DOAT Report

DPDK Optimisation & Analysis Tool
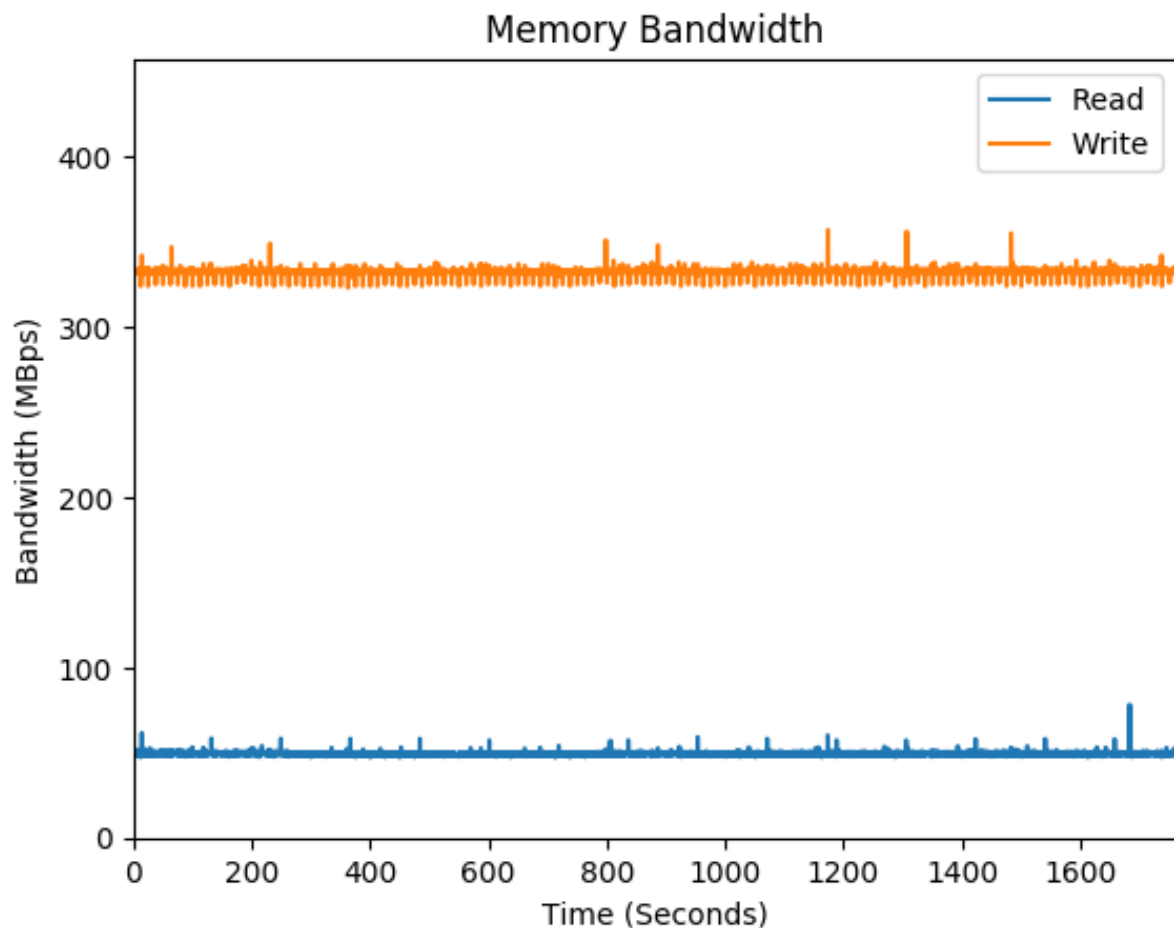
Report compiled at 07:56PM on 22 January 2020 using 25,192,525 data points

Project: Custom QoS Schedular Benchmarking

Tester: Conor Walsh (conor@conorwalsh.net)
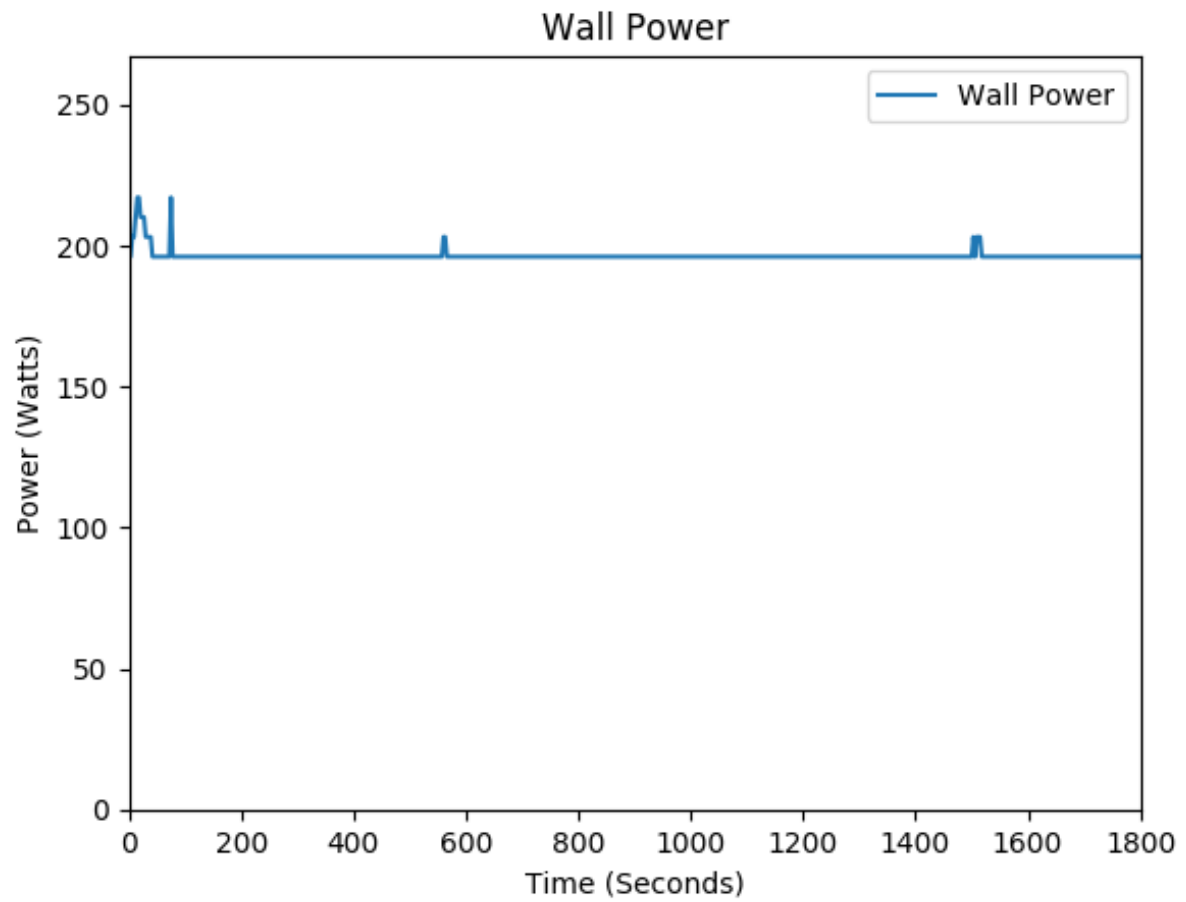
Original DPDK App

