T520-OCP-SO

High Performance, Dual Port 10 GbE Unified Wire Adapter for Open Compute Project (OCP)

Enables Single Unified Wire with SR-IOV, EVB/VNTag, DCB

Highlights

- OCP Form Factor
- PCI Express Gen3 x8
- Low latency
- Memory free
- EVB, Flex10, VNTag
- PCI-SIG SR-IOV
- Traffic filtering & management
- Software Compatible with T4

Applications

Datacenter Networking

- Scale up servers and NAS systems
- Link servers in multiple facilities to synchronize data centers
- Consolidate LAN, SAN and cluster networks

Cloud Computing

- Virtualization features to maximize cloud scaling and utilization
- Cloud-ready functional and management features
- QoS and Traffic Management

Networked Storage

- Enable high performance NAS systems and Ethernet-based SANs
- Develop shared-storage systems providing both file and block level services
- Build high performance storage backend fabrics using Ethernet

High Performance Computing

- Very low latency Ethernet
- Increase cluster fabric bandwidth
- Deploy Ethernet-only networking for cluster fabric, LAN and SAN

Overview

Chelsio's T520-OCP-SO for Open Compute Project (OCP) is a memory free dual-port 10 Gigabit Ethernet Unified Wire adapter, with PCI Express 3.0 host bus interface, optimized for storage, cloud computing, HPC, virtualization and other data center applications in an Open Compute Network and Storage environment.
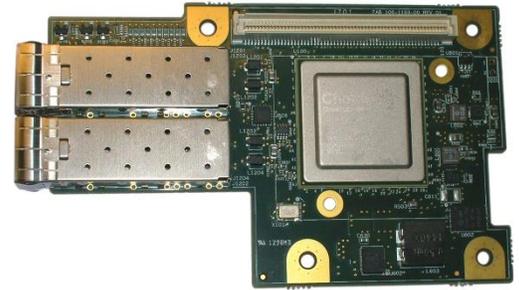
This adapter, based on the fifth-generation (T5) technology from Chelsio provides the highest performance and efficiency, dramatically lowers host-system CPU communications overhead and frees up host CPU cycles for useful applications. As a result, the system benefits from higher bandwidth, lower latency and reduced power consumption.

Open Compute Project is a rapidly growing community of engineers to design and enable the delivery of the most efficient server, storage and data center hardware designs for scalable computing.

The Unified Wire Solution

The T520-OCP-SO shares the high bandwidth and low latency architecture of other T5 products. It forms the basis of high performance server adapter designs with a full suite of stateless offloads, including LRO, LSO, RSS, virtualization, traffic management and security.

The T520-OCP-SO supports IEEE 802.3ad link aggregation/failover features, as well as patented inter-adapter failover techniques that make it ideal for critical network applications requiring redundancy and high-availability capabilities.

T520-OCP-SO also includes an integrated Traffic Manager for robust flow control, traffic management, and QoS.

T520-OCP-SO Ethernet-only networking reduces the infrastructure costs in network adapters, cables, switches, rack space, power, equipment spares, management tools, planning, networking staff and installation.

Fifth-Generation ASIC

The T5 is Chelsio's fifth-generation ASIC. With support for the 8 Gbps Gen 3 data rate, the T5 ASIC PCIe interface provides 64 Gbps of raw bandwidth to the server. T5 also provides support for PCIe SR-IOV virtualization with embedded virtual switch.

Packet Switching and Routing

T520-OCP-SO integrates a high performance packet switch, which allows switching traffic from any of the input ports to any of the output ports (wire-to-wire) and from any of the output ports to any of the input ports (host-to-host).

Robust, Proven Solution

Subjected to thousands of hours of compatibility testing, over a decade of stress testing by several OEM test suites and production deployment in servers, storage systems and cluster computing, Chelsio's robust technology delivers proven performance in a wide range of environments.

Software Drivers

Chelsio offers a full suite of protocol software drivers with the T520-OCP-SO adapters. See www.chelsio.com/support for the latest information.

Ordering Information

Model: T520-OCP-SO
Physical Interface: 10GBASE-SR or LR*
Connector: LC Duplex
Media: MMF or SMF

Accessories

SM10G-SR: 10G short-reach SFP+ optic module
TAPCABLE1M: Twinax passive cable, 1M
SM10G-LR: 10G long-reach SFP+ optic module
TAPCABLE3M: Twinax passive cable, 3M
SRCABLE3M: Fibre optic cable, 10GBASE-SR, 3M
TAPCABLE5M: Twinax passive cable5M
LRCABLE3M: Fibre optic cable, 10GBASE-LR, 3M

*SFP+ optics sold separately. Only Chelsio-supplied modules may be used.

Specifications

Host Interface
- PCI-E Gen3 x8
- MSI-X, MSI and support for legacy pin interrupts

Virtualization
- PCI-SIG SR-IOV
- 128 Virtual and 8 Physical functions
- 140 port virtual switch
- EVB, VEPA, Flex10, VNTag
- 512 virtual MAC addresses
- Offload 802.1 Qbg/h
- NVGRE & VxLAN

Stateless Offloads
- TCP/UDP checksum offload for IPv4 & IPv6
- TSO, LSO and GSO for IPv4 & IPv6
- VLAN filtering, insertion & extraction
- Line rate packet filtering and attack protection
- Fine granularity time stamping (down to 2ns)
- Ethernet Routing (packet header rewrite)
- Packet Tracing and Packet Sniffing

Ethernet
- IEEE 802.3ae (10 GbE)
- IEEE 802.3az Energy Efficient Ethernet
- IEEE 802.3z (1GbE)
- IEEE 802.1p Priority
- IEEE 802.1Q VLAN Tagging
- IEEE 802.1Qbg EVB/VEPA
- IEEE 802.1BR Bridge Port Extension
- IEEE 802.1Qau Congestion Notification
- IEEE 802.3x Flow Control
- IEEE 802.3ad Load-balancing and Failover
- Ethernet II and 802.e encapsulated frames
- Multiple MAC addresses per interface
- Jumbo Frames up to 9.6 Kbytes

Operating System Support
- Linux
- Windows
- FreeBSD
- MacOS (NIC only)
- Illumos
- Xen
- ESX

Physical and Environmental
- Dimensions without bracket: 4.33 in x 2.68 in
- Fully RoHS Compliant
- Operating Temp: 0° to 35°C
- Operating Humidity: 0 to 90%
- Airflow: 170 lf/m
- Typical power consumption: 9 W

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