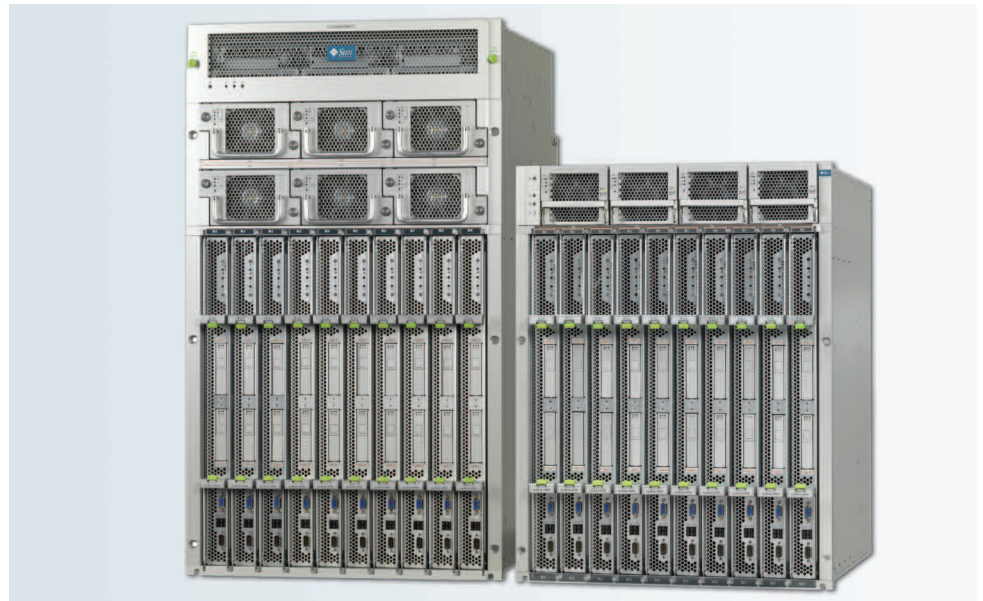


# Sun Blade™ 8000 and 8000 P Modular Systems

Plan ahead, get ahead, stay ahead.



## Highlights

- Get to production faster, reduce operating costs and increase solution lifespan
- Run up to 30 eight-way Sun Blade™ X8420 or X8400 server modules in a single 42U rack—3x the processing power of comparable rackmount options
- Up to 67 percent more space efficient and 43 percent more power efficient than today's rackmount servers
- Up to 4x the memory and 2-16x the I/O throughput of leading blade servers
- High availability with all hot-plug and redundant modular components, including server and I/O modules
- Up to 84 percent reduction in service costs compared to traditional rackmount and blade servers with Sun's chassis-based service package
- Runs the Solaris OS, Linux, Microsoft Windows and VMware side by side



The Sun Blade 8000 and 8000 P modular systems are the only systems designed specifically for today's requirements of balancing increased performance with data center capacity constraints. These high-end x86 computing solutions deliver the best of both worlds: the performance, price, and flexibility of rackmount servers plus the serviceability and efficiency of blades, providing up to 16 times the I/O throughput of competing blade servers while outperforming rackmount servers with up to 67 percent less space and 43 percent lower power requirements. The Sun Blade 8000 P modular system is a specialized configuration of the Sun Blade 8000 modular system and is designed for high-end compute clusters and grid computing where computing performance is paramount and the need for I/O capacity is less important. Both systems offer extremely high performance in a small footprint solution that reduces power and cooling costs, effectively extending the capacity of your data center.

## Meeting today's IT challenges

The continued increase in demand for IT services is creating major challenges for many businesses that are running short on data center capacity. Research indicates that more than 80 percent of data centers are constrained by power, cooling, and space. As IT services continue to expand, these organizations are looking for server technology that can deliver increased performance to meet growing demands while also helping to alleviate capacity problems.

The burden of providing power and cooling for a growing number of servers in the face of rising energy costs has many IT managers looking for new options. In fact, many large data centers simply cannot get more power or cooling capacity even if they could afford it. Government regulations may constrain power resources or the design of the power and cooling infrastructure in an existing building simply may not accommodate greater capacity.

