to each Network Express Module (NEM) slot
• USB: Six 2.0 USB ports (two front, two internal, two from dongle cable)
• Two (X8) PCIe 2.0 lanes, one to each PCIe ExpressModule (EM) slot
• Two (X8) PCIe 2.0 or two XAUI lanes, one to each NEM slot Note: XAUI lanes are used when Oracle's Sun Dual 10 GbE PCIe 2.0 Fabric Expansion Module is used. Pass-through FEMs use PCIe 2.0 lanes.
• One dedicated 10/100 Base-T Ethernet port for the management network for communicating with Chassis Monitoring Module (CMM)
• Supports storage controllers including FC, FCoE, and SAS HBAs

Storage
Four 2.5-inch front hot-swappable disk bays
• All 2.5-inch disk bays can be populated with either hard disk drives (HDDs) or solid state drives (SSDs) Optional RAID levels: 0, 1, 5, 6, 10, 50, and 60 with 512 MB of DDR2 onboard memory and a battery-backed write cache (BBWC) for 48-hour backup via SAS-2 RAID expansion module (REM)

Graphics
• VGA 2D graphics controller embedded
• Supports resolutions up to 1,280 x 1,024 x 16 bits @60 Hz (1,024 x 768 when viewed remotely via the Oracle ILOM remote keyboard, video, mouse, and storage [RKVMS])
Note: A dongle cable is required for VGA graphics connectivity.

Front Panel I/O
• Four hot-swappable SFF drive bays, supporting SAS HDDs and SSDs
Available via dongle cable:
• VGA graphics (DB-15 connector)
• Oracle ILOM serial console
• Dual USB ports for keyboard, mouse, or storage

Systems Management

Interfaces
• Dedicated 10/100 Base-T Ethernet network management port
• In-band, out-of-band, and side-band 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
• Remote media capability (DVD, CD, ISO image, floppy)
• Advanced power management and monitoring
• Active Directory, LDAP, RADIUS support
• Dual Oracle ILOM flash
• Signed Oracle ILOM
• Direct virtual media redirection

WITH ITS LARGE MEMORY FOOTPRINT, HIGH MEMORY BANDWIDTH, AND THE FLEXIBILITY AND EFFICIENCY OF THE SUN BLADE 6000 CHASSIS, THE SUN BLADE X4-2B SERVER MODULE IS THE IDEAL BLADE ON THE MARKET FOR RUNNING VIRTUALIZED AND PHYSICAL WORKLOADS.

RELATED PRODUCTS

The Sun Blade X4-2B server module is designed for the Sun Blade 6000 chassis where it can be mixed with:

• Sun Blade X3-2B server module

• Oracle's SPARC T5-1B server module

• Oracle's SPARC T4-1B server module

The Sun Blade X4-2B server module also can be connected to the Sun Blade 6000 Ethernet Switched NEM 24p 10 GbE for 10 GbE switching.

RELATED SERVICES

The following services are available from Oracle Customer Support:

• Installation

• Maintenance

ORACLE®

Installation

• Oracle System Assistant provides:
 	
   • Task-driven hardware updating and configuration
 	
   • OS installation
 	
   • Simple download of the 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, out-of-band, and side-band SNMP monitoring V1, V2c, V3 • Syslog and SMTP alerts, WS-MAN • Automatically create 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 (preinstalled option) • Oracle Linux (preinstalled option) • Red Hat Enterprise Linux • SUSE Linux Enterprise Server • Microsoft Windows Server For more information on software go to: https://wikis.oracle.com/display/SystemsComm/Sun+Blade+Systems+Products

Virtualization
• Oracle VM (preinstalled option) • VMware

I/O Modules
Supported I/O module form factors: • Up to two (blade unique) EMs per Sun Blade X4-2B server module • Up to two (shared) NEMs per Sun Blade 6000 chassis • EMs include 10 GbE, GbE, FC, FCoE, SAS, and InfiniBand EM HBAs

Regulations
• TUV/CSA 60950-1 2nd Ed • IEC 60950-1 2nd Ed • EN 60950-1 2nd Ed (CB Scheme with all country deviations) • EN55022 • CNS-13438 Class A (Taiwan) • FCC CFR 47 CFR 15B Class A (Code of Federal Regulations, Title 47, Part 15,

ORACLE®

Subpart B Class A) (United States)

- ICES-003 (A) NM-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)
- NEBS Level 3, EN300386 V1.5.1 Class A (EU Telecommunications)
- EN55024 (Immunity)
- EN61000-3-2
- EN61000-3-3
- Restriction of Hazardous Substances (RoHS) Directive 2011/65/EC
- Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/EC
- Low Voltage Directive 2006/95/EC
- EMC Directive 2004/108/EC

Certifications

- Safety Marks: UL
- Regulatory Marks: CE, FCC, C-tick, VCCI, BSMI, KCC, ICES-003 (A) NMB-3, WEEE Symbol, China RoHS Symbol

Dimensions and Weight

- Height: 327.2 mm (12.9 in.)
- Width: 44.5 mm (1.8 in.)
- Depth: 511.7 mm (20.2 in.)
- Weight: 9.1 kg (20.2 lb.) fully populated

ORACLE®

Warranty

The Sun Blade X4-2B server module offers a one-year warranty. Please visit oracle.com/sun/warranty for Oracle's global warranty support information on Sun products.

Services

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.com/sun/services for information on Oracle's service program offerings for Sun products.

Visit oracle.com/sun/services for information on Oracle's service program offerings for Sun products.

Contact Us

For more information about Oracle's Sun Blade X4-2B server module, visit oracle.com or call +1.800.ORACLE1 to speak to an Oracle representative.

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

Hardware and Software, Engineered to Work Together

ORACLE®