

# SUN BLADE 6000 SWITCHED NETWORK EXPRESS MODULE 24P 10GBE



REDUCING COSTS AND SIMPLIFYING YOUR DATA CENTER WITH 10GBE ON SUN BLADES

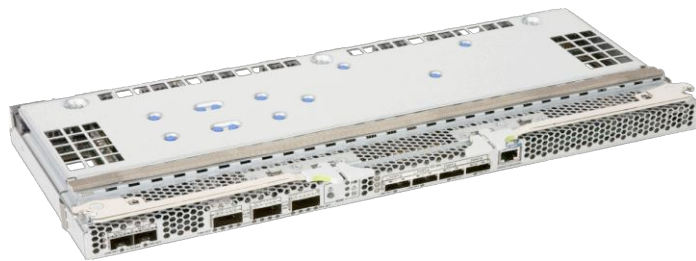
## FEATURES

- Embedded in the Sun Blade 6000 Chassis with a single management system
- 24-ports including 14 10GbE uplinks
- Wire rate, low-latency 10GbE switching
- Hot-pluggable and redundant configuration
- Compliant with the industry standard Layer 2 and Layer 3 features

## BENEFITS

- Highest performance non-blocking uplinks with no over-subscription
- Advanced cabling delivers reduces cables 4:1
- Collapses the 3 tier network to 2 tiers simplifying network management and reducing the costs of switching elements
- Virtualization boost for I/O-hungry applications

*Designed to harness the full capabilities of the Sun Blade Modular System, Oracle's Sun Blade 6000 Ethernet Switched Network Express Module 24p 10GbE brings advanced 10 Gigabit Ethernet non-blocking concurrent networking to the blade servers. This high performance, low latency NEM simplifies IT infrastructure and reduces network costs by eliminating an entire tier of switching with 4:1 cable reduction. It is ideal for network intensive enterprise applications, web services, applications services and database access and backup.*



Oracle's Sun Blade 6000 Switched Network Express Module 24p 10GbE

## Overview

The Sun Blade 6000 Switched Network Express Module 24p 10GbE provides wire rate, low latency, cut through switching to all supported 10 blades in the Sun Blade 6000 chassis. For scale-out connectivity to other chassis or to existing data center networks, the Network Express Module provides 14 10GbE uplinks, with two of them providing the SFP+ connectivity for either 1GbE or 10GbE cable aggregation and legacy interconnect, and the remaining 12 uplinks utilizing 3 compact QSFP connectors. The Sun Blade 6000 Switched Network Express Module 24p 10GbE is compliant with the industry standard Layer 2 and Layer 3 features.

## Integrated into Oracle's Sun Blade Modular System

The Oracle Sun Blade 6000 Ethernet Switched NEM 24p 10GbE is seamlessly integrated with the Sun Blade 6000 Chassis, offering an immediate performance boost and cost reduction to the Blade Servers by eliminating an entire layer of data center switches. The Network Express Module enables the highest server-to-server bandwidth for 40 blade servers without needing an external switch in a single rack. It is ideal for VM migration, removing I/O bottlenecks and realizing full value from virtualized applications. The Network Express Module is managed from the Sun Blade 6000 ILOM server management which provides a single management system.

## Sun Blade 6000 Switched NEM 24p 10GbE Specifications

Interfaces
Network
<ul style="list-style-type: none"> <li>• 10 10GbE downlinks: 1 link to each blade server via Fabric Expansion Module (FEM)</li> <li>• 14 10GbE uplinks: 2 SFP+, 3 QSFP (Quad Small Factor Ports) (equiv to 12 10GbE ports)</li> <li>• 1 serial service port (RJ45)</li> </ul>
Form Factor
<ul style="list-style-type: none"> <li>• Occupies one NEM slot in each of the Sun Blade 6000 Chassis</li> </ul>
High Availability and Network Express Module Configuration
<ul style="list-style-type: none"> <li>• Hot-pluggable and redundant configuration</li> <li>• One or both NEM slots in Sun Blade 6000 Chassis need to be the Sun Switched NEM 24p 10GbE</li> </ul> <p>The NEM can't be mixed with any other type of NEM in the Sun Blade 6000 chassis</p>
Performance
<ul style="list-style-type: none"> <li>• Line-rate 10 Gbps, low latency cut-through forwarding</li> <li>• Each blade server has dedicated non- blocking 10Gbps connection to NEM</li> <li>• Layer 2 hardware forwarding at 480 Gbps or 714 million packets per second (mpps)</li> <li>• MAC address table entries 16k</li> </ul>
Ethernet Layer 2 and 3 Features
<ul style="list-style-type: none"> <li>• IEEE 802.1Q VLAN encapsulation</li> <li>• IEEE 802.1D GVRP/GMRP support</li> <li>• IEEE 802.1D Spanning Tree Protocol</li> <li>• IEEE 802.1w Rapid Spanning Tree</li> <li>• IEEE 802.1s Multiple Spanning Tree</li> <li>• Scalability to 4094 VLANs</li> <li>• Rate control per port</li> <li>• Support for Ethernet MIB (RFC 2665)</li> <li>• IGMP Snooping</li> <li>• IEEE 802.1x Port Based Authentication with EAP</li> <li>• IEEE 802.1p Priority based switching</li> <li>• IEEE 802.3ad Link Aggregation</li> <li>• RMON (1,2,3 and 9 groups), RFC 2819</li> <li>• Port Mirroring</li> <li>• Broadcast storm control</li> <li>• SNMP, and CLI support, RFC 1905</li> <li>• Static routing</li> <li>• RIP v1/v2, RFC 2453</li> <li>• OSPF v2</li> <li>• SNMPv3, RFC 3411, 3412</li> <li>• Firewall and DoS attack protection</li> </ul>
Management
<ul style="list-style-type: none"> <li>• Sun's standard server management interface: ILOM v3 and CMM (Sub Sun Blade 6000 Chassis Management Module)</li> <li>• SNMP</li> </ul>