These demands coupled with the need for smart growth and cost-effective management result in the following requirements for today's server systems:

- **More Performance** – Meet growing demands and improve service levels
- **Greater Efficiency** – Improve compute density and overall efficiency
- **Enhanced System Management** – Simple provisioning and scalable systems management
- **Increased Longevity** – Scale and grow without disruption

### Sun Blade 8000 modular system

Traditional blade servers lack the power, cooling, and I/O headroom to support cutting-edge processor, connectivity, and memory technology. The Sun Blade 8000 modular system bridges that gap with room to spare. The system provides open industry-standard I/O designed to support 9.6 Tb/sec. throughput, high-performance SAS and SATA hard drives, and extremely fast memory, making it possible to run high-performance, I/O-intensive applications on a blade server.

The Sun Blade 8000 system is built with modular base components. Its design helps data centers stay ahead of changing business needs — supporting future performance and capacity increases in processor, memory, and I/O technologies. Businesses simply upgrade modules independently, based on their lifecycle. The chassis accommodates up to 10 server modules with four-socket, dual-core AMD Opteron™ processors, and will support the fastest multicore processors for years to come.

With redundant, hot-pluggable, and hot-swappable components, the Sun Blade 8000 system is easy to service. Its native PCIe midplane and innovative, industry-standard PCIe modular I/O design allow individual server modules to be configured with different I/O

modules within the same chassis. The system's management model eases integration into existing environments. Each server module contains an Integrated Lights Out Manager (iLOM) service processor, enabling each server module to be managed directly in the same manner as a rackmount server. In addition, Sun's N1™ System Manager infrastructure lifecycle management software is bundled with the system with a free-to-use license.

### Sun Blade 8000 P modular system

Many of today's blade solutions are based on a one size fits all strategy which attempts to force fit the same solution into every market and configuration, leading to complexity and compromise when choosing blades for clusters and grids. The requirements for engineering and scientific applications such as simulation, design and analysis are simply different from those of business applications.

The Sun Blade 8000 P system is specialized for high-end x86 clusters and grids with triple the density of today's rackmount systems. It supports up to 240 processor cores in a single rack, surpassing 1.3 TFLOPS within this small footprint.

The Sun Blade 8000 P system is an extension of the Sun Blade 8000 series that provides specialized functionality where beneficial, but at the same time leverages the common compute, I/O, and management modules of the Sun Blade 8000 series. These are the only blade servers to provide modular, hot pluggable I/O for Ethernet, Infiniband and Fibre Channel, thus allowing independent servicing of the I/O and server modules without custom software-based management and configuration. Its aggregated I/O technology helps improve density by 50 percent and decreases the I/O power draw for the overall system by 120 percent compared to the Sun Blade 8000 modular system.

The system delivers enterprise-class RAS capabilities by aggregating ten Server Modules into a common, compact 14U chassis with hot-pluggable, redundant, and externally accessible modules that share I/O, power and cooling. Eliminating forklift upgrades, the Sun Blade 8000 P system delivers superior investment protection by providing power, cooling, I/O and headroom designed to support new server and I/O modules for up to five years from now.

### Rapid deployment and low TCO

The Sun Blade 8000 and 8000 P modular systems are 24 times faster to deploy than traditional rackmount solutions.<sup>1</sup> Compared to other blade servers, the transparent management architecture of these systems requires no custom or proprietary blade specific systems management licensing, training or development. This reduces the time and complexity to integrate the servers into your existing environment. The systems can also reduce your operating costs with up to 84 percent lower system support costs and going up to 40 percent longer between system service calls.<sup>2</sup>

### Sun System Packs

Both the Sun Blade 8000 and the Sun Blade 8000 P modular systems are available as a Sun System Pack. This offering combines the server with the right services, enabling customers to yield the most value from their assets. The Sun System Packs provide significant advantages over traditional warranty plans by delivering higher value services such as better service coverage, automatic OS updates, and training credits.

