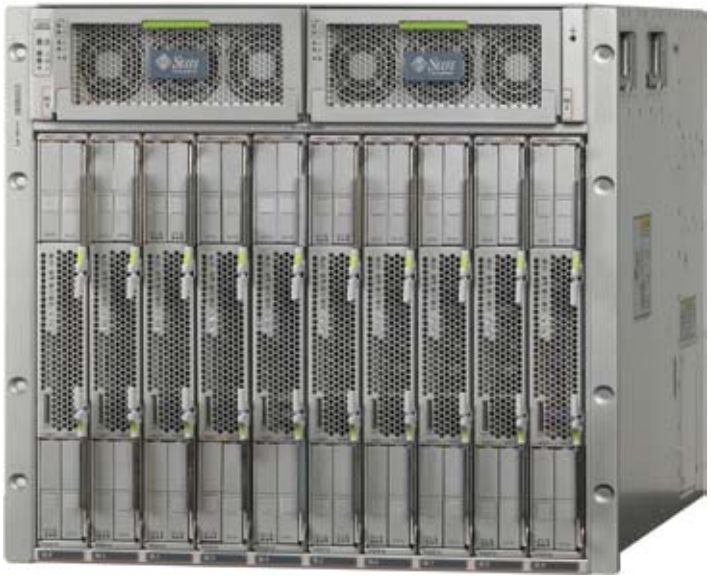
Sun Blade™ 6000 Chassis

The industry's most open and versatile enterprise blade platform



Highlights

- Up to double the memory and I/O capacity of competing blades and rackmounts
- Shared power and cooling — save 15 percent more energy than equivalent rackmount servers
- Save up to $700,000 per rack in acquisition costs
- Maximum flexibility – SPARC, AMD Opteron, and Intel Xeon processor-based server modules, as well as the Solaris, Linux, and Windows operating systems
- Most open blade platform with industry-standard PCIe ExpressModule
- Streamlined, Sun Blade Transparent Management to ease integration into existing datacenter and management infrastructure
- Hot-swappable, hot-pluggable, redundant modular components to optimize reliability, availability, and serviceability
- Superior investment protection, delivering performance today and capacity for future technologies

Your datacenter is pressured by recent trends and constraints — the move to multicore processors is driving increasingly larger node sizes; the maxing out of power and cooling resources; the growing complexity of management; the needs for virtualization and consolidation; and the ongoing needs for expansion, repairs, and upgrades. Sun has a new answer to your problems: the Sun Blade 6000 Chassis, the foundation of the revolutionary Sun Blade 6000 modular system. The chassis is designed to deliver radical efficiencies to your datacenter by providing maximum performance packed into optimal cooling, space, and power requirements. It also supports a wider variety of applications, offering blades based on UltraSPARC®, AMD Opteron, and Intel Xeon processors.

The Sun Blade 6000 Chassis reduces costs and provides superior performance, maximizing return on investment (ROI). The chassis fits in a compact form factor — only 10U — while supporting up to 10 full-featured, top-performance blade server modules. With 1.42 Tbps maximum I/O throughput, and up to 10 server modules per chassis — offering up to 320 cores for processing, and up to 2.5 TB memory per rack — the Sun Blade 6000 Chassis is a versatile solution to your datacenter's needs.

The modular design of the Sun Blade 6000 Chassis helps consolidate a much broader range of datacenter applications than is possible with traditional blade computing. It keeps costs down if you are virtualizing or building out large-scale HPC clusters or Web farms, and helps take new systems to production faster and at reduced cost. The Sun Blade 6000 Chassis does not require custom management tools or an investment in proprietary networking and I/O architectures, and integrates easily with existing legacy infrastructure.

The chassis' modular architecture and hot-swappable components help ensure optimum availability and serviceability, as well as ease of deployment. Its management features streamline and simplify administration and

maintenance, further reducing costs. Unlike the simple design of the Sun Blade 6000 Chassis, competing blade solutions utilize complex chassis management approaches. Because it supports key industry-standard interfaces and provides a Java™-based remote console, the Sun Blade 6000 Chassis can be rapidly integrated into your existing management infrastructure by use of several third-party tools. By eliminating unnecessary complexity, the Sun Blade 6000 Chassis was designed to be easily managed within an existing multivendor, heterogeneous IT infrastructure — without requiring any special training or management tools. In addition, each chassis is shipped with a standard Chassis Monitoring Module (CMM) that provides even greater assurance of availability.

Sun Blade 6000 Modular System — Sun Blade 6000 Chassis with 10 server modules

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 modules that cool the server modules. The chassis' front-to-back cooling design and redundant power supplies further prevent downtime and protect your investments. The front fans cool the system's power supplies and PCIe ExpressModules, Network Express Modules (NEMs), and CMM; the redundant inline back fans are used to pull air through the server modules and are N+1 hot-swappable with a handle through the back of the chassis.

Reduced costs and faster time to market are the guiding principles behind the Sun Blade 6000 Chassis — and it delivers. The highly efficient Sun Blade 6000 Chassis is also easy to upgrade, with a power supply that provides headroom for future growth. The power supply unit requires less energy than in a comparable chassis. This, coupled with its small footprint and superior cooling design, means that the Sun Blade 6000 Chassis reduces overall costs in the datacenter for space, cooling, and power. By consolidating the cooling and power infrastructure of multiple systems onto the chassis, the Sun Blade 6000 Chassis achieves better power efficiency, reducing both cooling and power costs.

