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Mellanox ConnectX®-3/ConnectX®-3 Pro Poll-Mode Driver Release Notes

Rev 2.0_2.8.4

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1 DPDK Poll-Mode Driver (PMD) Overview

librte_pmd_mlx4 is the DPDK Poll-Mode Driver (PMD) for Mellanox ConnectX®-3 / ConnectX®-3 Pro Ethernet adapters. This driver is based on libibverbs and currently supports:

- Scattering/gathering RX/TX packets
- Multiple RX (with RSS/RCA) and TX queues
- Multiple MAC addresses
- VLAN filtering
- Link state information
- Software counters/statistics
- Start/stop/close operations
- Multiple physical ports host adapter
- Hardware TX and RX checksum offloading
- Hardware VXLAN TX and RX checksum offloading
- MTU setting
- DPDK 2.0

1.1 System Requirements

Table 1: System Requirements

Specification	Value
Network Adapter Cards	Mellanox ConnectX®-3 and ConnectX®-3 Pro network adapter card. (This must be configured to work in ETH mode.)
Firmware	2.34.5000
Driver Stack	MLNX_OFED-3.0-x.x.x
Operating Systems and Kernels	All OSs supported by MLNX_OFED
# CPU	Minimum 4 CPUs for VM
Minimum memory requirements	16 GB RAM
Transport	Ethernet
CPU Arch	x86

1.2 Package Content

- DPDK 2.0 from DPDK.org
- Modified librte_pmd_mlx4
- libibverbs and libmlx4 libraries that are optimized for DPDK performance
- Compilation script that compiles the entire package
- Configuration script that configures the system for running DPDK with mlx4 PMD

2 Changes and Major New Features

Table 2: Changes and Major New Features

Release	Changes
Rev 2.0_2.8.4 from DPDK 2.0 inbox	<ul style="list-style-type: none">• Added support for<ul style="list-style-type: none">• MLNX_OFED 3.0-x.x.x• ESX 5.5• Performance improvements• Added support for TX and RX checksum• Added support for VXLAN TX and RX checksums offloading• Optimized steering mode• Updated the configuration script• Bug fixes (see section Bug Fixes)

3 Known Issues

The following table describes known issues in Mellanox PMD, and existing workarounds.

Table 3: PMD Known Issues

Subject	Description	Workaround
InfiniBand	Mellanox PMD does not support InfiniBand.	N/A
The Primary and Secondary multi process model	The Primary and Secondary multi process model is currently not supported	Use multithreaded model instead of multi process
Hardware checksum offloading on VMware ESX 5.5 VM	Hardware checksum offloading is not supported in VMware VM	N/A
Hardware checksum offloading on ConnectX-3	Hardware checksum offloading is not supported in ConnectX-3	Use ConnectX3-Pro if hardware checksum offloading is needed
VXLAN hardware checksum offloading	VXLAN hardware checksum offloading is supported only if the used kernel supports it	Future release
L4 checksum report with hardware checksum offloading	When the packet does not include TCP/UDP header and the hardware checksum offloading is enabled, L4 checksum will be reported as bad	Future release
RSS	RSS hash key and options cannot be modified.	N/A
Hardware counters	Hardware counters are not implemented.	N/A
Promiscuous and SR-IOV	Promiscuous mode does not work when SR-IOV is enabled.	N/A
Promiscuous and SR-IOV	In testpmd: Although promiscuous mode fails in SR-IOV, it still shows as enabled This is DPDK implementation bug.	N/A
Multicast Promiscuous mode and SR-IOV	Virtual Machines (VM) with enabled Multicast Promiscuous mode do not receive the multicast traffic that other VMs on the same hypervisor are registered to.	N/A
VLAN filtering	VLAN filtering is supported only with non-optimized steering mode.	Run ./configure_mlx4_pmd.sh -s #NUMA node -v
Number of configured RSS queues must be power of 2	Number of configured RSS queues must be power of 2.	Use only power of 2 RSS queues
“vanilla” libibverbs from MLNX_OFED	PMD supports only modified libibverbs and libmlx4 that are part of this package. It cannot work with “vanilla” libibverbs from MLNX_OFED.	N/A

4 Bug Fixes

The following table describes the bug fixes of Mellanox PMD.

Table 4: PMD Bug Fixes

Subject	Description	Found in	Fixed in
Memory corruption when fork() is used in the application	Fixed an unpredicted behavior due to “cow” mechanism when an application used fork() or system call that were not related to the networking.	DPDK 2.0 inbox	2.0_2.8.4
1Gb/s port’s link reported as 10Gb/s	Fixed a wrong speed reporting when a 10Gb/s port was set as 1Gb/s (10Gb/s instead of 1Gb/s)	DPDK 2.0 inbox	2.0_2.8.4
Multiple RX VLAN filters	Fixed a multiple RX VLAN filters issue preventing multiple RX VLAN filters to function properly although all were configured. In this case, only the first one functioned properly.	DPDK 2.0 inbox	2.0_2.8.4