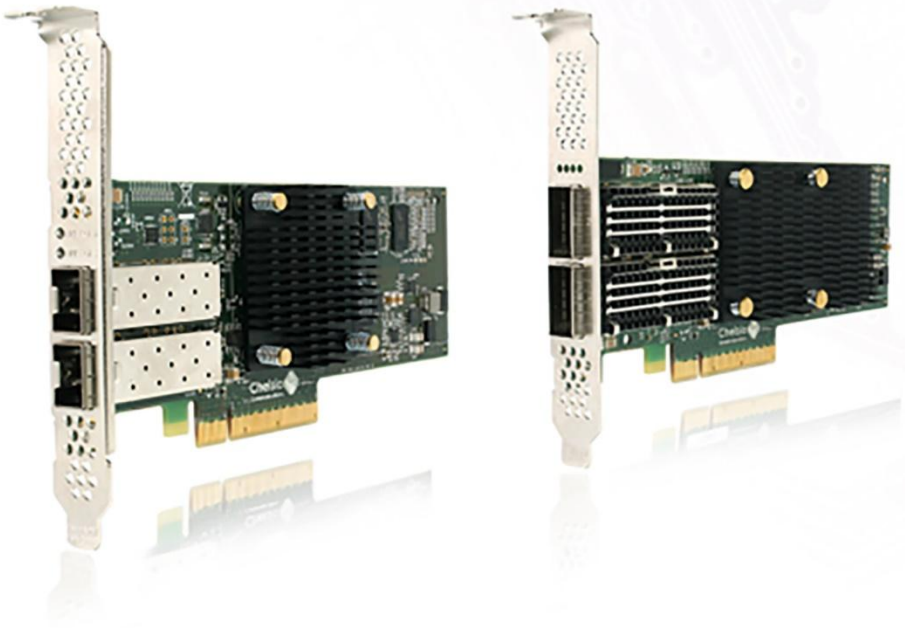
Chelsio Communications

Accelerate

Chelsio Unified Wire for Linux

Release Notes



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Document History

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I. Chelsio Unified Wire

1. Introduction

This document provides details on Chelsio Unified Wire for Linux Release v4.2.1.2.

2. New Features

- Port Forwarding Mode (Hardware Bypass Mode/Fail-to-Wire/LAN Bypass) has been added for this release.

3. Firmware Changelog

- Firmware has been updated from 2.1.22.0 to 2.1.23.0.
- Firmware regions size have been extended to accomodate more core.
- Bug #46605: Enabled extended compliance code 0xC as 100G (4x25G) for QSFP type modules.
- RoCE Changes:
  - Corrected signaled bit for replay cases
  - Added enum value for RoCE IPv4 in firmware for readability
- Bug #45880: Configured ARM Clock PLL values for 1.172GHz.
- Bug #45345: New mailbox command FW_ACL_VI_CMD is added for PF to control VF's rxmode settings.
- Bug #46508, #45911: Added support for legacy modules based on compliance code and cable tech.
- Bug #46461: RX amplitude was reduced for optics, additionally check was added to avoid for DAC.
- Bug #46642: Updated MPS out_th value according to the current configured eth link speed.
- Bug #46682: Disabled a non-critical, informational firmware interrupt to reduce unnecessary overhead.
- Bug #46522: Disabled access of cxcnic if it is not yet initialized. Additionally, removed 200G capability from spider configuration
- Bug #46571: Fixed an issue where CR8 modules were misidentified
- Bug #46626: Fixed an issue where CMIS modules with a flat memory model (such as Amphenol CR8) were misidentified. The system now verifies that a module supports a paged memory model before attempting to write to the Page Select Byte, preventing I2C write errors.
- Bug #46695: Fixed port forwarding support port2 and port3 in 4-port adapters
- Bug #45882: Increased ARM uboot max size
- Bug #46721: Added support for IPv6 port forwarding in FW wire mode
- Bug #46722: Delay chip reset by a few milliseconds to ensure the host driver receives the mailbox command response.

4. OptionROM Changelog

- No changes in this release.

Disclaimer: This initial release may contain corner-case and platform-specific issues.

5. Fixed Issues

This section lists the fixed issues in this release of Chelsio Unified Wire for Linux.

