

# SUN BLADE 6000 VIRTUALIZED MULTI-FABRIC 10GbE M2 NETWORK EXPRESS MODULE



IN-CHASSIS COST-EFFICIENT  
VIRTUALIZED 10GBE ACCESS

## FEATURES

- Virtualized 2x10GbE uplink shared by all server modules in a single chassis.
- One pass-through Gigabit Ethernet port per server blade
- SAS-2 x2 connections to the server modules in the chassis
- Hot pluggable in the Sun Blade 6000 Chassis
- Zero management from the Sun Blade 6000 Chassis Management Module
- Oracle Solaris, Oracle Linux, Red Hat Enterprise Linux, Novell SuSE Linux Enterprise Server, VMware and Windows

## BENEFITS

- Optimized server module I/O with embedded virtualization technology
- Manages sharing storage disks in the Sun Blade Storage Modules M2 among the Sun Blade server modules
- Simplified IT infrastructure with 10:1 cable reduction
- Consolidated I/O allows to host various workloads in one chassis
- Hot plug upgrades eliminate disruption to server module activities during insertion/removal
- Lower TCO with zero management and low energy consumption

*Designed to seamlessly integrate into the Sun Blade 6000 chassis, Oracle's Sun Blade 6000 Virtualized Multi-Fabric 10GbE M2 Network Express Module provides virtualized 10GbE access to all ten server modules (blades) in the chassis. It is a perfect network interface for connecting multiple blades in the Sun Blade 6000 chassis that require high-performance connectivity to the datacenter for workloads such as web servers, application servers and database servers.*



**The Sun Blade 6000 Virtualized Multi-Fabric 10 GbE M2 NEM delivers virtualized 10GbE access with zero management.**

## Product Overview

The Sun Blade 6000 Virtualized Multi-Fabric 10GbE M2 NEM is a multifunction connectivity module for the Sun Blade 6000 Modular System. Combining Virtualized 10 GbE network connectivity, support for SAS-2 storage connectivity to storage modules in a single chassis and 1GbE pass-through this NEM offers the most unique platform for simplifying datacenter networks, without adding the extra cost of switches to manage. This NEM utilizes an Oracle designed 10 GbE NIC ASIC, that virtualizes the 10GbE network connectivity across the ten server modules in the Sun Blade 6000 chassis thus simplifying the networks by reducing cables by 10:1 and without adding the extra switching layer. It offers three configurable options making it ideally suited for different types of workloads ranging from applications just needing high intra-blade communications to those needing higher virtualized bandwidth. Examples of some of these workloads are ones that move smaller amounts of data and require high-speed network for lower latency such as web servers and application servers and workloads that move a lot of data

intermittently such as enterprise applications and databases. The three options are “Privacy Mode” which enables private intra-blade communications, “Connectivity Mode” that aggregates 10GbE speed across and “Bandwidth Mode” that aggregates 20GbE network performance across the blades in the Sun Blade 6000 chassis.

The Sun Blade 6000 Virtualized NEM supports connection to external devices either through 10 GbE small form-factor pluggable (SFP)+ ports, or 10/100/1000 twisted-pair Ethernet (TPE) ports and to internal Sun Blade storage modules through the internal SAS-2 expanders that connect the server modules in the Sun Blade 6000 chassis with the storage modules in the same chassis.

The Sun Blade 6000 Virtualized Multi-Fabric 10 GbE M2 NEM form factor provides a method of deploying bulk remote I/O that allows tool-less installation/removal and packs more performance and functionality in a smaller space, while delivering higher network throughput. This NEM makes efficient use of data center real estate by reducing the number of cables.

This product is easy to install and manage. The flexible architecture of the Sun Blade 6000 modular system is based entirely on the hot-pluggable components— I/O, processing, system management, and chassis infrastructure. All critical components, including the NEM modules, are hot swap and redundant. This is state-of-the-art in hot-swap enterprise-class reliability, availability, and serviceability (RAS) features. It works together to boost data center efficiency and uptime and lower total cost of ownership (TCO).

### Sun Blade 6000 Virtualized Multi-Fabric 10GbE M2 NEM Specifications

Supported Operating Systems and Virtualization Software	
<ul style="list-style-type: none"> <li>Oracle Solaris</li> <li>Oracle Linux</li> <li>Red Hat Enterprise Linux</li> </ul>	<ul style="list-style-type: none"> <li>SUSE Linux Enterprise Server</li> <li>Microsoft Windows 2008</li> <li>VMware</li> </ul>
Supported Sun Blade 6000 Server Modules and Storage Modules	
<ul style="list-style-type: none"> <li>Sun Blade X6270 M2 Server Module</li> <li>Sun Blade T3-1B Server Module</li> <li>Sun Blade Storage Module M2</li> </ul>	<ul style="list-style-type: none"> <li>Sun Blade T6340 Server Module (EOL'ed)</li> <li>Sun Blade T6320 Server Module (EOL'ed)</li> </ul>
Ports	
<ul style="list-style-type: none"> <li>Ten 10/100/1000 Mb/sec Ethernet pass-through ports</li> <li>Two 10Gbe SFP+ ports</li> </ul>	
Health Monitoring Capabilities	
<ul style="list-style-type: none"> <li>Voltage monitoring</li> <li>Temperature monitoring</li> <li>Fault detection</li> </ul>	
Updates	
All software and FW is field upgradable	
Indicators	
<ul style="list-style-type: none"> <li>Ethernet link/status and activity</li> <li>SFP+ link/status and activity</li> <li>SIS LEDs, locate button</li> </ul>	