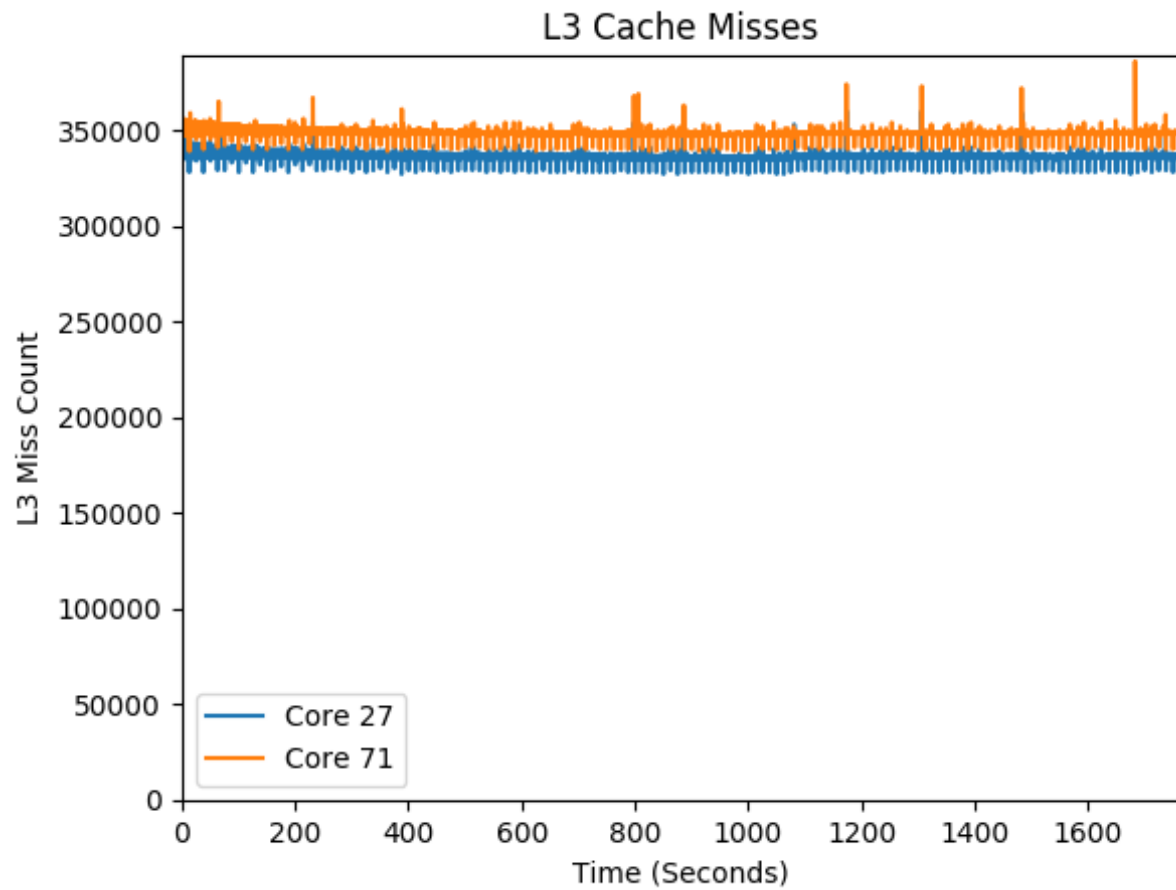## Memory Bandwidth

Read Avg: 49.39MBps

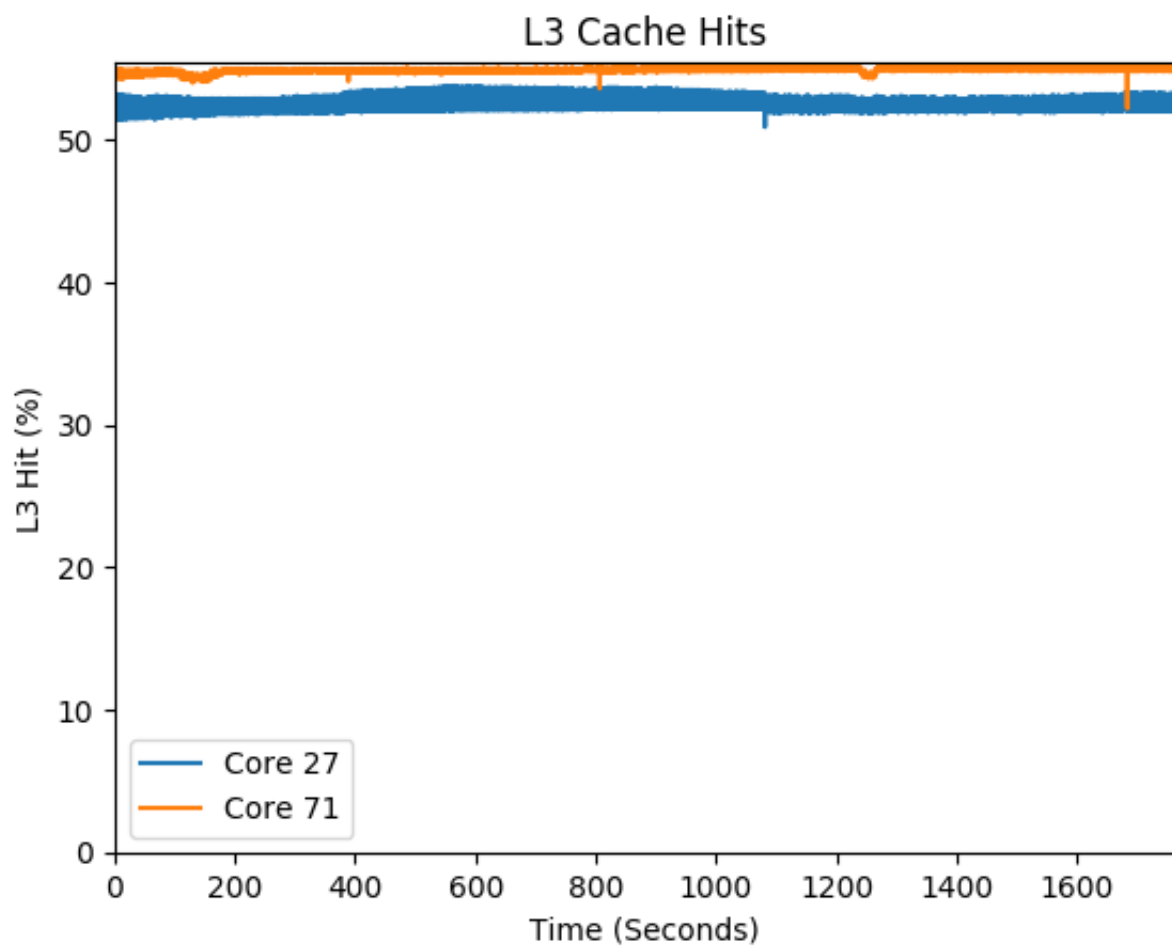Write Avg: 332.51MBps

Write to Read Ratio: 6.73

Wall Power

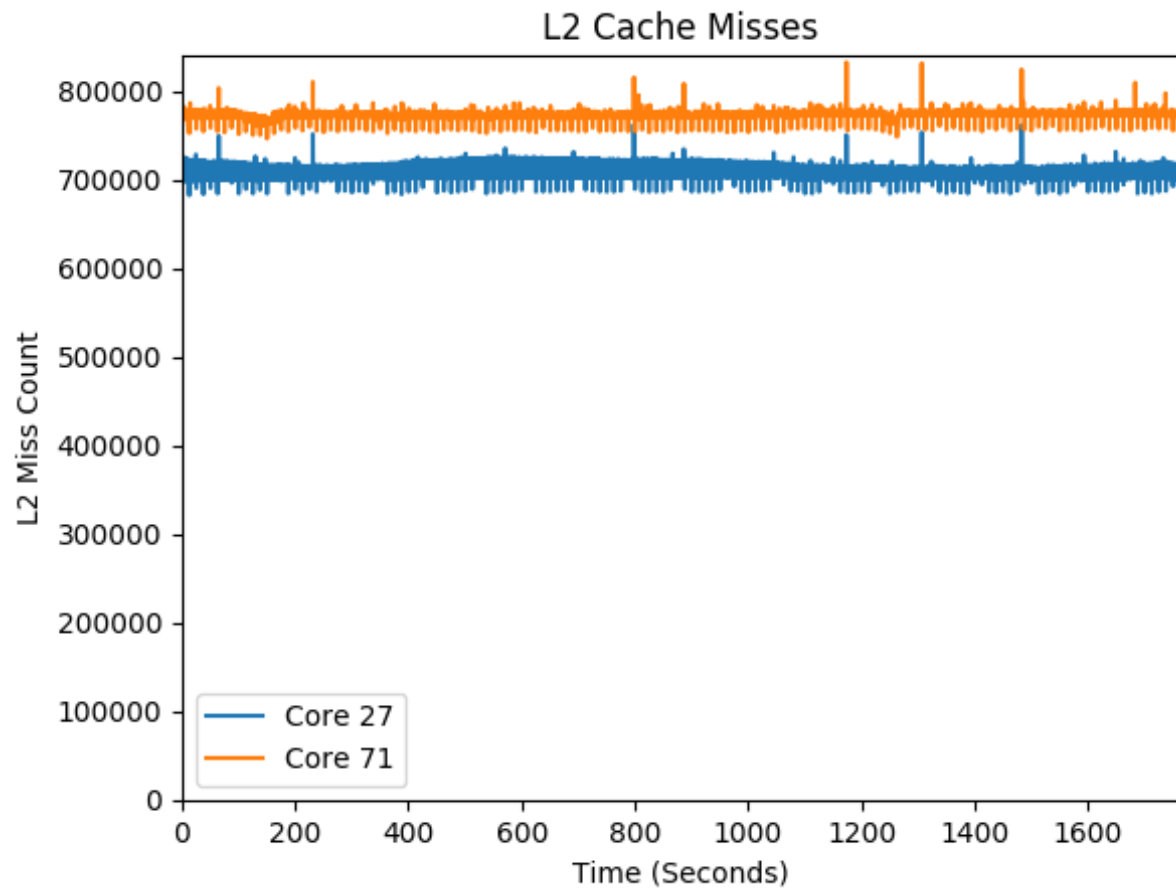Wall Power Avg: 196.3Watts

L3 Cache