5.1. Network (NIC/TOE)

Issue ID	Description/Workaround
45807	**Description**: Unloading of Chelsio NIC driver (cxgb4) on S7250 adapters is not supported if intel_iommu/amd_iommu is enabled.
45545	**Description**: Harmless error messages are observed while running chdebug.
45928	**Description**: 10GTek 200G SR module getting detected as active DA.

5.2. NVMe-oF/TCP PDU Offload

Issue ID	Description/Workaround
46277	**Description**: Unable to connect to cnvmet_tcp target on 6.18 kernel.

5.3. Crypto Offload

Issue ID	Description/Workaround
46241	**Description**: Single port/Dual port Rx perf for inline ipsec does not reach line rate at MTU of 1500

6. Known Issues

This section lists the known issues in this release of Chelsio Unified Wire for Linux.

6.1. Network (NIC/TOE)

Issue ID	Description/Workaround
44910	**Description**: BG drops seen while running traffic with pause disabled.
45440	**Description**: Other ports fails to link up, when 1st brought up port has DCBX enabled.
45482	**Description**: Bidirectional traffic with DDP enabled is not supported.
45559	**Description**: An incorrect or garbage value is observed for *rx_frames_64* in the ethtool stats output.
45592	**Description**: rx_fcs_errors and rx_jabber errors seen during traffic intermittently.
45594	**Description**: Pause frames received on Port1 are incorrectly populated under Port0 stats.
45605	**Description**: 2x200G Tx bandwidth is not going beyond 329 Gbps.
45645	**Description**: Offload bonding does not transfer traffic from the active slave to the backup slave upon port down.
45676	**Description**: 1x400G MTU 1500 Rx bandwidth not going beyond 352 Gbps.
45692	**Description:** Lower MTU are not supported.
45697	**Description:** Adapter fails to establish link and devlog reports "hw register operation not completing".
45824	**Description**: Host machine hibernation is not supported.
45843	**Description**: TX dual port performance does not reach line rate with 1500 MTU
45845	**Description**: On S series of adapters TX performance does not reach line rate at particular MTU values
45866	**Description**: 100G,25G and 10G speeds are not supported with 200G module.
45889	**Description**: Filtering: Ethertype 0x88a8(QinQ) and 0x9100 (QinQ) filters are not honored if the rule is configured with IPv6 protocol type.
45918	**Description**: 4 port adapters do not come up at PCIe x16 link speed on AMD machine when placed in PCIe5.0 x16 slot.
45923	**Description**: Port speed of 1G not supported with the 10G/25G/50G modules.
45940	**Description**: "Attempt to update new Transceiver Module settings failed" is seen in dmesg when DAC cables are used
45948	**Description:** ethtool does not report all supported link modes.
46002	**Description:** Driver load on PCIe Gen 3 is not supported.

Issue ID	Description/Workaround
46034/46082	**Description:** "Device did not become ready for access, whoami = 0xffffffff" message or “can't ioremap BAR 0: [??? 0x00000000 flags 0x0]" error observed intermittently in dmesg while loading driver on AMD based machines.
46037	**Description:** Intermittent IO stall seen during traffic due to link quality

46047	**Description:** Flashing of Init/VPD files gets stuck when a jumper is connected after the system stays idle for some time.
	Workaround:
	
	Run below script and reattempt flashing of init/VPD:
	
	`[root@host ~]# PCIE_BUS=<bus_id>`
	`[root@host ~]# setpci -s $PCIE_BUS COMMAND`
	`[root@host ~]# setpci -s $PCIE_BUS COMMAND=$(printf "%x" $((0x`setpci -s $PCIE_BUS COMMAND` | 0x2)))`
	`[root@host ~]# cxgbtool /sys/bus/pci/devices/<bus_id>/ reg 0x05720=0x0`
	`[root@host ~]# setpci -s $PCIE_BUS COMMAND`
	
	Example –
	`[root@host ~]# PCIE_BUS=c7:00.0`
	`[root@host ~]# setpci -s $PCIE_BUS COMMAND`
	`[root@host ~]# setpci -s $PCIE_BUS COMMAND=$(printf "%x" $((0x`setpci -s $PCIE_BUS COMMAND` | 0x2)))`
	`[root@host ~]# cxgbtool /sys/bus/pci/devices/0000\:c7\:00.0/ reg 0x05720=0x0`
	`[root@host ~]# setpci -s $PCIE_BUS COMMAND`