<sup>1</sup> Sun has measured the time it takes to physically insert a new blade, and provision it with Solaris OS. It takes typically 30 minutes once the chassis and rack infrastructure is in place. Sun has also measured the difference in time to physically install a blade in the Sun Fire B1600 Blade System which uses a rack mount approach and required 12 hours to install and provision the server, 24 times that of the Sun Blade 8000 modular system.

<sup>2</sup> The Sun Blade 8000 P modular system offers 40 percent longer time between service calls than its nearest blade server competitor, the HP ProLiant BL45p server. The Sun Blade 8000 modular system offers 32 percent longer time between service calls than the HP ProLiant BL45p.

# Sun Blade 8000 Modular System Specifications

## Server Modules

### Processor

(Up to ten server modules per chassis and 2 chassis per rack, yielding up to 160 cores per rack)

### Main Memory

(Up to 640 GB in a fully populated chassis)

### Server Module Architecture

### I/O Interfaces

### Storage

### Software

Operating systems

## Sun Blade X8420 Server Module

Four dual-core AMD Opteron 8000 Series processors per server module (Choice of AMD 8216, 8218, 8218HE or 8220 Processors)

Four DIMM slots per CPU socket; DDR2/667 PC2-5300 ECC-registered DIMMs (128-bit plus ECC data bus); total of 16 DIMM slots; up to 16 GB per CPU; total of 64 GB of RAM per server module

8.0 GB/sec HyperTransport™ link with 10.6 GB/sec access between processor and memory

Six PCIe links per server module that may connect through the chassis midplane to two unique PCIe ExpressModules (EMs) and four PCIe Network Express Modules (NEMs)

Two hot-swappable, 2.5-inch SAS or SATA internal disks per server module, up to 20 per chassis; hardware RAID 0, 1 support

Sun Java™ Enterprise System 4

Networking

Management

- Solaris™ 10 Operating System, 64-bit
- Red Hat Enterprise Linux Advanced Server 4.0, 32-bit/64-bit
- SUSE LINUX Enterprise Server 9, Service Pack 3 and higher
- Windows Server 2003, Enterprise Edition, 32-bit/64-bit
- Windows Server 2003, Standard Edition, 32-bit/64-bit
- VMware ESX Server 3.0.1

- Solaris 10 Operating System
- Standard Linux distributions

ONC™, ONC+™, NFS, WebNFS™, TCP/IP, SunLink™, OSI, MHS, IPX™/SPX, SMB technologies, and XML

Per server module ILOM service processor providing: DMTF CLP-based CLI over SSH; Web-based GUI over HTTPS/HTTP; IPMI 2.0; SNMP V1, v2c and v3; remote graphical access over Ethernet; and remote storage over Ethernet

- Sun N1 System Manager – discovering, grouping, bare metal provisioning, hardware monitoring, and OS monitoring

## Sun Blade X8400 Server Module

Four dual-core AMD Opteron 800 Series processors per server module (Choice of AMD 870, 875, or 885 Processors)

Four DIMM slots per CPU socket; DDR1/400 PC-3200 ECC-registered DIMMs (128-bit plus ECC data bus); total of 16 DIMM slots; up to 16 GB per CPU; total of 64 GB of RAM per server module

8.0 GB/sec HyperTransport™ link with 6.4 GB/sec access between processor and memory

Six PCIe links per server module that may connect through the chassis midplane to two unique PCIe ExpressModules (EMs) and four PCIe Network Express Modules (NEMs)

Two hot-swappable, 2.5-inch SAS or SATA internal disks per server module, up to 20 per chassis; hardware RAID 0, 1 support

- Solaris™ 10 Operating System, 64-bit
- Red Hat Enterprise Linux Advanced Server 4.0, 32-bit/64-bit
- SUSE LINUX Enterprise Server 9, Service Pack 3 and higher
- Windows Server 2003, Enterprise Edition, 32-bit/64-bit
- Windows Server 2003, Standard Edition, 32-bit/64-bit
- VMware ESX Server 3.0.1

- Solaris 10 Operating System
- Standard Linux distributions

ONC™, ONC+™, NFS, WebNFS™, TCP/IP, SunLink™, OSI, MHS, IPX™/SPX, SMB technologies, and XML

