

# Chelsio T7 and S7 Product Selection Guide



## Single DPU/Smart-NIC chip with concurrent Multi-Protocol Offload Operation

|                   |                                     |                  |               |                  |                            |                             |
|-------------------|-------------------------------------|------------------|---------------|------------------|----------------------------|-----------------------------|
| PCIe Gen5 x16     |                                     |                  |               |                  |                            |                             |
| Chelsio P/N       | T72200                              | T72200-DPU       | T72200-FH-DPU | T72200-FH        | S71400                     | T7-Server                   |
| Ports             | 2x40/100/200G (QSFP56/QSFP28/QSFP+) |                  |               |                  | 1x400G or 4x100G (QSFP-DD) | 1x200G (QSFP) or 4x56 (SFP) |
| Type              | Storage Adapters                    | DPU              |               | Storage Adapters | SmartNIC                   | Server                      |
| Form Factor       | Low Profile (HHHL)                  | Half Size (FHHL) |               |                  | Low Profile (HHHL)         | -                           |
| Concurrent Conn.  | 64K                                 |                  | 128K          |                  | 2K                         | 128K                        |
| On-Adapter Memory | 8 GB                                | 32 GB            | 64 GB         | 16 GB            | -                          | 64 GB                       |
| ARM Cores         | -                                   | 4                | 8             | -                | -                          | 8                           |
| Power (Typical)   | 29W*                                | 32W*             | 38W*          | 33W*             | 31W                        | 31W                         |
| Replaces          | T62100-LP-CR                        | -                | -             | T62100-CR        | -                          | -                           |

|                   |  |                |                                  |                    |       |           |                        |
|-------------------|--|----------------|----------------------------------|--------------------|-------|-----------|------------------------|
| PCIe Gen5 x16     |  |                |                                  |                    |       |           |                        |
| Chelsio P/N       | S72200                                 | S72200-OCP     | S7450-OCP                        | S7450              | T7450 | T7450-DPU | T71200-iNIC-L          |
| Ports             | 2x40/50/100/200G (QSFP56/QSFP28/QSFP+) |                | 4x1/10/25/50G (SFP56/SFP28/SFP+) |                    |       |           | 1x40/100/200G (QSFP56) |
| Type              | SmartNIC                               |                |                                  | Storage Adapters   | DPU   | SmartNIC  |                        |
| Form Factor       | Low Profile (HHHL)                     | OCP3           |                                  | Low Profile (HHHL) |       |           | -                      |
| Concurrent Conn.  | 2K                                     |                |                                  | 64K                |       | -         |                        |
| On-Adapter Memory | -                                      |                |                                  | 8 GB               |       | 32 GB     |                        |
| ARM Cores         | -                                      |                |                                  | 4                  |       | -         |                        |
| Power (Typical)   | 25W*                                   | 30W            | 17W                              | 24W^               | 28W^  | 31W^      | 31W                    |
| Replaces          | T62100-LP-CR                           | T62100-SO-OCP3 | T6225-OCP3                       | T540-LP-CR         |       | -         |                        |

|                   |                                  |               |               |
|-------------------|----------------------------------|---------------|---------------|
| PCIe Gen5 x8      |                                  |               |               |
| Chelsio P/N       | S7250                            | S7210-BT      | S7410-BT-OCP  |
| Ports             | 2x1/10/25/50G (SFP56/SFP28/SFP+) | 2x1/10GBase-T | 4x1/10GBase-T |
| Type              | SmartNIC                         |               |               |
| Form Factor       | Low Profile (HHHL)               |               | OCP3          |
| Concurrent Conn.  | 2K                               |               |               |
| On-Adapter Memory | -                                |               |               |
| ARM Cores         | -                                |               |               |
| Power (Typical)   | 11W                              | 13W           | 20W           |
| Replaces          | T6225-CR                         | T520-BT       | -             |

