



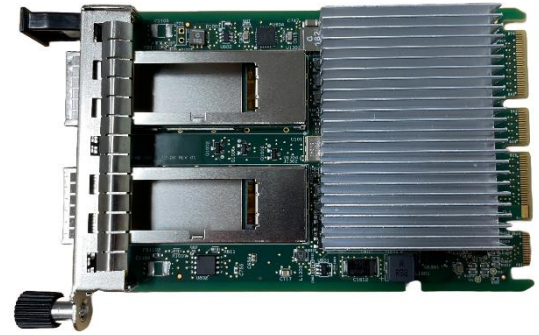
T62100-SO-OCP3

High Performance, Dual Port 40/50/100GbE OCP 3.0 Server Offload Adapter

Enables TCP, UDP, iSCSI, iWARP, NVMe/TCP, FCoE, TLS/SSL, DTLS, NGINX, IPsec, SMB 3.X crypto, and SDN over Single Unified Wire with SR-IOV, EVB/VNTag and DCB

Overview

Chelsio's T62100-SO-OCP3 is a dual port 40/50/100Gb Ethernet OCP 3.0 (Open Compute Project) Server Offload adapter, with PCI Express 3.0 host bus interface, optimized for cloud computing, storage, HPC, virtualization, security, and other datacenter applications in an Open Compute environment. OCP NIC 3.0 specification allows users to utilize compact server designs that can accommodate high-performance adapters.



T62100-SO-OCP3 based on the sixth-generation (T6), server offload technology from Chelsio provides the highest performance and efficiency, sub micro-second end-to-end latency, dramatically lowers host system CPU communications overhead and frees up host CPU cycles for useful applications. This will enable savings in host CPU acquisition costs, power and operational costs, and dramatically increases system performance.

Chelsio server offload variant of the adapters doesn't have any external memory on them and can provide extensive support for L2 NIC, Virtualization, Filtering, and Traffic Management operations. All other features and functionalities (iSCSI, NVMe/TCP, iWARP, NGINX, TLS/SSL, IPsec, etc.) are supported by T62100-SO-OCP3 in non-offload mode (processed by operating systems stack running on the host CPU). All variants of Chelsio adapters leverage a single software stack (drivers/firmware/management tools) and support all protocols concurrently.

T62100-SO-OCP3 runs all the host software of its predecessor, T5, as-is, thus enabling leveraging of all the prior software investment. It offers all the features of T5, and in addition adds support for integrated offload of IPsec, TLS/SSL, DTLS, and SMB 3.X crypto.

The Server Offload Solution

The T62100-SO-OCP3 shares the high bandwidth and low latency architecture of other T6 products. It forms the basis of high-performance server adapter designs with a full suite of stateless offloads – Checksum, Segmentation (TSO/LSO), LRO, RSS, virtualization, traffic management, and security.

The T62100-SO-OCP3 supports IEEE 802.3ad link aggregation/failover features that make it ideal for critical network applications requiring redundancy and high-availability capabilities. It also includes an integrated Traffic Manager for robust and flexible flow control, traffic management, QoS, DCB, PFC, ETC etc.

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

Highlights

- OCP NIC 3.0 Small Form Factor (SFF)
- PCI Express Gen3 x16
- Low latency user-space I/O
- VXLAN, GRE/NVGRE, Geneve
- EVB, Flex10, VNTags
- PCI-SIG SR-IOV
- TCP and UDP applications
- Software iSCSI, FCoE, NVMe/TCP
- Soft iWARP, RoCEv2
- TLS/SSL, DTLS, IPsec and SMB 3.X crypto co-processor offload
- HW based firewall and NAT offload
- Traffic filtering & management
- IEEE 1588v2 Precision Time Protocol
- OVS Offload with openflow support
- DPDK (Data Plane Development Kit)
- Software Compatible with T4 and T5
- Supports x86, Armv8 (Aarch64), IBM Power and OpenPOWER Servers

Applications

Datacenter Networking

- Scale out servers and NAS systems
- Consolidate LAN, SAN and cluster networks
- Enhanced network and server security

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
- Encrypt all communication and data at rest

Sixth-Generation Protocol Offload Engine

T6 is Chelsio's sixth-generation TCP offload (TOE) design, fifth-generation iSCSI design, and fourth-generation iWARP (RDMA) implementation. With support for the 8 Gbps PCIe Gen3 data rate, the T6 host interface provides 128Gbps of raw bandwidth. Also provides support for PCIe SR-IOV virtualization with an embedded virtual switch.

High-Performance Security Offload

T62100-SO-OCP3 introduces ground breaking crypto performance. Chelsio's crypto accelerator can be used in a traditional co-processor lookaside mode to accelerate IPsec, TLS/SSL with AES, SHA1 and SHA2 processing, SMB 3.X crypto, data at rest encryption/decryption, and data-deduplication fingerprint computations.

Packet Switching and Routing

T62100-SO-OCP3 integrates a 264-port high-performance L2-L3 packet switch with integrated access control and flow control support, which allows switching traffic from any of the ports or host queues or physical or virtual functions to each other. The switch can further provide multicast and replication functions in ingress or egress direction. Typical use is for very high-performance OVS offload.

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 T62100-SO-OCP3 adapters. See www.chelsio.com/support for the latest information.

Ordering Information

Model	Description	Power (W)
T62100-SO-OCP3	2x40/50/100GbE Server Offload Adapter	16
T61100-SO-OCP3	1x40/50/100GbE Server Offload Adapter	15

Physical Interface: 100GBASE-CR4/SR4*
Connector: QSFP28
Media: MMF or SMF or Twinax

Accessories

SM40G-SR/LR: 40G short/long reach QSFP optical module
SM100G-SR/LR: 100G short/long reach QSFP28 optical module
QTAPCABLE-3M: Twinax/DAC passive cable for 40Gb, 3M
QTAPCABLE28-2M: Twinax/DAC passive cable for 100Gb, 2M
QSRCABLE10M: Fiber Optic cable for 40Gb and 100Gb, 10M

* QSFP28 optics sold separately. Only Chelsio-supplied modules may be used.

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Specifications

Host Interface

- PCI-E Gen3 x16
- MSI-X, MSI and support for legacy pin interrupts

Cryptography Offloads

- AES 128/256 and SHA1/SHA2 offload
- TLS/SSL, DTLS, IPsec and SMB 3.X crypto support
- Lookaside co-processor mode

Virtualization

- PCI-SIG SR-IOV
- 256 Virtual and 8 Physical functions
- 264 port virtual switch
- OVS Offload
- EVB, VEPA, Flex10, VNTag
- 512 virtual MAC addresses
- NVGRE, VxLAN, and Geneve support

Stateless Offloads

- TCP/UDP IPv4/6 checksum offload
- TSO, LSO and GSO for IPv4 & IPv6
- VLAN filtering, insertion & extraction
- Line rate packet filtering and attack protection
- Nanosecond granularity 64b timestamping
- Ethernet Routing (packet header rewrite)
- Packet Tracing and Packet Sniffing

Ethernet Standards

- IEEE 802.3bj (100 GbE over copper/backplane)
- IEEE 802.3ba (40/100 GbE)
- 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

Software Drivers

[Chelsio Download Center](#)

Physical and Environmental

- Fully RoHS Compliant
- Operating Temp: 0° to 35° C or 32° to 95° F
- Operating Humidity: 5 to 95%
- Airflow: 200 lf/m