Core 27 L3 Misses: 336447.0

Core 71 L3 Misses: 348611.8

L3 Cache Hits

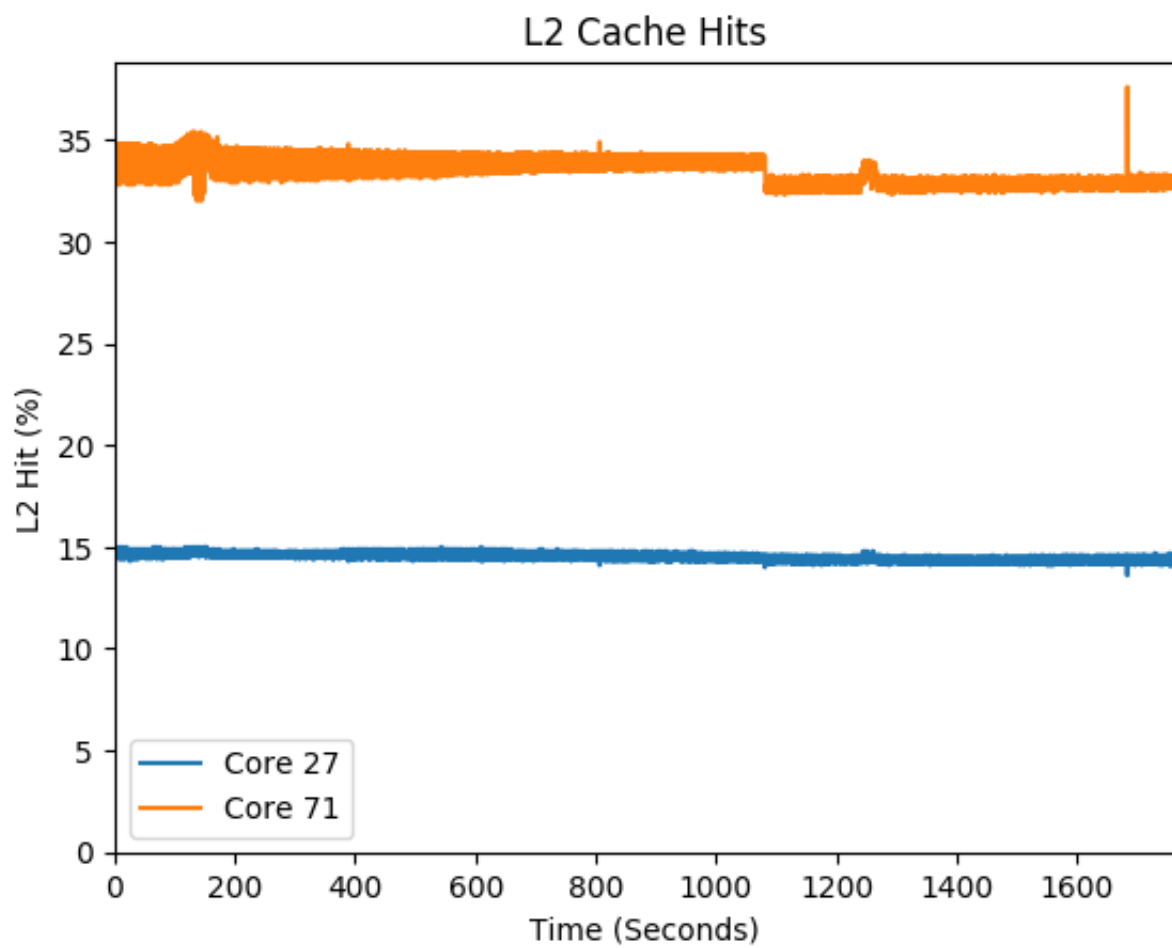Core 27 L3 Hits: 52.3%

Core 71 L3 Hits: 54.9%

L2 Cache

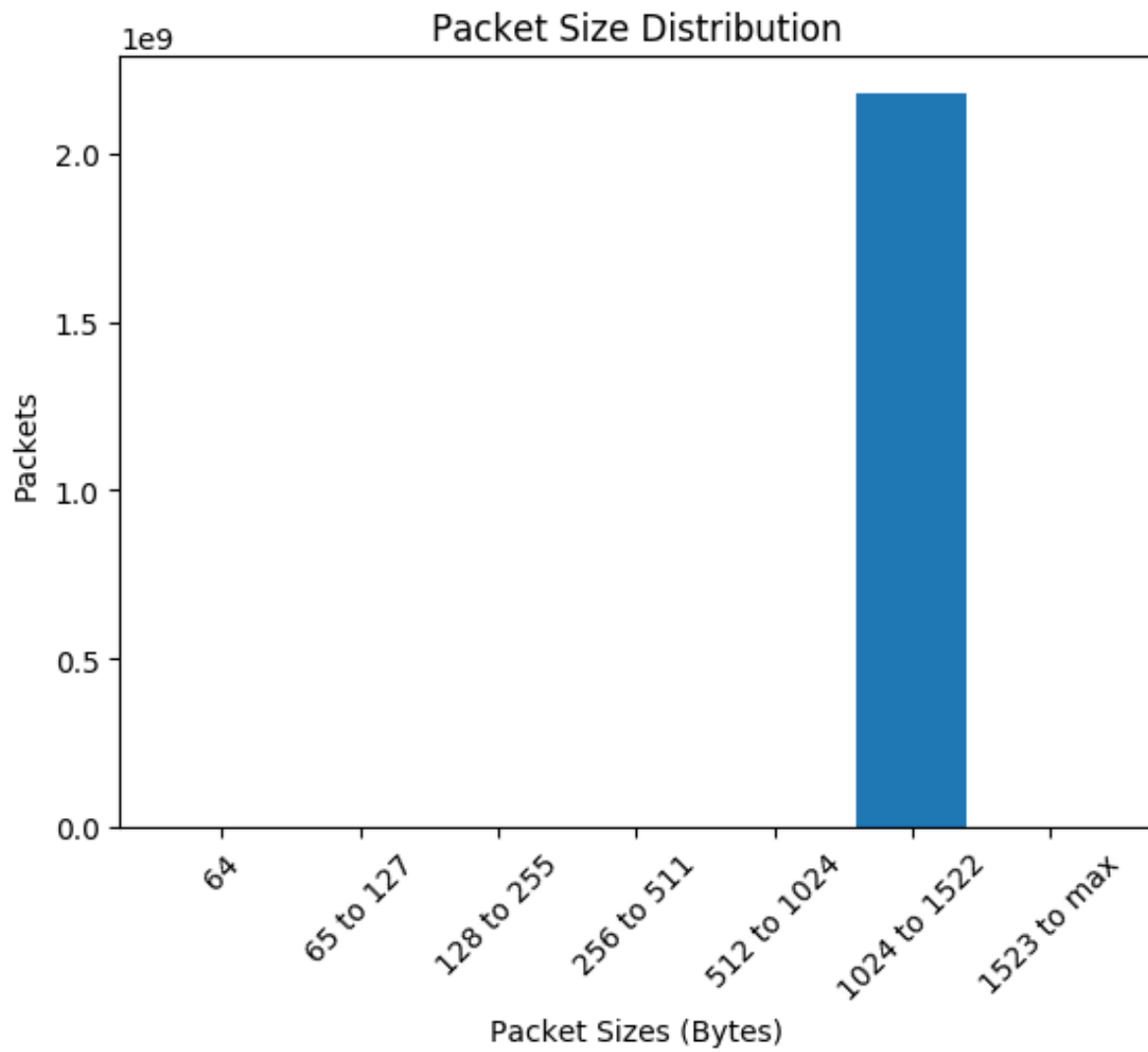
L2 Cache Misses

Core 27 L2 Misses: 705441.0

