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Oracle Dual Port 25 Gb Ethernet Adapter, Mellanox

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Oracle Dual Port 25 Gb Ethernet Adapter brings the essential features for deploying network infrastructure in next-generation clouds to Oracle servers and storage systems. The adapter converges network and storage traffic, dramatically expands resources for server virtualization and supports network overlays for virtualization of data center L2 network infrastructure.

Product Overview

Modern, high-performance enterprise clouds place unique requirements on network infrastructure. To efficiently utilize the cloud's physical resources, infrastructure must support the network and storage needs of high-density, virtualized servers and also be capable of virtualizing L2 network infrastructure to enable virtual servers to be interconnected with secure virtual networks. To address these demands, leading cloud deployments are embracing 25 Gb Ethernet, scaling virtualization capabilities, and leveraging overlay network technologies.

Oracle Dual Port 25 Gb Ethernet Adapter is an ideal server interface for next-generation cloud-enabled data centers. The adapter brings the resources necessary to unleash the full power of multicore, high-performance servers and storage systems.

Key features and benefits include:

- **25 Gb Ethernet ports**: 2.5x the I/O bandwidth to enable support for more virtual machines (VMs) per server
- **128 PCIe virtual functions**: 4x the virtual I/O resources for VMs
- **Overlay network support**: Virtualizes the physical network infrastructure allowing VMs to connect to different networks through software defined networking

Oracle Dual Port 25 Gb Ethernet Adapter dramatically reduces CPU and system resource utilization and consolidates software-defined I/O services for servers and storage systems, providing the most-efficient, flexible, and high-performance server interface for cloud deployments.

Key Features

- Two SFP28 ports, supporting 25 GbE, 10 GbE and 1GbE
- Server virtualization resources for up to 128 virtual machines
- Support for the overlay networks

Key Benefits

- Delivers 2.5x the bandwidth over previous-generation 10 GbE adapters
- Improves efficiency and lowers costs by placing more virtual machines on each server
- Virtualizes the data center Ethernet network infrastructure, enabling virtual machines to be provisioned with virtual networks
- Accelerates clustered and scale-out enterprise applications

Key Functionality and Technical Specifications

FUNCTIONALITY	
Ethernet	**Features**[1] • Jumbo frame support (9.6KB) • Interoperability with Ethernet switches (up to 100 GbE) **CPU Offloads**[1] • TCP/UDP/IP stateless offload • LSO,LRO, checksum offload • RSS (also on encapsulated packet), TSS, HDS, VLAN and MPLS tag insertion/striping, Receive flow steering • Data Plan Development Kit (DPDK) for kernel bypass applications • Open VSwitch (OVS) offload using ASAP2 • Intelligent interrupt coalescence • Header rewrite supporting hardware offload of NAT router **Boot**[1] • Remote boot over Ethernet • Remote boot over iSCSI • Unified Extensible Firmware Interface (UEFI) • Pre-execution Environment (PXE) **Standards** • 25G/50G Ethernet Consortium “Low Latency FEC” for 50/100 • PCI Express 3.0 and 4.0 • IEEE 802.3cd, 50, 100 Gigabit Ethernet • IEEE 802.3bj, 802.3bm 100 Gigabit Ethernet • IEEE 802.3by, Ethernet Consortium 25, 50 Gigabit Ethernet supporting all FEC modes • IEEE 802.3ba 40 Gigabit Ethernet • IEEE 802.3ae 10 Gigabit Ethernet • IEEE 802.3az Energy Efficient Ethernet (supports only “fast-Wake” mode) • IEEE 802.3ap based auto-negotiation and KR startup • IEEE 802.3ad, 802.1AX Link Aggregation • IEEE 802.1Q, 8021P VLAN tags and priority • IEEE 802.1Qau (QCN) Congestion Notification • IEEE 802.1Qaz (ETS) • IEEE 802.1Qbb (PFC) • IEEE 802.1Qbg • IEEE 1588v2

Virtualization	**Network Virtualization**
	• VXLAN, NVGRE, GENEVE
	
	Converged Networking
	• LAN
	• iSCSI
	
	Server Virtualization
	• SR-IOV
	• Address translation and protection
	• VMware NetQueue support
	• Up to 16 physical functions per host
	• Up to 128 virtual functions
	• Virtualization hierarchies (e.g., NPAR when enabled)
	  • Virtualizing Physical Functions on a physical port
	  • SR-IOV on every Physical Function
	• Configurable and user programmable QoS
	• Guaranteed QoS for VMs

PCI Express (PCIe)	**PCIe Interface** • PCIe 3.0, 2.0 and 1.1 compatible • 2.5 5.0, 8.0, 16.0 GT/s link rate • Auto-negotiates to x8, x4, x2, or x1 lane(s) • PCIe Atomic • TLP (Transaction Layer Packet) Processing Hints (TPH) • Embedded PCIe Switch: Up to 8 bifurcations **Features**[1] • PCIe switch Downstream Port Containment (DPC) enablement for PCIe hot plug • Access Control Service (ACS) for peer-to-peer secure communication • Advance Error Reporting (AER) • Process Address Space ID (PASID) Address Translation Services (ATS) • Support for MSI/MSI-X mechanisms
Supported Operating Systems, Hypervisors, and Distributions	**Operating Systems** • Oracle Linux • Oracle Solaris • Windows Server **Hypervisors** • Oracle VM Server • VMWare ESXi

	Distributions • OpenFabrics Enterprise Distribution (OFED) • OpenFabrics Windows Distribution (WinOF-2)
	Oracle's Ethernet adapters are components of the Oracle server or storage system in which they are installed. See the list of supported option cards for the applicable server or storage system to determine the relevant operating system support for the system and adapter combination.
Physical Interface	2 x SFP28 ports
Operating Environment	• Operating Voltage: 12 V • Operating Temperature: 0º C to 55º C • Power Consumption: 9.5 W (Typical)
Cables and Transceivers	**Supported Cables and Transceivers** Oracle supplies Ethernet cables and transceivers that are supported with Oracle Dual Port 25 Gb Ethernet Adapter.
Disclosure	1. Features described here are available in the Oracle Dual Port 100 Gb Ethernet Adapter. Please consult adapter, server and operating system documentation to verify the features are supported in a specific system configuration. 2. All standards and certifications referenced are to the latest official version. For additional detail, please contact your sales representative.

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