The chassis has two hot-swappable, redundant power supplies, each with its own front fan module, although a single power supply can be used to power the entire chassis. Each chassis could deliver up to 5,600 watts, with a power supply output of 12 volts, and requires four power inlets. The system's actual power consumption depends on the type of blades installed. The power inlets are arranged in 1+1 redundant configurations, requiring connection to a 200-240 V, 16-20 A outlet, and have metal retainers to prevent the accidental removal of their power cords. The chassis' power supplies are more reliable, with no cable management arm and fewer cables required.

A basic Sun Blade 6000 Chassis includes its enclosure, two power supplies, all fan modules, and a Chassis Monitoring Module. One to four chassis can fit into a 42U Sun™ Rack, which is sold separately.

The Sun Blade 6000 Chassis is designed for superior I/O and reliability, availability, and serviceability (RAS), scaling out easily and cost-effectively. It features an industry-standard PCIe 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, and enhances your datacenter ROI right out of the box.

Sun Blade 6000 Chassis Specifications

Architecture

Form factor	10 rack units high (10U), holding up to 10 server modules per chassis. Up to four Sun Blade 6000 Chassis are supported per 42U rack
I/O interfaces	The Sun Blade 6000 midplane supports the following protocols: PCI-Express, Gigabit Ethernet and SAS. Each server module has a direct connection to two PCIe ExpressModules for discrete I/O connectivity and two PCIe Network Express Modules (NEMs) for aggregate I/O connectivity
I/O modules	PCIe ExpressModules (up to two per blade and total 20 per Sun Blade 6000 Chassis): • Gigabit Ethernet dual-port PCIe ExpressModule — Copper (Intel® 82571EB GbE Controller-based) • Gigabit Ethernet dual-port PCIe ExpressModule — Fiber (Intel® 82571EB GbE Controller-based)
	• 4 Gbps Fibre Channel dual-port PCIe ExpressModule (QLogic ISP2432 FC Controller-based) • 4 Gbps Fibre Channel dual-port PCIe ExpressModule (Emulex Zephyr IOC FC Controller-based)
	• 4X InfiniBand dual-port PCIe ExpressModule (Mellanox MT25208 InfiniHost III Ex Controller-based)
	PCIe Network Express Modules (up to two per Sun Blade 6000 Chassis) • Gigabit Ethernet 10-port Passthru PCIe NEM

Manageability

Chassis Monitoring Module (CMM)	
	• 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 fans, and power supplies with the CMM's own Sun Integrated Lights Out Management (ILOM) module

Environment

Specification	Operating	Nonoperating
Temperature	5°C to 32°C (41°F to 90°F)	-40°C to 65°C (-40°F to 149°F)
Optimum ambient temperature	22°C (71.6°F)	
Relative humidity	10 to 90 percent RH, noncondensing, 27°C max. wet bulb	5 to 93 percent RH, noncondensing, 38°C max. wet bulb
Altitude	Up to 3,048m (10,000 ft.), maximum ambient temperature is derated by 1°C per 300m (984 ft.) above 900m (2,953 ft.)	Up to 12,000m (39,370 ft.)
Sine Vibration	Z (vertical) axis: 0.15 G X/Y axis: 0.10 G Five to 500 Hz sine	Z (vertical) axis: 0.50 G X/Y axis: 0.25 G Five to 500 Hz sine
Shock	Three Gs, 11 msec, half sine (rackmounted enclosure)	
Acoustics noise	LwAd (1 B=10 dB) 8.6 B at or below 25°C, 9.2 B at maximum ambient	

AC power

Power (1+1) high-efficiency, hot-swappable, load-sharing, load-balancing power supplies	
	• 1+1 PSU rating: 5,600 W each power supply module (two 2,800 W cores)
Voltage	200 to 240 V AC
Frequency	50 to 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 IEC320-C19
	International — IEC309, 250V, 16A, 3Pin to IEC320-C19

Regulations (meets or exceeds the following requirements)

Product safety	UL/CSA-60950-1, EN60950-1, IEC60950-1 CB scheme with all country differences, IEC825-1, 2, CFR21 part 1040, CNS14336, GB 4943
RFI/EMI (Class A)	EN55022, 47 CFR 15B, ICES-003, VCCI, AS/NZ 3548, CNS 13438, KSC 5858, GB 9254, EN61000-3-2, GB 17625.1, EN61000-3-3, EN300-386: v1.3.3
Immunity	EN55024, EN300-386: 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 and components physical specifications

Chassis height	17.25 in. (438.15mm)
Chassis depth	27.25 in. (692.15mm)
Chassis width	17.50 in. (444.50mm)
Chassis weight of a fully configured system	327.77 lbs. (149 kg)
Chassis weight of an empty system (no fillers)	78.7 lbs. (35.7 kg)
Subassembly weights	
Power Supply Module	21.38 lbs. (9.70 kg)
Network Express Module	3.85 lbs. (1.75 kg)
PCIe ExpressModule	0.90 lb. (0.41 kg)
Rear Fan Module	2.31 lbs. (1.04 kg)
Chassis Monitoring Module	1.15 lbs. (0.52 kg)
Front Fan Module	1.95 lbs. (0.88 kg)
Front Indicator Module	0.75 lb. (0.34 kg)

Learn More

For more information on the Sun Blade 6000 Chassis, visit sun.com/blades, or talk to a local Sun sales representative.

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