Core 71 L2 Misses: 773234.9

L2 Cache Hits

Core 27 L2 Hits: 14.5%

Core 71 L2 Hits: 33.5%

Telemetry

Packet Size Distribution
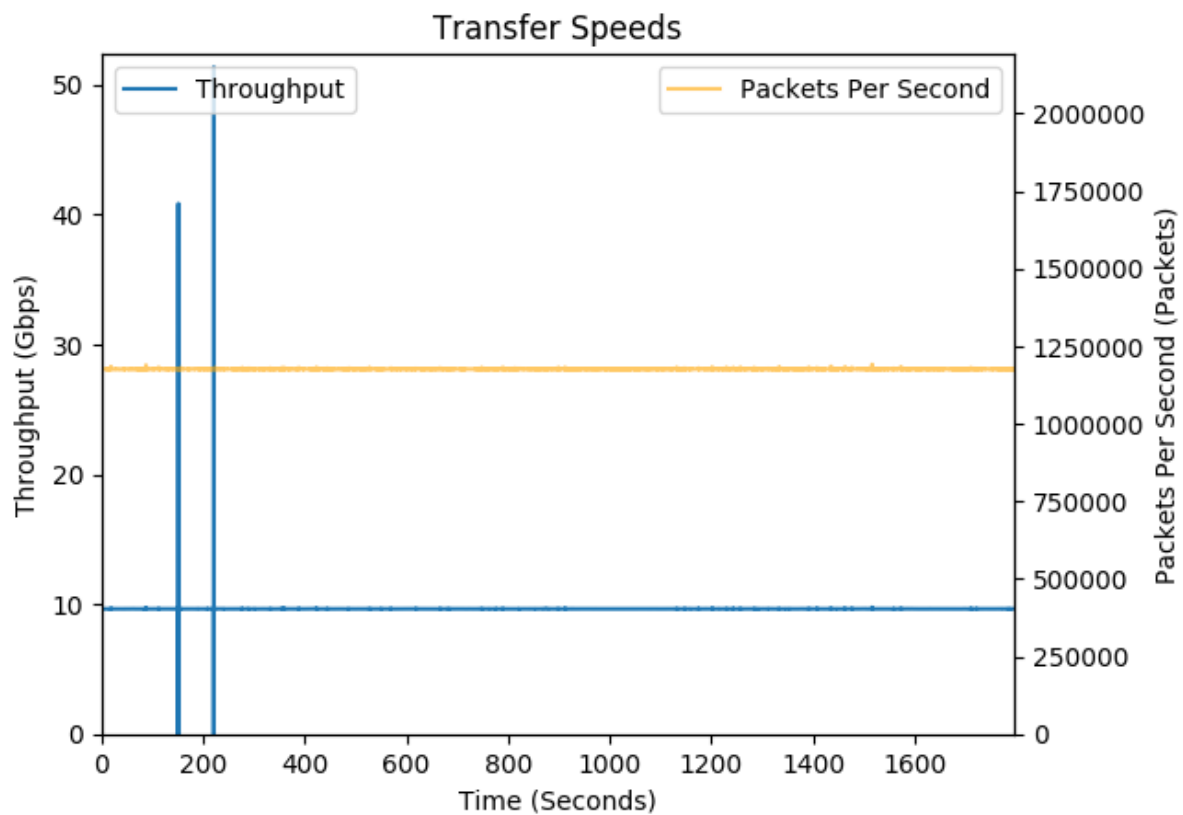
Data/Packets Transfered
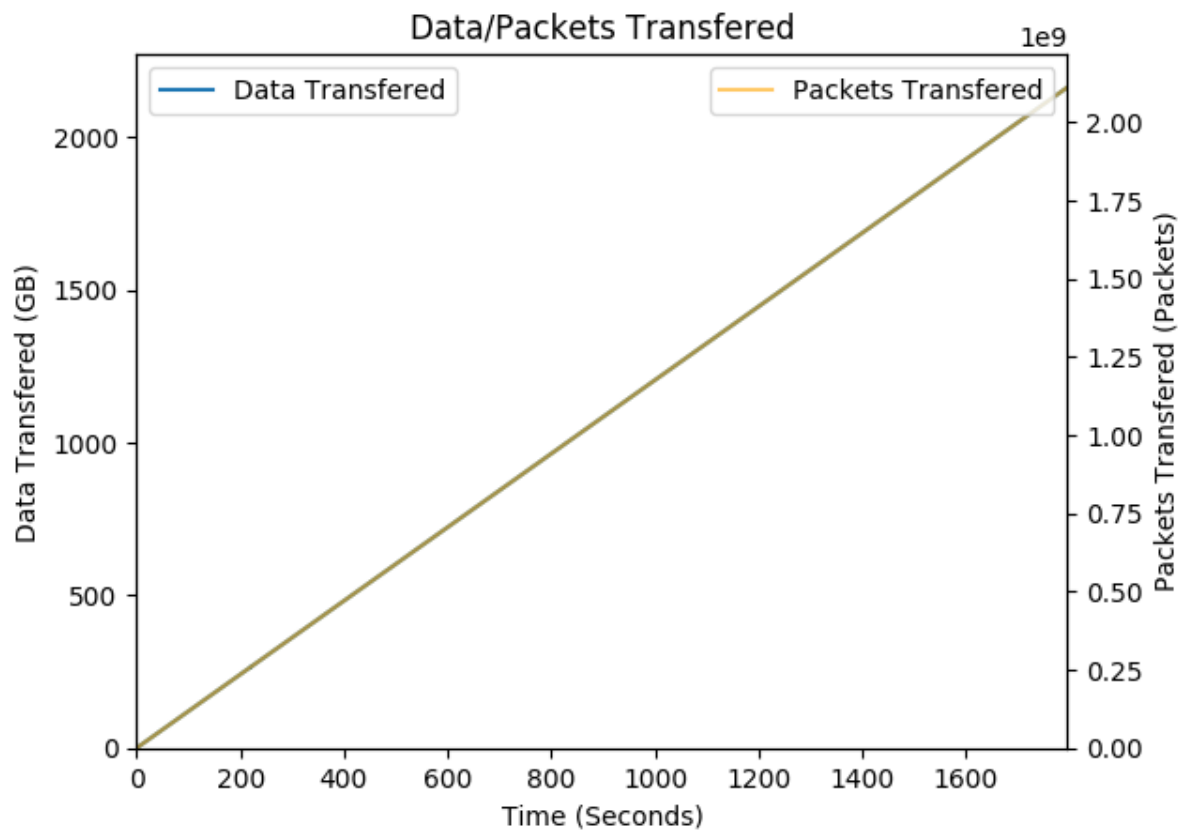
Total Data Transfered: 2162.3GB