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

**RC:** Root Complex  
**EP:** End Point  
**DPU:** T7ASIC + ARM + RC  
**FH:** Full Height

\* +7W for optical fiber  
 ^ +8W for optical fiber

### Features

Low Latency L2 NIC  
 TCP/IP Offload Engine (TOE)  
 RDMA (iWARP and RoCEv2) Offload  
 iSCSI and iSER Offload  
 NVMe-oF (iWARP and RoCEv2) Offload  
 NVMe/TCP Offload  
 SPDK NVMe and iSCSI Targets Offload  
 QUIC and CMB Offload  
 NVMe Virtualization/Emulation  
 ARMv8 A72 cores (1.25 GHz, 0.6W/Core)  
 Dual-Channel 4800MT/s DDR5  
 PCIe 4.0 Switch with 2 x8 / 4 x4 / 8 x2 ports  
 Concurrent RC+EP (NVMe-NVMe Bridge)  
 External FPGA in data/control path  
 Crypto Co-processor TLS/IPsec Offload  
 Crypto Inline TLS/IPsec for all Offloads  
 Erasure Code and RAID5/RAID6 offload  
 Compression and Decompression  
 Dedupe Offload  
 QUIC Co-processor/Inline mode  
 True Random Number Generator  
 Inband Telemetry  
 SM2, RSA, ECC, ECDH, ECDSA, DSA, DH  
 Secure Boot and Firmware Update  
 Hardware Root of Trust support  
 SR-IOV / Virtualization / Virt-IO  
 EVB, VEPA, Flex10, VNTag  
 DPDK / PacketDirect / Netmap  
 OVS / OpenFlow Offload  
 NVGRE / VxLAN/ Geneve  
 Media StreamEngine  
 Traffic Management, DCB, PFC, CEE  
 Packet Classification and NAT Offload  
 Timestamps and PTP  
 Multi / Single adapter Failover  
 Windows SMB Direct, Storage Replica,  
 Storage Spaces Direct, Client RDMA

## Data Processing Unit ASICs

T7 is a highly integrated, hyper-virtualized 1/10/25/40/50/100/200/400GbE Data Processing Unit (DPU) ASIC with full offload support of a complete Unified Wire solution.

### Ordering Information:

**T7ASIC:** 4x1/10/25/50/100G or 2x40/100/200G or 1x400G DPU, Base Offloads (TOE, RDMA, Crypto, iSCSI) using host/card memory, 8 ARM A72 cores, iNIC, eMMC, NVMe, USB, PCIe Switch, NVMe/TCP PDU, Compression, Dedupe, OVS, RAID, Erasure Code, RSA/SM2 offloads, Gen4 and 4x1/10/25 or 2x100 only with no dedupe/compression/RAID/RSA/iNIC/OVS.

**N7ASIC:** 4x1/10/25/50/100G or 2x40/100/200G or 1x400G DPU, Base Offloads (TOE, RDMA, Crypto, iSCSI) using host/card memory, NVMe/TCP PDU offload.

**S74ASIC:** 4x1/10/25/50/100G or 2x40/100/200G DPU, Base Offloads (TOE, RDMA, Crypto, iSCSI) using host memory, 2K cached connections.

**S72ASIC:** 2x1/10/25/40/50/100G DPU, Base Offloads (TOE, RDMA, Crypto, iSCSI) using host memory, 2K cached connections.

## Accessories

### Passive Twinaxial Cables

|                                  |                                      |
|----------------------------------|--------------------------------------|
| TAPCABLE-3M (3M 10G SFP+)        | OCTTAPCABLE-3M (3M 40G to 4x10G)     |
| TAPCABLE28-3M (3M 25G SFP28)     | OCTTAPCABLE56-3M (3M 200G to 4x50G)  |
| TAPCABLE56-3M (3M 50G SFP56)     | OCTTAPCABLEDD-3M (3M 400G to 4x100G) |
| QTAPCABLE-3M (3M 40G QSFP+)      |                                      |
| QTAPCABLE28-2M (2M 100G QSFP28)  |                                      |
| QTAPCABLE56-3M (3M 200G QSFP56)  |                                      |
| QTAPCABLEDD-3M (3M 400G QSFP-DD) |                                      |

### Optical Transceivers and Cables

|                                     |   |
|-------------------------------------|---|
| SM1G-SR-BT (1000BASE-T RJ45 SFP+)   | SM100G-SR (100G Short Reach QSFP28)                 |
| SM10G-SR-BT (1/10GBASE-T RJ45 SFP+) | SM100G-LR (100G Long Reach QSFP28)                  |
| SM10G-SR (10G Short Reach SFP+)     | SM200G-SR (200G Short Reach QSFP56)                 |
| SM10G-LR (10G Long Reach SFP+)      | SM200G-LR (200G Long Reach QSFP56)                  |
| SM25G-SR (25G Short Reach SFP28)    | SM400G-SR (400G Short Reach QSFP-DD)                |
| SM25G-LR (25G Long Reach SFP28)     |   |
| SM40G-SR (40G Short Reach QSFP+)    | AOC-SFP56-CABLE-3M (3M 50G Active Optical Cable)    |
| SM40G-LR (40G Long Reach QSFP+)     | AOC-QDD-200-CABLE-3M (3M 200G Active Optical Cable) |
| SM50G-SR (50G Short Reach SFP56)    | AOC-QDD-400-CABLE-3M (3M 400G Active Optical Cable) |
| SM50G-LR (50G Long Reach SFP56)     |   |

## Support

The standard warranty period for Chelsio hardware products is three years from date of purchase. To contact support, call Chelsio at 408-962-3600, submit a support request via [www.chelsio.com](http://www.chelsio.com) or email support at [support@chelsio.com](mailto:support@chelsio.com). Drivers for Chelsio adapters are available at [service.chelsio.com](http://service.chelsio.com).