<ul style="list-style-type: none"> <li>• Industry CLI</li> <li>• SSH</li> <li>• Web Interface for ILOM</li> <li>• IPMP interface</li> </ul>
<b>QoS</b>
<ul style="list-style-type: none"> <li>• Layer 2 IEEE 802.1p (CoS)</li> <li>• 8 hardware queues per port</li> <li>• Per-port QoS configuration</li> <li>• Port-based CoS assignment</li> <li>• Access control list (ACL)-based QoS classification (Layers 2, 3 and 4)</li> <li>• CoS-based egress queuing</li> <li>• Egress strict-priority queuing</li> <li>• Egress port-based scheduling: Weighted Deficit Round-Robin (WDRR)</li> </ul>
<b>Security</b>
<ul style="list-style-type: none"> <li>• Ingress ACLs (standard and extended) on Ethernet and virtual Ethernet ports</li> <li>• Layer 2 ACLs: MAC addresses, VLAN</li> <li>• Extended Layer 3 to 4 ACLs: Ipv4, Internet Control Message Protocol (ICMP), TCP, User Datagram Protocol (UDP), Port #, etc.</li> </ul>
<b>Regulatory Compliance</b>
<ul style="list-style-type: none"> <li>• Safety: UL/CSA 60950-1, EN60950-1, IEC 60950 -1 CB Scheme with all country deviations</li> <li>• RFI/EMC: EN55022/CISPR 22, Class A, FCC CFR47 Part 15 Class A, EN61000 -3 -2, EN61000 -3 -3</li> <li>• Immunity: EN55024/CISPR 24</li> <li>• Regulatory marks: CE, FCC, ICES-003, C-tick, VCCI, GOST-R, BSMI, KCC, UL/cUL S-Mark</li> <li>• RoHS 6 Compliant</li> </ul>
<b>Operating Environment</b>
<ul style="list-style-type: none"> <li>• Voltage: 12V and 3.3V AUX from SB 6000 PSUs via mid-plane. Maximum Power 130W</li> <li>• Operating Temperature 5° C to 35° C (41° F to 95° F)</li> <li>• Operating Humidity 10% to 90% relative humidity, non-condensing, 27° C maximum wet bulb</li> <li>• Operating Altitude Up to 3,000m, max. ambient temperature is de-rated by 1° C per 300m above 900m</li> <li>• Non-Operating Temperature -40° C to 65° C (-40° F to 149° F)</li> <li>• Non-Operating Humidity Up to 93% relative humidity, non-condensing, 38° C maximum wet bulb</li> <li>• Non-Operating Altitude Up to 12,000m</li> </ul>
<b>Dimensions and Weight</b>
<ul style="list-style-type: none"> <li>• Height 32.5 mm (1.28 in.)</li> <li>• Width 426.14 mm (16.78 in.)</li> <li>• Depth 191.46 mm (7.54 in.)</li> </ul>

## RELATED PRODUCTS AND SERVICES

Designed to harness the full capabilities of the Sun Blade Modular System, the Sun Blade 6000 Ethernet Switched Network Express Module 24p 10GbE brings advanced 10 Gigabit Ethernet non-blocking concurrent networking to the blade servers.

### RELATED PRODUCTS

The Sun Blade 6000 Ethernet Switched NEM 24p 10GbE is integrated into the Sun Blade 6000 Chassis to provide 10GbE switching to all blades.

### RELATED SERVICES

The following services are available from Oracle Support Services:

- Installation
- Maintenance

## Contact Us

For more information about [insert product name], please visit [oracle.com](http://oracle.com) or call +1.800.ORACLE1 to speak to an Oracle representative.



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