

SUN BLADE 6000 CHASSIS

MODULAR INTEGRATION FOR MAXIMUM EFFICIENCY

KEY FEATURES

- Space efficient 10U form-factor
- Up to ten single- or dual-node server modules or storage modules
- Up to 20 PCIe ExpressModules(EMs)
- Up to two Network Express Modules (NEMs)
- 6.4 Tbps I/O mid-plane bandwidth
- Chassis Monitoring Module (CMM) with Integrated Lights Out Manager (ILOM)
- Hot-swappable, hot-pluggable, and redundant power supply and fan modules

BENEFITS

- Foundation for the Sun Blade modular system - integrating compute, storage, networking, and management into one optimized datacenter infrastructure solution
- Compact form-factor reduces cooling costs and conserves data center space
- PCIe ExpressModules provide unique I/O configurations on a blade by blade basis
- Terabit-class bandwidth mid-plane preserve customer investments
- A single system management interface for common and intuitive management across different CPU architectures

Oracle's Sun Blade 6000 chassis is designed to support a wide range of application environments by integrating Oracle's x86 and SPARC server modules with high capacity networking and storage modules. This extremely eco-efficient and flexible blade enclosure provides a solid foundation for the most demanding workloads. Controlled by a single system management interface, the balanced architecture of the Sun Blade 6000 chassis provides an open, standards-based infrastructure for virtualized business applications, IT infrastructure, middleware, workload consolidation and databases.



Figure 1: The Sun Blade 6000 chassis is the foundation of the Sun Blade 6000 Modular System

Foundation for the Sun Blade 6000 Modular System

The Sun Blade 6000 chassis fits into a compact form factor—only 10U—while supporting any combination up to 10 full-featured, top-performance storage or server modules. With 6.4 Terabit-per-second maximum I/O throughput, and up to 10 computing nodes per chassis—offering up to 960 cores per 42 RU rack and up to 30.72 TB memory per rack—the Sun Blade 6000 chassis is a versatile solution for all of your data center needs. Its versatile architecture allows mixing of x86 and SPARC server modules with storage modules in the same chassis to address diverse workloads.

Leveraging the modular architecture and its uniquely flexible ability to configure granular I/O for each individual server module, the Sun Blade 6000 chassis allows you to accommodate a broader range of data center applications than is possible with competing blade servers. This versatility dramatically lowers costs for virtualization and enterprise applications while facilitating accelerated deployment of production systems within a highly-reliable and efficient blade chassis.

Simplify Chassis Management

Unlike competing blade solutions that use complex chassis management approaches, the simple design of the Sun Blade 6000 chassis streamlines administration, simplifies maintenance, and facilitates integration with existing legacy infrastructure management platforms to further reduce operational costs. With support for key industry-standard interfaces and a Java-based remote console, the Sun Blade 6000 chassis can be rapidly integrated into your Oracle Enterprise Manager Ops Center environment or into third-party management infrastructures. This flexibility eliminates unnecessary complexity and enables the Sun Blade 6000 chassis to be managed within an existing multivendor, heterogeneous IT infrastructure without any special training or tools. In addition, each chassis is shipped with a standard Chassis Monitoring Module (CMM) for greater control.

Protect Your Investment

There are two separate front-to-rear airflows in the chassis. One is powered by the redundant front fan modules contained within the power supply modules, while the other is powered by the rear fan modules that cool the server modules. The front-to-back cooling design and redundant power supply modules of the chassis prevent downtime and protect your investments. The front fan modules cool the system's power supply modules, PCIe ExpressModules, Network Express Modules, and Chassis Monitoring Module; the redundant (N+1) rear fan modules pull cool air through the server modules and are hot swappable.

Reduce Space, Cooling, and Power Costs

Reduced costs and faster time to production are the guiding design principles behind the Sun Blade 6000 chassis. The chassis is easy to upgrade and includes energy-efficient power supply modules with headroom for future growth. Using a superior design, the cooling and power infrastructure of multiple systems are consolidated into a single Sun Blade 6000 chassis to create a highly efficient, small footprint infrastructure solution that reduces overall space, cooling, and power costs in the data center.

Enhance Power Supply Reliability

Although a single power supply module can power the entire chassis, the Sun Blade 6000 chassis has two hot-swappable, redundant power supply modules, each with its own front fan modules. Each chassis can deliver up to 5,740 W of redundant power, with a power supply output of 12 V, and require only four power inlets. The system's actual power consumption depends on the type of server, storage and I/O modules installed. The power inlets are arranged in 1+1 redundant configurations, requiring connection to a 200–240 V, 16–20 A outlet. Metal cable retainers are provided to prevent accidental power cord removal. The power supply modules of the chassis are highly reliable and power-efficient.

Increase Scalability

The Sun Blade 6000 chassis was designed for superior I/O, high reliability, availability and serviceability (RAS) and supports cost-effective scaling out with ease. It features an industry-standard PCIe 2.0 midplane and an integrated storage backplane. With all of its active components hot pluggable and hot swappable, the chassis leverages its innovative modular architecture to improve both availability and performance, to immediately enhance your data center ROI.

