SUN BLADE 6000 AND SUN NETRA 6000 SWITCHED NETWORK EXPRESS MODULE 24P 10 GBE

Designed to harness the full capabilities of the Sun Blade Modular Systems, the Sun Blade 6000 and Sun Netra 6000 Ethernet Switched Network Express Module 24p 10 GbE 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.

Overview

The Sun Blade 6000 and Sun Netra 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 and Sun Netra 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 Systems

The Sun Blade 6000 and Sun Netra 6000 Ethernet Switched NEM 24p 10GbE is seamlessly integrated with the Sun Blade 6000 and Sun Netra 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 and Sun Netra 6000 ILOM server management which provides a single management system.
**Sun Blade 6000 and Sun Netra 6000 Switched NEM 24p 10GbE Specifications**

### Supported Sun Blade 6000 Server Modules and Storage Modules

Blade chassis version: A90-D, A90-B, A90-A
- SPARC T4-1B Server
- SPARC T3-1B Server
- Sun Blade X6270 M2 Server Module
- Sun Blade X6275 M2 GbE Server Module
- Sun Blade 6000 Storage Module M2

### Supported Sun Netra 6000 Server Modules

Blade chassis version (AC and DC): N6000-AC, N6000-DC, 71000418, 7100417
- Sun Netra SPARC T3-1B Server
- Sun Netra X6270 M2 Server Module

### Interfaces

**Network**
- 10 10GbE downlinks: 1 link to each blade server via Fabric Expansion Module (FEM)
- 14 10GbE uplinks: 2 SFP+, 3 QSFP (Quad Small Factor Ports) (equiv to 12 10GbE ports)
- 1 serial service port (RJ45)

### Form Factor

- Occupies one NEM slot in each of the Sun Blade 6000 or Sun Netra 6000 Chassis

### High Availability and Network Express Module Configuration

- Hot-pluggable and redundant configuration
- One or both NEM slots in Sun Blade 6000 or Sun Netra 6000 Chassis need to be the Sun Switched NEM 24p 10 GbE
- The NEM can’t be mixed with any other type of NEM in the blades chassis

### Performance

- Line-rate 10 Gbps, low latency cut-through forwarding
- Each blade server has dedicated non-blocking 10Gbps connection to NEM
- Layer 2 hardware forwarding at 480 Gbps or 714 million packets per second (mpps)
- MAC address table entries 16k

### Ethernet Layer 2 and 3 Features

- IEEE 802.1Q VLAN encapsulation
- IEEE 802.1D GVRP/GMRP support
- IEEE 802.1D Spanning Tree Protocol
- IEEE 802.1w Rapid Spanning Tree
- IEEE 802.1s Multiple Spanning Tree
- Scalability to 4094 VLANs
- Rate control per port
- Support for Ethernet MIB (RFC 2665)
- IGMP Snooping
- IEEE 802.1x Port Based Authentication with EAP
- IEEE 802.1p Priority based switching
- IEEE 802.3ad Link Aggregation
• RMON (1,2,3 and 9 groups), RFC 2819
• Port Mirroring
• Broadcast storm control
• SNMP, and CLI support, RFC 1905
• Static routing
• RIP v1/v2, RFC 2453
• OSPF v2
• SNMPv3, RFC 3411, 3412
• Firewall and DoS attack protection

Management
• Sun’s standard server management interface: ILOM v3 and CMM (Sub Sun Blade 6000 or Sun Netra 6000 Chassis Management Module)
• SNMP
• Industry CLI
• SSH
• Web Interface for ILOM
• IPMP interface

QoS
• Layer 2 IEEE 802.1p (CoS)
• 8 hardware queues per port
• Per-port QoS configuration
• Port-based CoS assignment
• Access control list (ACL)-based QoS classification (Layers 2, 3 and 4)
• CoS-based egress queuing
• Egress strict-priority queuing
• Egress port-based scheduling: Weighted Deficit Round-Robin (WDRR)

Security
• Ingress ACLs (standard and extended) on Ethernet and virtual Ethernet ports
• Layer 2 ACLs: MAC addresses, VLAN
• Extended Layer 3 to 4 ACLs: IPv4, Internet Control Message Protocol (ICMP), TCP, User Datagram Protocol (UDP), Port #, etc.

Regulatory Compliance
• Safety: UL/CSA 60950-1, EN60950-1, IEC 60950 -1 CB Scheme with all country deviations
• RFI/EMC: EN55022/CISPR 22, Class A, FCC CFR47 Part 15 Class A, EN61000 -3 - 2, EN61000 -3 -3
• Immunity: EN55024/CISPR 24
• Regulatory marks: CE, FCC, ICES-003, C-tick, VCCI, GOST-R, BSMI, KCC, UL/cUL S-Mark
• RoHS 6 Compliant

Operating Environment
• Voltage:12V and 3.3V AUX from SB 6000 PSUs via mid-plane. Maximum Power 130W
• Operating Temperature 5º C to 35º C (41º F to 95º F)
• Operating Humidity 10% to 90% relative humidity, non-condensing; 27º C maximum wet bulb
• Operating Altitude Up to 3,000m, max. ambient temperature is de-rated by 1º C per
300m above 900m
- Non-Operating Temperature -40° C to 65° C (-40° F to 149° F)
- Non-Operating Humidity Up to 93% relative humidity, non-condensing, 38° C maximum wet bulb
- Non-Operating Altitude Up to 12,000m

Dimensions and Weight
- Height 32.5 mm (1.28 in.)
- Width 426.14 mm (16.78 in.)
- Depth 191.46 mm (7.54 in.)
- Weight 2.61Kg (5 lb 12 Oz)

Warranty
The Sun Blade 6000 and Sun Netra 6000 Ethernet Switched Network Express Module 24p comes with a one-year warranty. For more information, visit oracle.com/sun/warranty for Oracle's global warranty support.

Services
Visit oracle.com/sun/services for information on Oracle's service program offerings for Sun products.

Contact Us
For more information about Oracle’s Sun Blade 6000 and Sun Netra 6000 Ethernet Switched Network Express Module 24p, please visit oracle.com or call +1.800.ORACLE1 to speak to an Oracle representative.

Copyright © 2011, 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. 0110