Netcope NIC Performance Report with DPDK 17.05

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Test Setup

Server

Server	Dell R630
BIOS Version	2.2.5
Procesor	Intel Xeon CPU E5-2687W v4 @ 3.00 GHz
Memory	64 GB DDR4 2400 MHz (8 * 8GB)

BIOS Settings (from Default)

- System BIOS Settings
    - Processor Settings
        - Logical Processor: Disabled
        - Virtualization Technology: Disabled
    - Integrated Devices
        - Slot Bifurcation
            - Slot 1 Bifurcation: x8 x8 Bifurcation
            - Slot 2 Bifurcation: x8 x8 Bifurcation
    - System Profile Settings
        - System Profile: Performance

Software

- Operating system: CentOS 7.3.1611
- Kernel: 3.10.0-514.10.2.el7.nt1.x86_64
    - nt1 -> Netcope compiled version with added MTD support
- GCC version: gcc (GCC) 4.8.5 20150623 (Red Hat 4.8.5-11)

Test #1: Netcope NFB-100G2Q Throughput at Zero Packet Loss

Device Under Test (DUT) is made up of the Dell server and the Netcope NFB-100G2Q NIC with a single port. The DUT is connected to another NFB-equipped server working as a packet generator which generates traffic towards the measured NFB-100G2Q NIC.

The NFB-100G2Q data traffic is passed through DPDK to the test application testpmd and is redirected to the opposite direction on the same port. The scripts running on the measured server calculate the amount of transmitted data, measure time and calculate the speed.
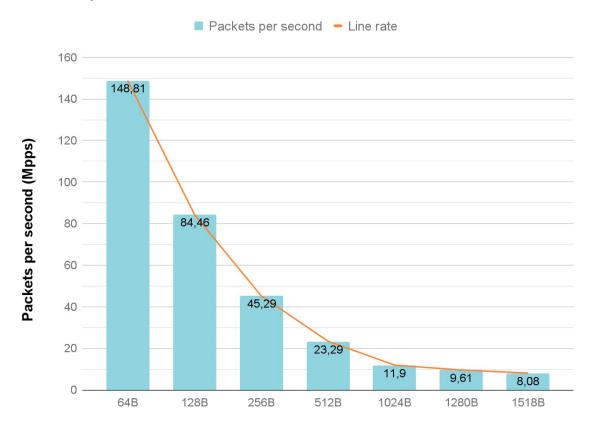
Test Settings

BIOS	Boot in "Legacy" mode; System Profile "PERFORMANCE"; PCI Slot Bifurcation: "x8x8"; HyperThreading: OFF
BOOT Settings	`isolcpus=1-9 hugepages=8192`
DPDK Settings	Enable SZEDATA2 driver (CONFIG_RTE_PMD_SZEDATA2=y) *Modify IBUF and OBUF offsets in SZEDATA2 PMD:* - *#define SZEDATA2_CGMII_IBUF_BASE_OFF 0x8800* - *#define SZEDATA2_CGMII_OBUF_BASE_OFF 0x9800*
Command	`./app/testpmd -l 1-9 -- --nb-cores=8 --rxq=8 --txq=8`
Module parameters	`modprobe szedata2_cv3 block_size=1048576 block_count=1`

Results

Frame Size (Bytes)	Throughput (Mpps)	Line Rate Throughput (Mpps)	% Line Rate
64	148.81	148.81	100.00
128	84.46	84.46	100.00
256	45.29	45.29	100.00
512	23.49	23.50	99.95
1024	11.90	11.97	99.42
1280	9.61	9.62	99.89
1518	8.08	8.13	99.38

DPDK Loopback Performance vs Line rate