

# Sun Blade 6000 Chassis

## Frequently Asked Questions

December 7, 2010

### Overview

Oracle's Sun Blade 6000 chassis is more than a component within the Sun Blade Modular System family of products. It serves as the foundation and houses the infrastructure components that are leveraged by the server modules (blade servers) to provide customers with an IT infrastructure solution that combines power, cooling, server, storage & networking capabilities. The chassis houses the blade server modules, storage modules, as well as infrastructure components such as networking, power, and cooling, and it manages these components as a single system.

### Foundation for Sun Blade Modular Systems

The Sun Blade 6000 chassis fits into a compact form factor—only 10RU—while supporting up to 10 full-featured, top-performance storage modules or x86 or SPARC server modules. With 6.4 Terabit-per-second maximum I/O throughput and up to 20 computing nodes per chassis (up to 960 cores and 7.68 TB memory per 42RU rack), the Sun Blade 6000 chassis is a versatile solution for your data center needs.

The modular architecture and its ability to configure unique I/O on a per blade basis allows the Sun Blade 6000 chassis to accommodate a broader range of data center applications than is possible with competing blade platforms. This dramatically lowers costs for virtualization and enterprise applications while also facilitating accelerated deployment of production systems with high availability

### World's Easiest Blade System to Deploy or Upgrade

Unique to the blade server market, all Sun Blade Modular Systems leverage industry standard PCIe ExpressModules to allow each individual server module to have its own unique "I/O personality." The ExpressModules are inserted in the rear of the Sun Blade 6000 chassis, are externally accessible and require no add-on mezzanine or daughter cards on the server

modules. This "off-blade" hot swappable<sup>1</sup> I/O module design simplifies initial deployments, thereby reducing time-to-revenue and virtually eliminates downtime for I/O upgrades. ExpressModule upgrades can be performed up to thirteen times faster than competing solutions<sup>2</sup> (and with no downtime). Higher uptime percentages translate to consistently met SLAs and reduced OpEx costs. Another benefit of this "out of the box" I/O design is that customers can tailor each individual server module's I/O to satisfy the specific workload characteristics of the application(s) it is running. In addition, all server modules can leverage "chassis-wide" Network Express Modules which provide common I/O to every installed server module should they all require the same standard I/O technology (such as GbE, 10GbE etc.). When it comes to I/O and Oracle's modular blade servers, unlike the competition, each server module has a choice.

### Simplified 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 to further reduce 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 existing management infrastructure using several third-party tools. This 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

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<sup>1</sup> Component level hot swap functionality assumes Operating System level support for this function.

<sup>2</sup> Based on internal lab results: Sun Blade X6275 M2 server module ExpressModule hot swap upgrade from 4Gb/s FC to 8Gb/s FC required 30 seconds with no downtime. HP c7000 comparison required 6 minutes and 30 seconds downtime for similar I/O upgrade.

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with a standard Chassis Monitoring Module (CMM) for greater control.

### Customer Benefits

With the purpose-built design of the Sun Blade 6000 chassis, customers are able to deploy servers quickly and prevent downtime for future upgrades and service.

Sun Blade Modular System's flexible I/O design is unique in the market and therefore is the only platform that provides blade server I/O without compromise. The flexible I/O design of the Sun Blade 6000 chassis enables its customers to benefit from rapid time-to-revenue for initial deployments and future upgrades or service while the competition is suffering downtime and stuck in "install mode"

Reduced costs and faster time to production are the guiding design principles behind the Sun Blade 6000 chassis. The highly efficient chassis is easy to upgrade and includes power supply modules with the 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 that reduces overall space, cooling, and power costs in the data center.

#### How many blades are supported in the Sun Blade 6000 chassis?

The Sun Blade 6000 chassis support up to 10 server modules, nine server modules and one storage module, or any combination thereof . It supports x86 or SPARC server modules, simultaneously in the same chassis.

#### How many ExpressModules can the Sun Blade 6000 chassis support?

The Sun Blade 6000 chassis supports up to 20 ExpressModules (EMs). Each blade server module can support up to two EMs. EMs, analogous to PCIe add-in cards found in rack-mounted servers, are based on (PCI-SIG) industry-standards and provide

protocols such as Gigabit Ethernet, 10 Gigabit Ethernet, InfiniBand, and SAS. EMs are installed in the back of the chassis

#### How many Network Express Modules can the Sun Blade 6000 chassis support?

The Sun Blade 6000 chassis support up to two Network Express Modules (NEMs). Unlike EMs, NEMs provide common I/O to every server module installed in the chassis, should they all require the same standard I/O technology (such as GbE, 10GbE, InfiniBand, or SAS). Also, NEMs can be deployed in pairs to achieve redundancy. NEMs are also installed in the back of the chassis.

#### What is the Chassis Monitoring Module?

The Chassis Monitoring Module (CMM) provides full remote monitoring capabilities of the chassis power and cooling infrastructure and also facilitates complete control of the server modules within the chassis. It provides real-time feedback on many vital signs such as system power consumptions of each blade, voltage overshoot/undershoot of the power supply modules, as well as options for capping power consumption. The CMM, together with ILOM, provides manageability at the chassis-level and blade-level. Each Sun Blade 6000 chassis includes a CMM, standard.

#### What is ILOM?

Integrated Lights Out Manager (ILOM) is provides remote management capabilities to the Sun Blade 6000 Chassis using the service processor found in the Chassis Monitoring Module (CMM) and each server module.

#### What are power, cooling and RAS benefits of Sun Blade 6000 chassis?

There are two separate front-to-rear airflows in the chassis. One is powered by its redundant front fan modules within the power supplies, while the other is powered by the rear fan

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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. Additionally, all EMs and NEMs are externally accessible and support redundant configurations. In addition to the chassis components, the server modules and storage modules support hot swappable and redundant RAID enabled disks. Combining these RAS features with ILOM, the Sun Blade 6000 chassis is designed to maximize uptime, simplify system management and reduce administration costs.

### **What software can be pre-installed on the Sun Blade 6000 chassis?**

The latest versions of ILOM software and firmware updates can be installed on the CMM, which is always installed in the chassis.

### **Where can I find more information about the Sun Blade 6000 chassis and other Sun Blade Modular System offerings?**

Please see the product page here:

<http://www.oracle.com/us/products/servers-storage/servers/blades/030803.htm>

You can contact your Oracle sales representative directly or call 1-800-Oracle1 or contact your Oracle authorized reseller.

In addition, more information about the Sun Blade 6000 chassis and Oracle's entire blade product portfolio can be found at:

<http://www.oracle.com/goto/blades>

### **Where can I find more Sun Blade 6000 product information, including the Option Cards, Downloads and Firmware, OS's and External Storage Options?**

You will find this information on the external wiki at

<http://wikis.sun.com/x/ywv5Cw>



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