46078	**Description:** 400G speed with FS.com optics is not supported on S71400 link
46111	**Description:** [cxgbtool] Firmware flashing via cxgbtool blocks SSH access until completion.
46121	**Description:** S series of adapters print incorrect offload debug values
46127	**Description:** Network offload transmit traffic is not supported on 6.12.x kernel if kernel is compiled on RHEL 9.6 on AMD setup with iommu enabled.
46134	**Description:** Data corruption seen while running TOE traffic.
46246	**Description:** One of the Adapter fails to initialise, when multiple T7 Adapters placed on the system. **Workaround:** Known HW issue with respect to farthest PCI slot. Based on the motherboard schematics (refer below link), slot 1 and 3 are the farthest slots from the corresponding CPU sockets. Slots 2 and 4 are the closest ones where we do not see the failure. Refer - https://www.pugetsystems.com/parts/Motherboard/Gigabyte-MZ73-LM0-Rev-2-0-15236/ https://download.gigabyte.com/FileList/DataSheet/MZ73-LM0_datasheet_v2.0.pdf?v=238f7cfa14aa26cc84d567005d1e7b39
46257	**Description:** Data corruption seen while running TOE DDP traffic with IOMMU enabled.
46341	**Description:** Link flap is seen when 50G optics were connected using QSA modules.

Issue ID	Description/Workaround
46350	**Description:** PCIe generation/speed does not change when PCIe lane width is set to anything other than x16 after reboot.
46357	**Description:** 200G link fails to comes up on port-1 intermittently on T7-Rev-C B2B with fiber.
46363	**Description:** SGE stuck observed intermittently when it is placed in a Gen-3 machine.

6.2. iWARP

Issue ID	Description/Workaround
46547	**Description**: netstat/ethtool RX counters do not increment while running rping/iperf over IPv6.

6.3. RoCEv2

Issue ID	Description/Workaround
46057	**Description**: "rdma statistic show" type of stats not availble for RoCEv2.
46109/46115	**Description**: Certain rdma tools terminate abruptly with multiple connections.
46112	**Description**: Intermittent ping failure seen with NVME-RDMA initiator with multiple targets.
46116	**Description**: Reconnects seen with NVME-RDMA target.
46135	**Description**: Reconnects seen with NVME-RDMA target and third-party adapter as initiator.
46229	**Description**: mbw tool error outs intermittently with "cqe error status 19" with bidirectional read/write test or terminates abruptly.
46306	**Description**: RoCE on VLAN interface is not supported.
46327	**Description**: iozone fails and ping fails with NFSoRDMA as a client with multiple connections (nconnect).

6.4. NVMe-oF iWARP

Issue ID	Description/Workaround
43201	**Description**: IO errors seen while running iSCSI + iWARP + TOE traffic.
45183	**Description**: OpenMPI versions < 5.x are not supported.
45736	**Description**: A memory leak is observed sporadically.
45933	**Description**: Errors observed when iWARP and NVMe-RDMA target traffic are run together.
46020	**Description**: Only one queue is used during NVMe/RDMA Initiator traffic.
46077	**Description**: [MTU: 1500/9000]: Dual port NVMe iWARP target perf is not reaching line rate.

6.5. NVMe-oF/TCP PDU Offload

Issue ID	Description/Workaround
44963	**Description**: An intermittent kernel panic is observed during the unload of driver following the cessation of PDU NVMe/TCP traffic.
45399	**Description**: The 'enable_h2c_data_zcopy' option is not supported.
45743	**Description**: Connections hang during negative header/digest error tests.
45755	**Description**: ISO counter not supported for Initiator.
46435	**Description**: Softlockup is observed intermittently.

6.6. iSCSI PDU Offload

Issue ID	Description/Workaround
45519	**Description**: [T7 CXGBIT]: High Target and initiator CPU usage is seen with cxgbit when compared with cxgb4.
46054	**Description**: iSCSI PDU Offload is not supported on linux kernel 6.18.x.

Issue ID	Description/Workaround
46070	**Description**: iSCSI PDU Offload target, dual port write numbers are not reaching line rate.
46110	**Description**: Multi-portal target discovery incorrectly assigns an invalid portal to one target, resulting in login connection timeouts.