Per server module ILOM service processor providing: DMTF CLP-based CLI over SSH; Web-based GUI over HTTPS/HTTP; IPMI 2.0; SNMP V1, v2c and v3; remote graphical access over Ethernet; and remote storage over Ethernet

- Sun N1 System Manager – discovering, grouping, bare metal provisioning, hardware monitoring, and OS monitoring

## Chassis

### I/O Modules

PCIe ExpressModules  
(up to 20 per Sun Blade 8000 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 Gb Fibre Channel dual-port PCIe ExpressModule (QLogic ISP2432 FC Controller-based)
- 4 Gb 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)
- Gigabit Ethernet 20-Port Passthru PCIe NEM (Intel® 82571EB GbE Controller-based)
- 4 Gb Fibre Channel 20-Port Passthru PCIe NEM (Emulex Zephyr IOC FC Controller-based)
- 4x InfiniBand 10-Port Passthru PCIe NEM (Mellanox MT25204 InfiniHost III Lx Controller-based)

PCIe Network Express Modules  
(up to 4 per Sun Blade 8000 Chassis)

### Environment

Acoustic noise emissions

Noise levels within two feet of the rear measured at 107 dB; within two feet of the front of the system measured at 80 dB

AC power

200-240V AC, 50-60 Hz

Operating temperature (single nonrack system)

- 5°C to 35°C (41°F to 95°F)
- 10-90 percent relative humidity
- Noncondensing, 27°C max. wet bulb

Nonoperating temperature (single nonrack system)

- -40°C to 65°C (-40°F to 149°F)
- 5 to 93 percent relative humidity
- Noncondensing, 38°C max. wet bulb

Operating altitude (single nonrack system)

Up to 7500 ft. (2286m), maximum ambient temperature is derated by 1°C per 300m above 900m

Nonoperating altitude (single nonrack system)

Up to 10,000 ft. (3048m)

### Power

- Power N+N (3+3) high-efficiency, hot-swappable, load-sharing, load-balancing power supplies
- N+N PSU rating: 3000 W each power supply, 9000W for three power supplies
- Maximum rating per server module: 750W

### Regulations (meets or exceeds the following requirements)

- Safety: IEC60950, UL/CSA60950, EN60950, CB scheme with all country differences
- RFI/EMI: FCC Class A, Part 15 47 CFR, EN55022, CISPR 22, EN300-386: v1.31, ICES-003
- Immunity: EN55024, EN300-386: v1.3.2

### Certifications

- Safety: cULus Mark, TUV GS Mark, CE Mark, CCC, GOST R, S-Mark
- EMC: CE Mark (93/68/EEC); Emissions and Immunity Class A Emissions Levels: FCC, VCCI, C-Tick, MIC, CCC, GOST R, BSMI
- Other: Labeled per WEEE (Waste Electrical and Electronic Equipment) Directive

### Chassis dimensions and weight

- Height: 33.01 in. (838.49 mm) 19 RU
- Width: 17.5 in. (444.5 mm)
- Depth: 28.43 in. (722 mm)
- Weight (fully configured): 536 lb. (243.13 kg)
- Empty chassis with midplane: 94 lb. (42.64 kg)

### Mounting option

19-inch rackmount rail kit (included)

# Sun Blade 8000 P Modular System Specifications

## Server Modules

### Processor

(Up to ten server modules per chassis and 2 chassis per rack, yielding up to 160 cores per rack)

### Sun Blade X8420 Server Module

Four dual-core AMD Opteron 8000 Series processors per server module (Choice of AMD 8216, 8218, 8218HE or 8220 Processors)

### Sun Blade X8400 Server Module

Four dual-core AMD Opteron 800 Series processors per server module (Choice of AMD 870, 875, or 885 Processors)

### Main Memory

(Up to 640 GB in a fully populated chassis)

Four DIMM slots per CPU socket; DDR2/667 PC2-5300 ECC-registered DIMMs (128-bit plus ECC data bus); total of 16 DIMM slots; up to 16 GB per CPU; total of 64 GB of RAM per server module