### Support Plan:

**SUPPORT-GOLD:** 80 hours or 1-year extended technical support (whichever occurs first): 24-hr response/replacement.

**SUPPORT-SILVER:** 16 hours extended technical support: 72-hr response.

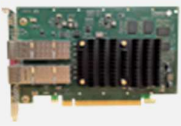






## Supported Platforms, Operating Systems and Hypervisors



# Chelsio Unified Wire T6 and T5 Product Selection Guide



## Single Adapter with concurrent Multi-Protocol Operation

| T6 ASIC based Ethernet Adapters / USS 4.0     |   |   |  |   |   |
|---|---|---|--|---|---|
|   |    |  |  |  |   |
| <b>Chelsio P/N</b>                            | <b>T62100-CR</b>  | <b>T62100-LP-CR</b>   | <b>T62100-SO-CR</b>  | <b>T62100-SO-OCP3</b>   |   |
| <b>Ports</b>                                  | 2x40/50/100G  |   |  |   |   |
| <b>Connector Type</b>                         | QSFP28  |   |  |   |   |
| <b>Host Interface</b>                         | PCIe Gen3 x16   |   |  |   |   |
| <b>Form Factor</b>                            | Half Size   | Low Profile   |  | OCP3-SFF  |   |
| <b>Concurr. Conn.</b>                         | 32k   |   | -  |   |   |
| <b>Power (Typical)</b>                        | 22W   | 19W   | 16W  | 16W   |   |
| <b>Airflow</b>                                | 200 LFM (Linear Feet Per minute)  |   |  |   |   |
| <b>Adapter Type</b>                           | Unified Wire  |   | Server Offload   |   |   |
| T6/T5 ASIC based Ethernet Adapters            |   |   |  |   |   |
|   |    |  |  |  |  |
| <b>Chelsio P/N</b>                            | <b>T6225-CR</b>   | <b>T6225-SO-CR</b>  | <b>T540-LP-CR</b>  | <b>T520-CR</b>  | <b>T520-SO-CR</b>   |
| <b>Ports</b>                                  | 2x10/25G  |   | 4x1/10G  | 2x1/10G   | 2x1/10G   |
| <b>Connector Type</b>                         | SFP28   |   | SFP+   | SFP+ Cage   |   |
| <b>Host Interface</b>                         | PCIe Gen3 x8  |   |  |   |   |
| <b>Form Factor</b>                            | Low Profile   |   |  |   |   |
| <b>Concurr. Conn.</b>                         | 32K   | 256   | 32K  |   |   |
| <b>Power (Typical)</b>                        | 13W   | 10W   | 11W  | 12W   | 9W  |
| <b>Airflow</b>                                | 200 LFM (Linear Feet Per minute)  |   |  |   |   |
| <b>Adapter Type</b>                           | Unified Wire  | CNA   | Unified Wire   |   | Server Offload  |
| <b>Adapter Types and Supported Functions:</b> |   |   |  |   |   |
| <b>Server Offload</b>                         | L2 NIC, Filtering, PXE Boot, Crypto Offload (Co-processor) <sup>1</sup>   |   |  |   |   |
| <b>CNA</b>                                    | Server Offload Functions, iSCSI Init HW Offload, iSER Init HW Offload, NVMe-oF/iWARP Init HW Offload, NVMe/TCP Init HW Offload, FCoE Init, S2D iWARP HW Offload, iWARP RDMA Offload                       |   |  |   |   |
| <b>Unified Wire (UWire)</b>                   | Server Offload & CNA functions, Storage Targets Offload, FCoE Init HW Offload, Media Streaming Offload, TCP & UDP Offloads, Traffic Management, Hash Filtering, Unified Boot, Crypto Offload <sup>1</sup> |   |  |   |   |