Total Packets Transfered: 2,111,637,697 packets

Transfer Speeds

Average Throughput: 9.64 Gbps

Average Packets Per Second: 1,176,236.0 pps
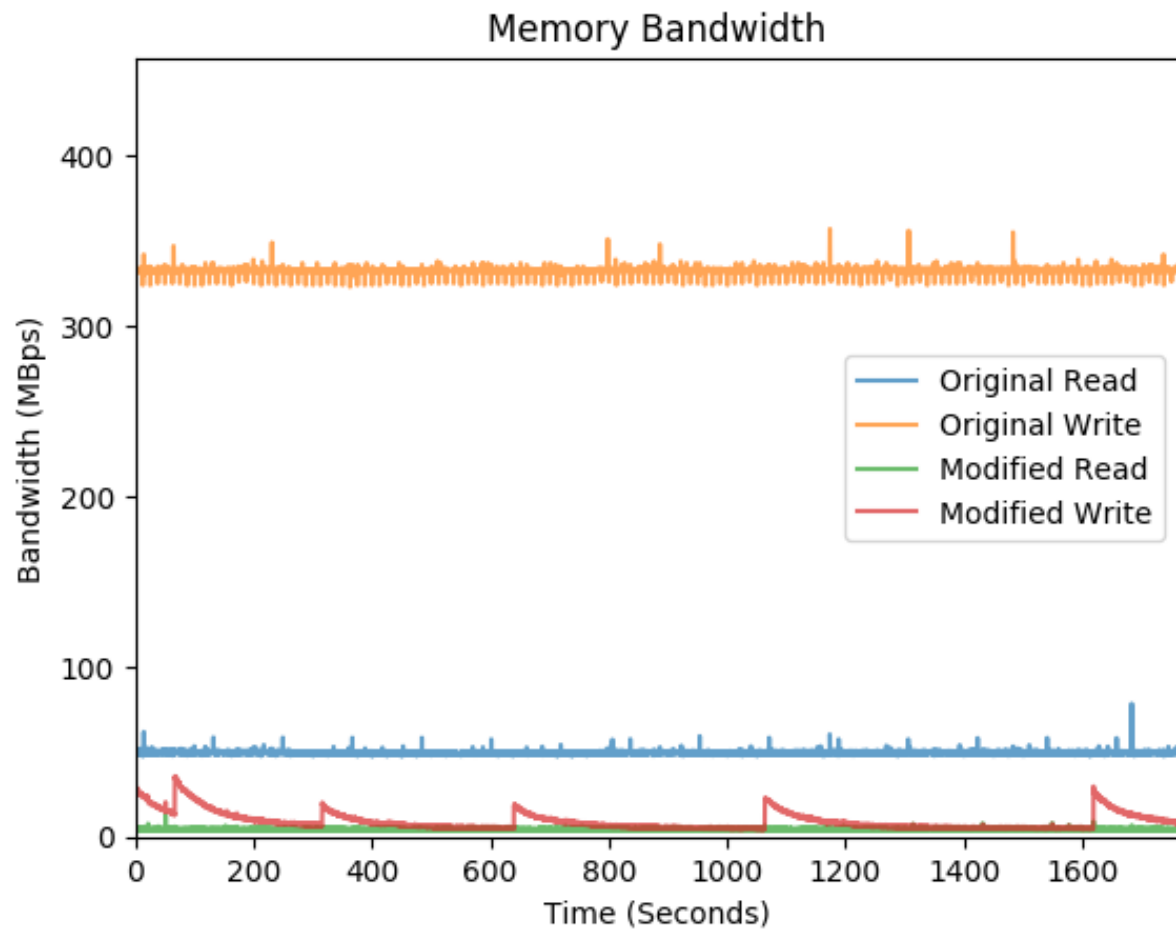
Errors

RX Errors: 0

TX Errors: 0

RX Dropped Packets: 0

TX Dropped Packets: 0

Modified DPDK App

Memory Bandwidth

Memory Bandwidth

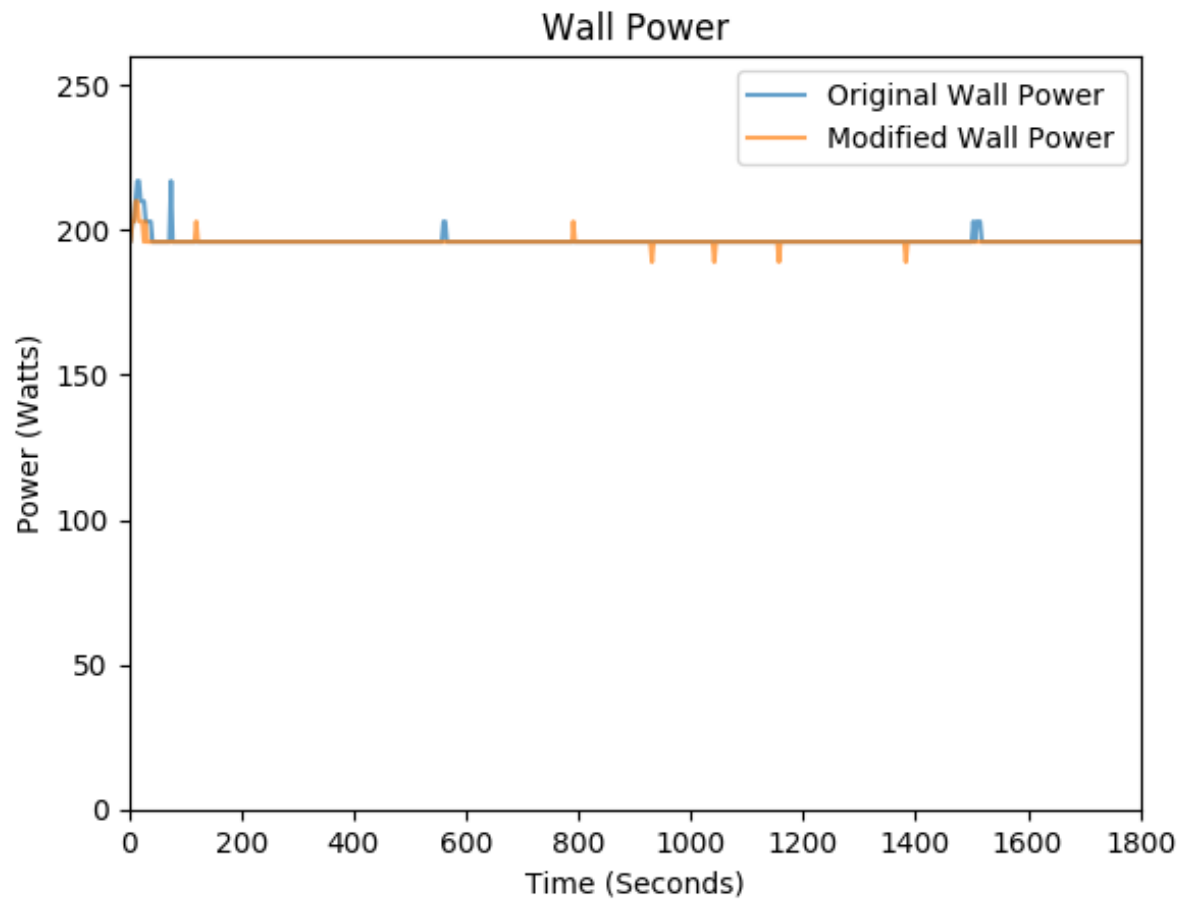Read Avg: 4.36MBps (-91.2%)
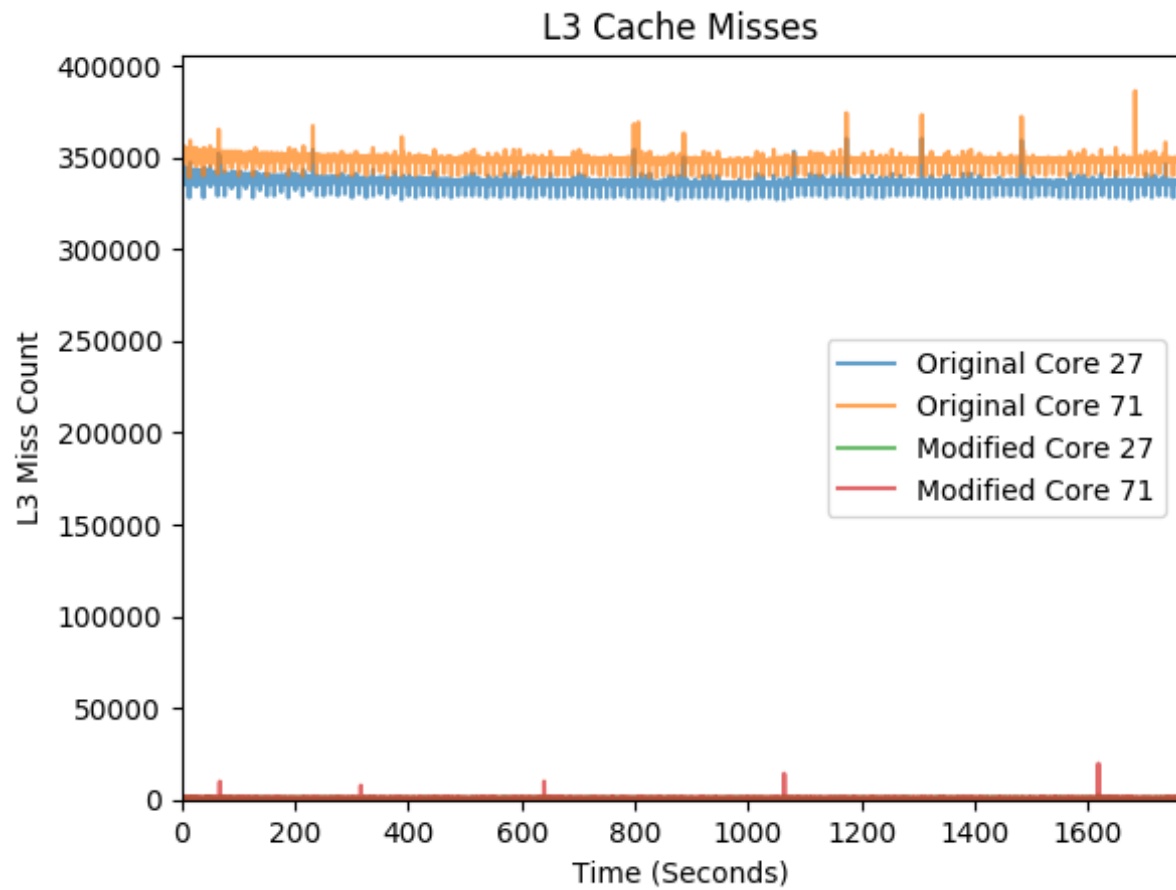
Write Avg: 9.04MBps (-97.3%)