Four DIMM slots per CPU socket; DDR1/400 PC-3200 ECC-registered DIMMs (128-bit plus ECC data bus); total of 16 DIMM slots; up to 16 GB per CPU; total of 64 GB of RAM per server module

### Server Module Architecture

8.0 GB/sec HyperTransport™ link with 10.6 GB/sec access between processor and memory

8.0 GB/sec HyperTransport™ link with 6.4 GB/sec access between processor and memory

### I/O Interfaces

Two PCIe Network Express Modules (NEMs) for an aggregate of 40 I/O ports per chassis or 120 I/O ports per rack

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### Storage

Two hot-swappable, 2.5-inch SAS or SATA internal disks per server module, up to 20 per chassis; hardware RAID 0, 1 support

Two hot-swappable, 2.5-inch SAS or SATA internal disks per server module, up to 20 per chassis; hardware RAID 0, 1 support

### Software

Operating systems

- Solaris™ 10 Operating System, 64-bit
- Red Hat Enterprise Linux Advanced Server 4.0, 32-bit/64-bit
- SUSE LINUX Enterprise Server 9, Service Pack 3 and higher
- Windows Server 2003, Enterprise Edition, 32-bit/64-bit
- Windows Server 2003, Standard Edition, 32-bit/64-bit
- VMware ESX Server 3.0.1

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Per server module ILOM service processor providing: DMTF CLP-based CLI over SSH; Web-based GUI over HTTPS/HTTP; IPMI 2.0; SNMP V1, v2c and v3; remote graphical access over Ethernet; and remote storage over Ethernet

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- Sun N1 System Manager – discovering, grouping, bare metal provisioning, hardware monitoring, and OS monitoring

## Chassis

### I/O Modules

PCIe Network Express Modules (up to two per chassis or six per rack)

- Gigabit Ethernet 20-Port Passthru PCIe NEM (Intel® 82571EB GbE Controller-based, up to two per chassis or six per rack)
- 4Gb Fibre Channel 20-Port Passthru PCIe NEM (Emulex Zephyr IOC FC Controller-based)
- 4x InfiniBand 10-Port Passthru PCIe NEM (Mellanox MT25204 InfiniHost III Lx Controller-based)

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- -40°C to 65°C (-40°F to 149°F)
- 5 to 93 percent relative humidity
- Noncondensing, 38°C max. wet bulb

Operating altitude (single nonrack system)

Up to 7500 ft. (2286m), maximum ambient temperature is derated by 1°C per 300m above 900m

Nonoperating altitude (single nonrack system)

Up to 10,000 ft. (3048m)

### Power

- Power N+1 (3+1) high-efficiency, hot-swappable, load-sharing, load-balancing power supplies
- N+1 PSU rating: 3000 W each power supply, 9000W for three power supplies
- Maximum rating per server module: 750W

### Regulations (meets or exceeds the following requirements)

- Safety: IEC60950, UL/CSA60950, EN60950, CB scheme with all country differences
- RFI/EMI: FCC Class A, Part 15 47 CFR, EN55022, CISPR 22, EN300-386: v1.31, ICES-003
- Immunity: EN55024, EN300-386: v1.3.2

### Certifications

- Safety: cULus Mark, TUV GS Mark, CE Mark, CCC, GOST R, S-Mark
- EMC: CE Mark (93/68/EEC); Emissions and Immunity Class A Emissions Levels: FCC, VCCI, C-Tick, MIC, CCC, GOST R, BSMI
- Other: Labeled per WEEE (Waste Electrical and Electronic Equipment) Directive

### Chassis dimensions and weight

- Height: 24.26 in. (616.21 mm) 14 RU
- Width: 17.5 in. (444.5 mm)
- Depth: 28.43 in. (722 mm)
- Weight (fully configured): 420 lb. (190.51 kg)
- Empty chassis with midplane: 75 lb. (34.02 kg)

### Mounting option

19-inch rackmount rail kit (included)

## Learn More

For more information on the Sun Blade 8000 and Sun Blade 8000 P modular systems visit [sun.com/blades](http://sun.com/blades) or talk to a local Sun sales representative.



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