Power Dissipation	
67W Typical. (Max: 73W)	
Environment	
Cooling	Front to Back forced air
Operating temperature	0°C to 35°C (32°F to 95°F)
Nonoperating temperature	- 40°C to 70°C (- 40°F to 158°F)
Operating relative humidity	10% to 90% RH, noncondensing,
Nonoperating relative humidity	5% to 95% RH, noncondensing,
Operating altitude	Up to 3,048 m (10,000 ft.), maximum
Nonoperating altitude	Up to 12,000 m (39,370 ft.)

IEEE Networking and SAS Standards	
1 Gb links	<ul style="list-style-type: none"> <li>• IEEE 802.3x full duplex on 10BASE-T, 100BASE-TX, and 1000BASE-T ports</li> <li>• IEEE 802.1Q VLAN</li> <li>• IEEE 802.3 10BASE-T specification</li> <li>• IEEE 802.3u 100BASE-TX specification</li> <li>• IEEE 802.3ab 1000BASE-T specification</li> </ul>
10 Gb links	<ul style="list-style-type: none"> <li>• IEEE 802.3ae 10GBASE-SR</li> <li>• IEEE 802.3aq 10GBASE-LRM</li> </ul>
SAS support	SAS-2

Agency Approvals	
<ul style="list-style-type: none"> <li>• UL recognized</li> <li>• CUR recognized</li> <li>• TUV certified</li> <li>• FCC rules, Part 15, Class A</li> <li>• ICES-003, Class A</li> <li>• EMC Directive 2004/108/EC (CE Mark)</li> </ul>	<ul style="list-style-type: none"> <li>• EN55022, Class A</li> <li>• EN55024</li> <li>• Australian EMC Framework (C-Tick Mark)</li> <li>• VCCI, Class A (Japan)</li> <li>• RoHI compliant for environmental requirements</li> <li>• China RoHS compliant</li> </ul>

Description and Ordering Information
<ul style="list-style-type: none"> <li>• Sun Blade 6000 Virtualized Multi-Fabric 10 GbE M2 NEM (4338A,X4338A)</li> <li>• Options Available: Sun 10Gbps Dual Rate SFP+ SR Transceiver (2129A, X2129A-N) Sun 10Gbps SFP+ LR Transceiver (5562A-Z, X5562A-Z)  Below copper cables are direct attach and transceivers should not be used: Sun 10Gbps SFP+ TwinX Cable,1meter ( X2130A-1M-N, 2130A-1M) Sun 10Gbps SFP+ TwinX Cable,3meter ( X2130A-3M-N, 2130A-3M) Sun 10Gbps SFP+ TwinX Cable,5meter X2130A-5M-N, 2130A-5M) Sun 10Gbps SFP+ TwinX Cable,10meter ( X2130A-10M-N, 2130A-10M)</li> </ul>

## RELATED PRODUCTS AND SERVICES

Sun Blade 6000 Virtualized Multi-Fabric 10GbE M2 NEM is a zero management, hot pluggable NEM which delivers virtualized 10GbE access to all ten server modules. It simplifies IT infrastructure and reduces network costs while reducing uplink cabling by as much as 10:1.

### RELATED PRODUCTS

The Sun Blade 6000 Virtualized Multi-Fabric 10GbE M2 NEM is designed for the Sun Blade 6000 Chassis where it supports:

- Sun Blade T3-1B
- Sun Blade X6270 M2
- Sun Blade Storage Module M2

An alternative product is the Sun Blade 6000 Ethernet Switched Network Express Module (NEM) 24p 10GbE which delivers 10GbE switching to the server modules.

### RELATED SERVICES

The following services are available from Oracle Support Services:

- Installation
- Maintenance

### Warranty

The Sun Blade 6000 Virtualized Multi-Fabric 10 GbE M2 Network Express Module comes with a one-year warranty. For more information visit [oracle.com/sun/warranty](http://oracle.com/sun/warranty) for Oracle's global warranty support.

### Services

Visit [oracle.com/sun/services](http://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 Virtualized Multi-Fabric 10 GbE M2 Network Express Module please visit [oracle.com](http://oracle.com) or call +1.800.ORACLE1 to speak to an Oracle representative.



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