6.7. SPDK (user space) NVMe/TCP PDU Offload

Issue ID	Description/Workaround
45702	**Description**: Reconnects observed intermittently with heavy stress.
45812	**Description**: Initiator reports "cstor_cm.c:2483: _cstor_sock_disconnect: tid 11120, invalid state: aborting (6)"with stress.
46114	**Description**: Error messages seen on nvmf_tgt application.
46356	**Description**: SPDK version 26.01 is not supported. Only spdk version 24.05 is supported

6.8. SPDK (user space) NVMe/TCP over Memfree TOE

Issue ID	Description/Workaround
46162	**Description**: Warning messages are observed on initiator while running traffic
46258	**Description:** Debug messages are observed on initiator while connecting to the target.
46259/46268	**Description:** Harmless "Nvme reconnect" messages are observed while running traffic.

6.9. SPDK (user space) iSCSI PDU Offload

Issue ID	Description/Workaround
45894	**Description**: ping failures and I/O errors intermittently when traffic is run for longer duration.

6.10. SPDK (user space) iSCSI over Memfree TOE (Target)

Issue ID	Description/Workaround
46168	**Description**: Trivial "_scsi_lun_execute_mgmt_task: *NOTICE*: Bdev scsi reset on target reset" messages are observed while running iozone traffic
46163	**Description:** Warning messages observed during iscsi discovery.

46349	**Description:** Ping failure observed with traffic on linux-6.18.16.
	
	Workaround:
	Enabled iommu as shown below, reboot the host and run traffic again:
	
	`[root@host~]# grubby --args "iommu=on intel_iommu=on" --update-kernel /boot/vmlinuz-6.18.16`
	`[root@host~]# reboot`

46364	**Description:** Link toggle while running traffic is not supported.

6.11. Crypto Offload

Issue ID	Description/Workaround
45342	**Description**: ccm not supported in user-mode.
45344	**Description**: NULL encryption and AES-GMAC authentication not supported.
45372	**Description:** UDP receive tests over IPsec tunnels configured via ip xfrm results in drop counters increment.
45421	**Description**: IPsec tunnel creation on inactive interfaces not supported using ip xfrm.

Issue ID	Description/Workaround
45465	**Description**: GRO, TSO, and checksum counters not supported for ESP packets.
45467	**Description**: Connections errors seen with cxgb4i initiator.
46027	**Description**: Bandwidth impact observed due to ESP checksum–segmentation dependency.
46048	**Description**: Single port inline ipsec does not reach line rate with MTU value of 1500
46394	**Description**: Per-Port IPsec and TOE-TLS counters incorrectly increment across multiple ports.
45820	**Description:** Kernel panic is observed with wrk application traffic if openssl 3.5.4 or openssl 3.6.0 is used.
46274	**Description:** Traces observed during OpenSSL traffic followed by ping failure.

6.12 UDP Offload

Issue ID	Description/Workaround
45759	**Description**: UOTIDS stuck issue observed and connection loss occurred while running UDP_SO traffic in a loop without pacing rules.

6.13. Unified Boot Option ROM

Issue ID	Description/Workaround
45397	**Description**: PXE legacy mode is not supported
45802	**Description**: iSCSI is not supported.
45859	**Description**: ALT+C cannot be used to access configuration utility.

6.14. Performance

Issue ID	Description/Workaround
45852	**Description**: Transmit (TX) and Receive (RX) throughput is lower when using small I/O sizes.
45852/45957	**Description**: Improvement needed for iSCSI PDU Offload target single/dual port bidi numbers.
46029	**Description**: Read performance is less for lower IO sizes compared with write.

6.15. Traffic Management

Issue ID	Description/Workaround
45657	**Description**: Throughput drop observed with flow-based TM as the number of connections increases.

6.16. Installer

Issue ID	Description/Workaround
46160	**Description:** cxgb4i (iSCSI PDU Offload Intiator driver) fails to compile on Rocky10.0 with imprecise kernel source **Workaround**: Compilation must be attempted with KSRC and KOBJ options with the exact kernel source version. Follow the steps below: 1. Download the exact Kernel source matching the kernel version: `[root@host ~]# make KSRC=/<path_to_kernel_source_directory>/ KOBJ=/lib/modules/<kernel_version>/build/`
46420	**Description**: SPDK (user space) tool binaries (nvmf_tgt and iscsi_tgt) do not get installed with the RPM package.