### Features

Windows Server 2016 / 2019 / 2022  
 Windows Storage Spaces Direct (S2D)  
 Windows Azure Stack Private Cloud  
 Windows Network Direct  
 Windows SMB Direct, Client RDMA  
 Windows Storage Replica (SR)  
 Windows d.VMMQ  
 Low Latency L2 NIC  
 TCP/IP Offload Engine (TOE)  
 iWARP RDMA Offload  
 Inline TLS/SSL, DTLS, IPsec Offload<sup>1,2</sup>  
 NGINX Offload<sup>1,2</sup>  
 Co-processor TLS/SSL, IPsec Offload<sup>1</sup>  
 NFS/iWARP & NFS/TCP Offload  
 iSCSI Offload (Initiator and Target)  
 iSER Offload (Initiator and Target)  
 FCoE HW Offload (Initiator)  
 NVMe-oF/iWARP (Initiator and Target)  
 NVMe/TCP Offload (Initiator and Target)  
 NVMe JBOF (Just a Bunch of Flash)  
 SPDK NVMe/TCP Offload Target  
 Wire Direct Low Latency Suite  
 SR-IOV / Virtualization  
 DPDK / PacketDirect / Netmap  
 OVS / OpenFlow Offload  
 NVGRE / VxLAN/ Geneve  
 Media StreamEngine<sup>2</sup>  
 Traffic Management / DCB  
 Packet Classification, Sniffer & Tracer  
 Multi / Single adapter Failover

<sup>1</sup> Supported only on T6 family of adapters

<sup>2</sup> Not supported by SO (Server Offload) adapters

**LP:** Low Profile **SO:** Server Offload

# Chelsio ASIC, Software and Support Guide



## Unified Storage Server (USS)

Unified Storage Server is a powerful software platform for building high-performance storage systems. Key features include support for SMB, NFSv3, SFTP, iSCSI Offload, NVMe/TCP Offload, and NVMe-oF over iWARP. It also supports Remote Mirroring, Backup, iSCSI Scaling, Nested RAID, Easy Management features, Bandwidth Management, Extensive Self-test, Stress test, and Remote Test capabilities. It is optimized for 10/25/40/50/100GbE clients with High throughput, High IOPs, and Low latency requirements. Unified Storage Server integrates with the USS storage stack, providing Dynamic Storage Provisioning with thin-provisioned volumes, snapshots, and volume cloning. Free 30-day USS trial available from [www.chelsio.com](http://www.chelsio.com).



### Ordering Information:

**USS-4.0:** SAN, NAS, iSCSI, NVMe-oF, Storage Management, Nested RAID. Max Capacity: Unlimited.

## Unified Wire & Server Offload Controller ASICs

T6 is a highly integrated, hyper-virtualized 1/10/25/40/50/100GbE controller ASIC with full offload support of a complete Unified Wire solution comprising L2 NIC, TOE, iWARP RDMA, iSCSI, FCoE, NVGRE, VxLAN, Filtering, Traffic Analytics, Management, OVS Offload, DCB, NVMe-oF, NVMe/TCP, NVMe/TOE and TLS/SSL, DTLS, IPsec, SMB 3.X crypto Offload.

### Ordering Information:

**T6ASIC2100:** T6 Unified Wire Engine, 2x1/10/25/40/50/100G ports, full featured.

**T5ASIC40G:** T5 Unified Wire Engine, 2x40G or 4x10G ports, full featured.

## Chelsio Terminator Core IP

Chelsio's Terminator Core IP is a configurable, high performance Ethernet packet processing engine with a full suite of software, suitable for a wide range of SoC network connectivity solutions. Contact [sales@chelsio.com](mailto:sales@chelsio.com) for more information.

## Accessories

### Twinaxial Cables

TAPCABLE3M (3M 10G Passive)  
TAPCABLE28-3M (3M 25G Passive)

QTAPCABLE3M (3M 40G QSFP+ Passive, 30 AWG)  
OCTTAPCABLE3M (3M QSFP+ to 4xSFP+ Passive)

QTAPCABLE28-2M (2M 100G QSFP28 Passive)

### Optical Cables

QSRCABLE10M (10M Short Reach for 40G and 100G)

### Optical Transceivers

SM10G-SR (10G Short Reach SFP+)  
SM10G-LR (10G Long Reach SFP+)  
SM25G-SR (25G Short Reach SFP28)  
SM25G-LR (25G Long Reach SFP28)  
SM40G-SR (40G Short Reach QSFP+)  
SM40G-LR (40G Long Reach QSFP+)  
SM100G-SR (100G Short Reach QSFP28)  
SM100G-LR (100G Long Reach QSFP28)

SM10G-SR-BT (1/10GBASE-T RJ45 SFP+)  
SM1G-SR-BT (1000BASE-T RJ45 SFP+)

## Support

The standard warranty period for Chelsio hardware products is three years from date of purchase. To contact support, call Chelsio at 408-962-3600, submit a support request via [www.chelsio.com](http://www.chelsio.com) or email support at [support@chelsio.com](mailto:support@chelsio.com). Drivers for Chelsio adapters are available at [service.chelsio.com](http://service.chelsio.com)

### Support Plan:

**SUPPORT-GOLD:** 40 hours extended technical support: 24-hr response/replacement.

**SUPPORT-SILVER:** 4 hours extended technical support: 24-hr response.

## Supported Platforms, Operating Systems and Hypervisors