Sun Blade 6000 Chassis Specifications

Architecture
Form Factor
10 rack units (10U), holding up to 10 server modules, nine server modules plus one storage module, or any combination thereof; up to four Sun Blade 6000 chassis supported per 42U rack
I/O Interfaces
The Sun Blade 6000 chassis mid-plane supports the following protocols: <ul style="list-style-type: none"> • PCIe 2.0, SAS 2.0, SATA 3.0, and Gigabit Ethernet (GbE) Each server module has a direct connection to two PCIe Express Modules (EMs) for blade discrete I/O connectivity and two Network Express Modules (NEMs) for chassis-wide, common I/O connectivity
I/O Modules
<ul style="list-style-type: none"> • Up to 20 PCIe EMs per Sun Blade 6000 chassis (two EMs per blade server module) • Up to two NEMs per Sun Blade 6000 chassis
Manageability
Chassis Monitoring Module (CMMs)
<ul style="list-style-type: none"> • Helps enable direct remote connection to the service processor on each blade server • Reduces cabling by providing a single management connection to the chassis • Helps ensure complete remote lights-out manageability of the whole chassis • Provides an optional aggregate point for monitoring of chassis fan and power supply modules with the CMM's own Integrated Lights Out Manager (ILOM) module
Environment
Temperature
<ul style="list-style-type: none"> • Operating: 5°C to 32°C (41°F to 90°F) • Nonoperating: -40°C to 65°C (-40°F to 149°F)
Optimum Ambient
22°C (71.6°F)
Relative Humidity
<ul style="list-style-type: none"> • Operating: 10%–90%, noncondensing, 27°C max. wet bulb • Nonoperating: 5%–93%, noncondensing, 38°C max. wet bulb
Altitude
<ul style="list-style-type: none"> • Operating: Up to 3,048m (10,000 ft.), max. ambient temperature is derated by 1°C per 300 m (984 ft.) above 900 m (2,953 ft.) • Nonoperating: Up to 12,000 m (39,370 ft.)
Sine Vibration
<ul style="list-style-type: none"> • Operating: Z (vertical) axis: 0.15 G, X–Y axis: 0.10 G, 5 Hz–500 Hz sine • Nonoperating: Z (vertical) axis: 0.50 G, X–Y axis: 0.25 G, 5 Hz–500 Hz sine
Shock
3 Gs, 11 msec, half sine (rackmounted enclosure)
Acoustic Noise
LwAd (1 B = 10 dB) 8.6 B at or below 25°C, 9.2 B at max. ambient
AC Power
<ul style="list-style-type: none"> • Power (1+1) high-efficiency, hot-swappable, load-sharing, load-balancing power supply modules

RELATED PRODUCTS AND SERVICES

Sun Blade 6000 chassis is designed to support a range of application environments by integrating Oracle's x86 and SPARC blade server modules with high capacity networking and storage modules.

RELATED PRODUCTS

Up to ten x86 or SPARC server modules can be deployed in the chassis:

- Sun Blade X4-2B
- Sun Blade X3-2B
- Sun Blade T5-1B
- Sun Blade T4-1B

A broad portfolio of Network Express Modules and PCIe ExpressModules for Ethernet, InfiniBand, or SAS is also available.

RELATED SERVICES

The following services are available from Oracle Support Services:

- Installation
- Maintenance

- AC input power: 1+1 PSU rating, 6,272 W, or 6,400 VA each power supply module
- Voltage: 200–240 V AC
- Frequency: 50 Hz–60 Hz
- Current: 16 A per power supply input, total four AC inputs (two per power supply module)

AC Input Connection

- Americas/domestic: NEMA L6-20P to IEC 320-C19
- International: IEC 309, 250 V, 16 A, 3Pin to IEC 320-C19

DC Power

DC output power: 1+1 PSU rating: 5,740 W each power supply module

Regulations

- Product safety: UL/CSA 60950-1, EN 60950-1, IEC 60950-1 CB Scheme with all country differences, IEC 825-1, 2, CFR 21 Part 1040, CNS 14336, GB 4943
- RFI/EMI (Class A): EN 55022, 47 CFR 15B, ICES-003, VCCI, AS/NZ 3548, CNS 13438, KSC 5858, GB 9254, EN 61000-3-2, GB 17625.1, EN 61000-3-3, EN 300 386: v1.3.3
- Immunity: EN 55024, EN 300 386: v1.3.3

Certifications

- Product safety: cULus Mark, UL/Demko LVD, CE Mark 2006/95/EC, GOST-R, BSMI
- RFI/EMI (Class A): CE Mark (89/336/EEC), FCC, ICES-003, VCCI, C-Tick, MIC, GOST-R, BSMI
- Immunity: CE Mark (89/336/EEC), MIC, GOST-R
- Other: Labeled per WEEE (Waste Electrical and Electronic Equipment) Directive, China RoHS Mark

Chassis Dimensions and Weight

- Height: 438.15 mm (17.25 in.)
- Depth: 692.15 mm (27.25 in.)
- Width: 444.50 mm (17.50 in.)
- Weight of a fully configured system: 159 kg (350 lb.)
- Weight of an empty system (no fillers): 35.7 kg (78.7 lb.)

Subassembly Weights

- Power supply module: 9.70 kg (21.38 lb.)
- NEM: 1.75 kg (3.85 lb.)
- PCIe EM: 0.41 kg (0.90 lb.)
- Rear fan module: 1.04 kg (2.31 lb.)
- CMM: 0.52 kg (1.15 lb.)
- Front fan module: 0.88 kg (1.95 lb.)
- Front indicator module: 0.34 kg (0.75 lb.)

Contact Us

For more information about the Sun Blade 6000 Chassis, 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

Copyright © 2014, 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.

AMD, Opteron, the AMD logo, and the AMD Opteron logo are trademarks or registered trademarks of Advanced Micro Devices. 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. UNIX is a registered trademark licensed through X/Open Company, Ltd. 0410

Hardware and Software, Engineered to Work Together