Write to Read Ratio: 2.07

Wall Power

Wall Power Avg: 196.1Watts (-0.1%)

L3 Cache

Core 27 L3 Misses: 938.0 (-99.7%)

Core 71 L3 Misses: 1009.2 (-99.7%)

L3 Cache Hits
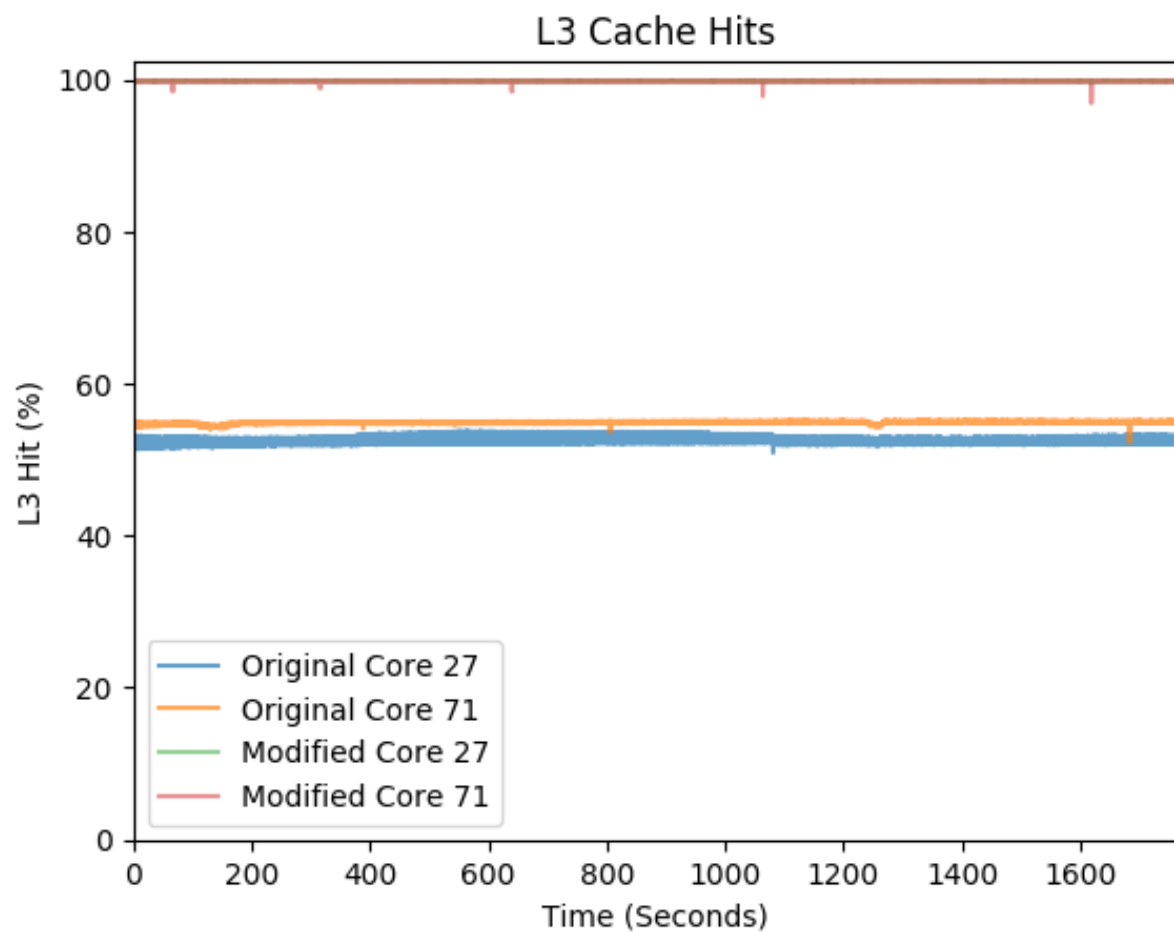
Core 27 L3 Hits: 99.8% (+47.5%)

Core 71 L3 Hits: 99.8% (+44.9%)

L2 Cache

L2 Cache Misses
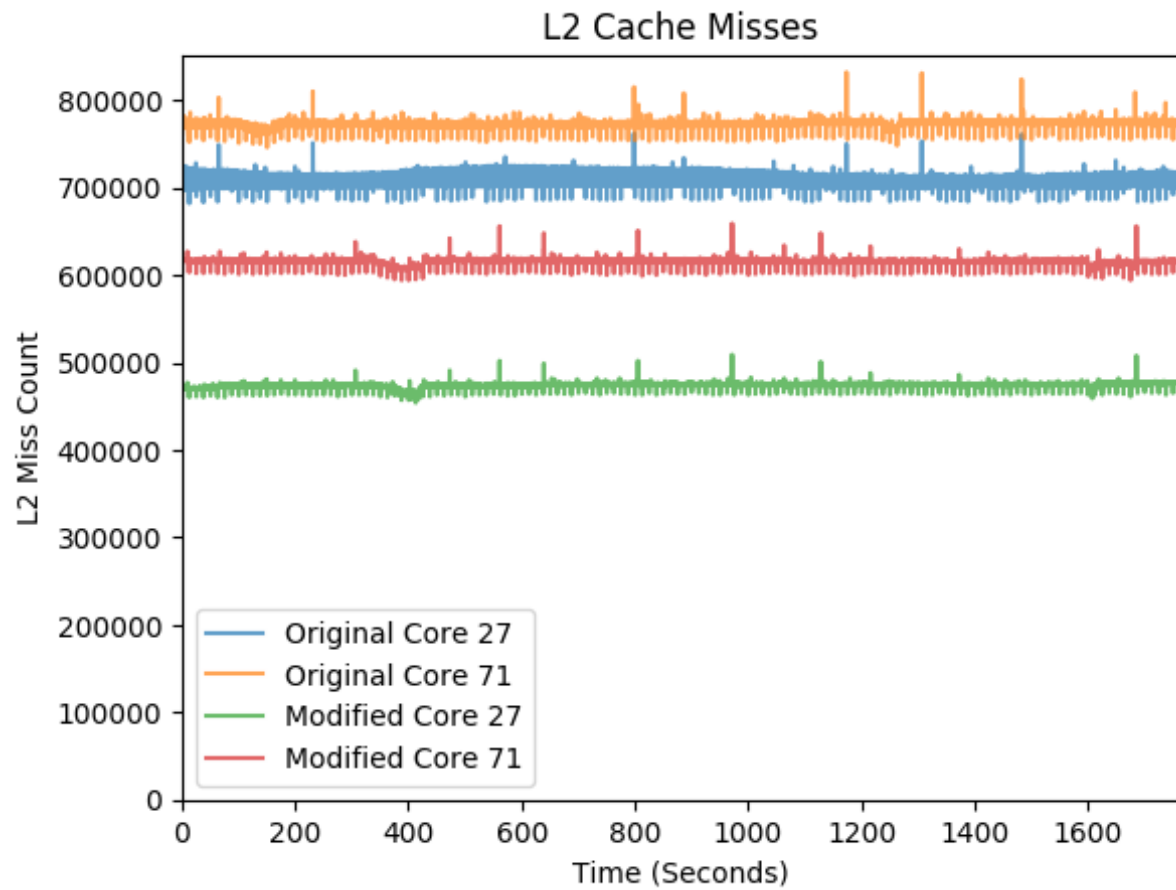
Core 27 L2 Misses: 474124.0 (-32.8%)

Core 71 L2 Misses: 615618.9 (-20.4%)

L2 Cache Hits
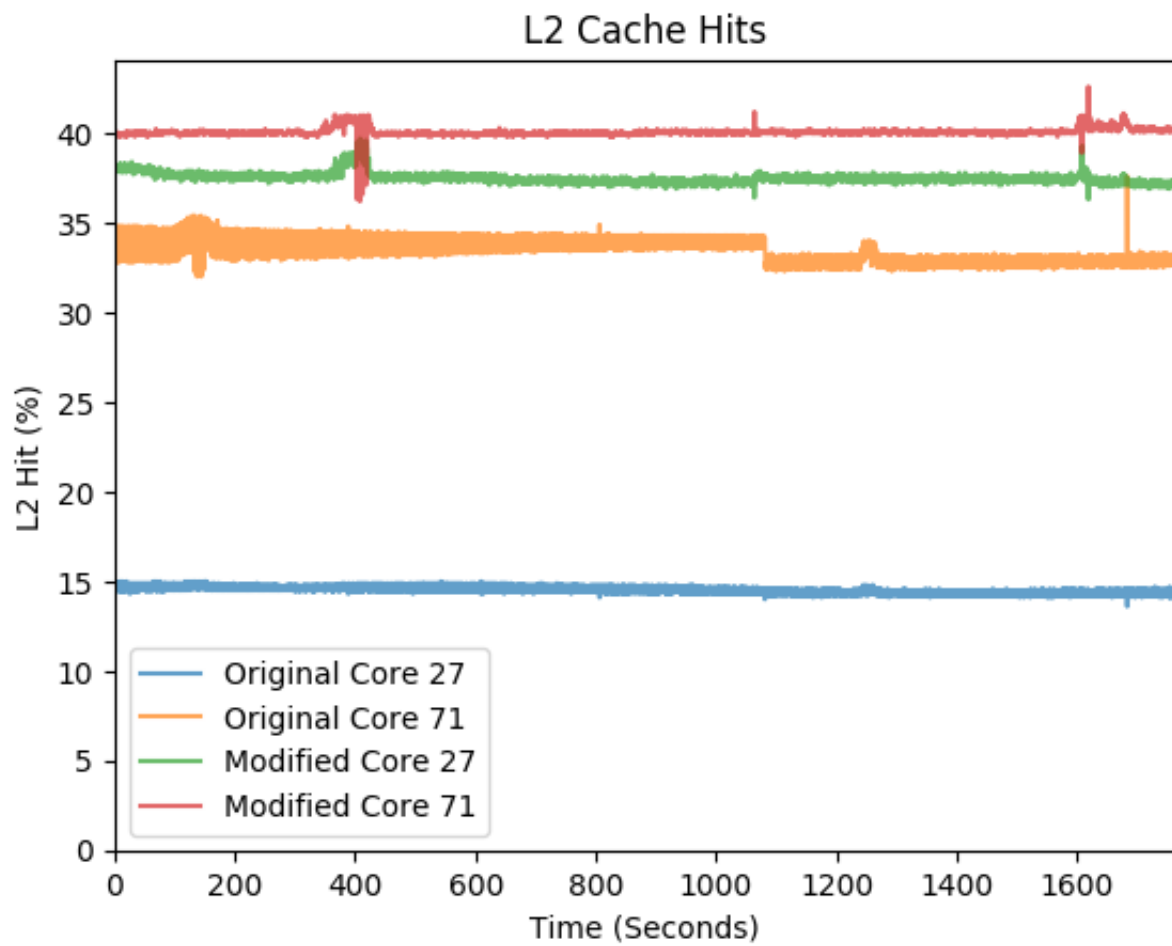
Core 27 L2 Hits: 37.5% (+23.0%)

Core 71 L2 Hits: 40.1% (+6.6%)

Telemetry

Packet Size Distribution

Data/Packets Transfered
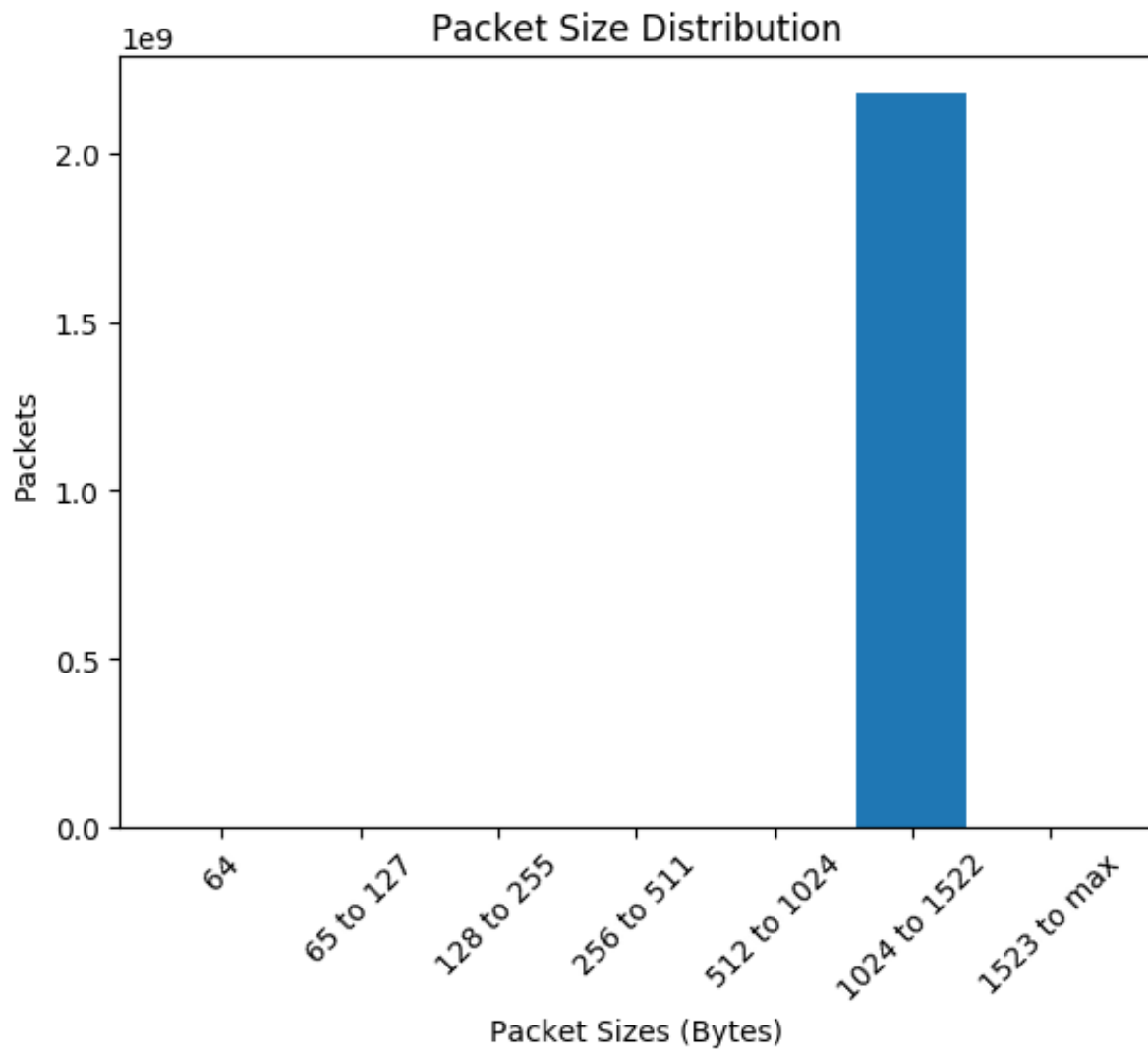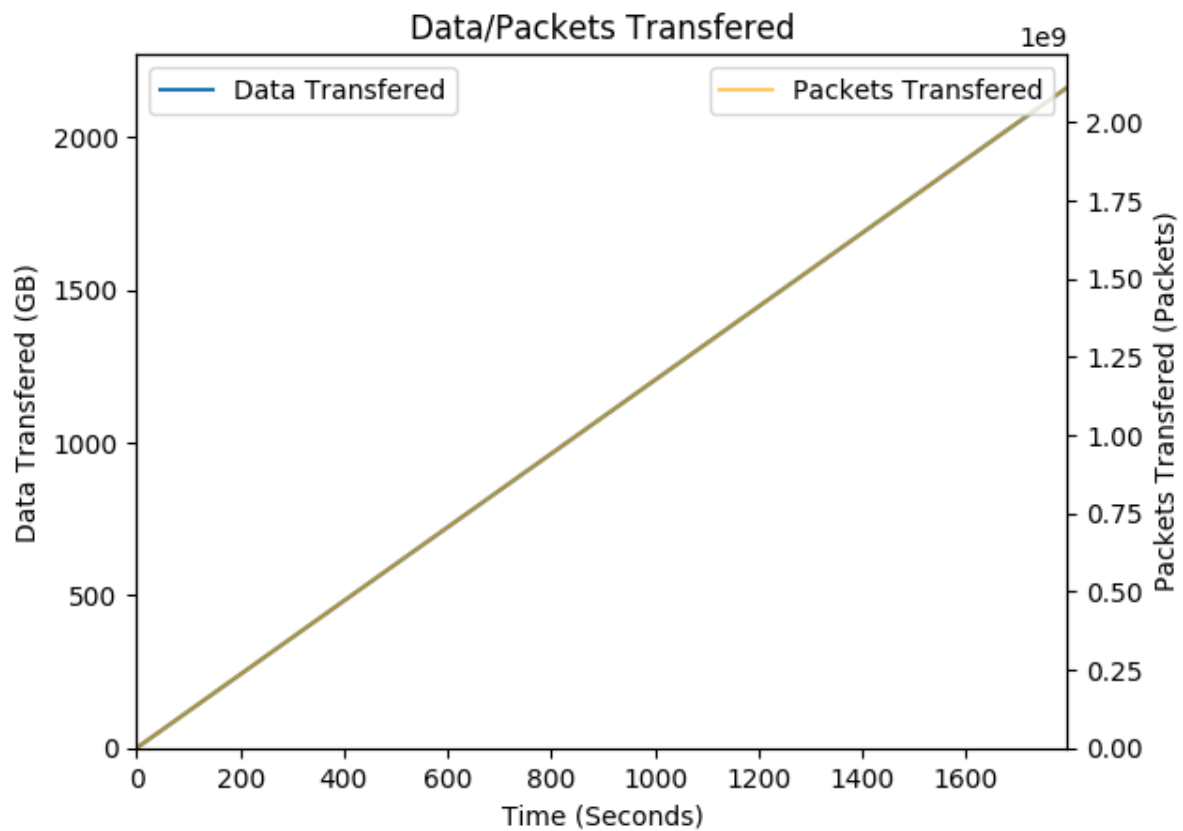
Total Data Transfered: 2162.2GB (-0.1GB)

Total Packets Transfered: 2,111,494,744 packets (-142,953 packets)

Transfer Speeds
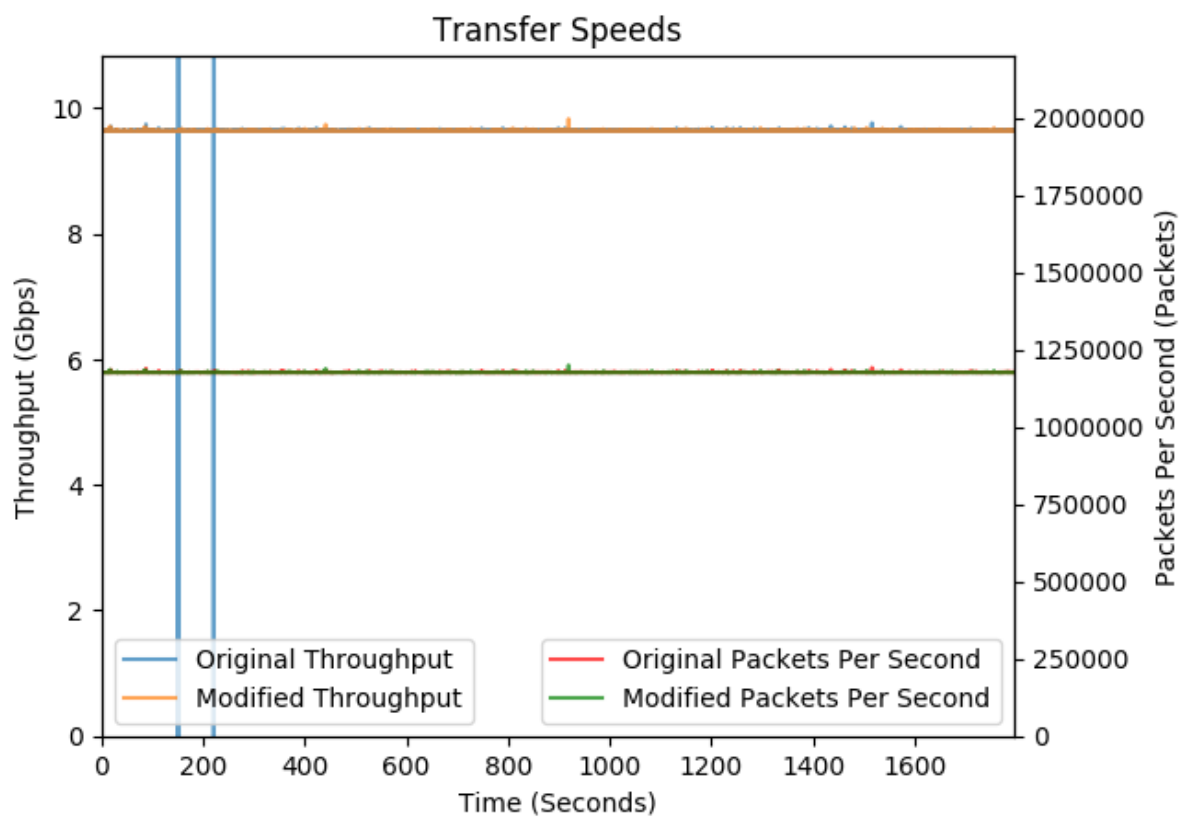
Average Throughput: 9.63 Gbps (+0.00Gbps)

Average Packets Per Second: 1,175,992.0 pps (-244 pps)

Errors

RX Errors: 0 (+0)

TX Errors: 0 (+0)

RX Dropped Packets: 0 (+0)

TX Dropped Packets: 0 (+0)

Optimisation Recommendations

We would recommend changing from ring mempools to stack mempools based on the optimisation results

This can be done by setting CONFIG_RTE_MBUF_DEFAULT_MEMPOOL_OPS="stack" in the DPDK common_base file

Test Configuration

DOAT	**startuptime**	60
	testruntime	1800
	teststepsize	0.25
	serverport	80
REPORTING	**projectname**	Custom QoS Schedular Benchmarking
	testername	Conor Walsh
	testeremail	conor@conorwalsh.net
	generatepdf	True
	generatezip	True
	includemaster	False
APPPARAM	**applocation**	/root/walshc/dpdk1911/dpdk/examples/qos_sched_custom/
	appcmd	run_1_telem.sh
	telemetry	True
	socketpath	/var/run/dpdk/default_client
OPTIMISATION	**optimisation**	True
	dpdkmakecmd	make -j install T=x86_64-native-linux-gcc DESTDIR=install
	appmakecmd	make
	memop	True
CPU	**testcore**	18
	appmaster	26
	appcores	27,71
TOOLS	**pcmdir**	/root/walshc/pcm/