

GPU Speed Of Light Throughput

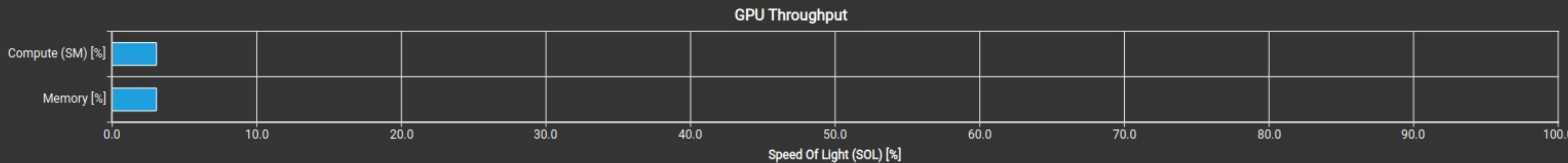
All

High-level overview of the throughput for compute and memory resources of the GPU. For each unit, the throughput reports the achieved percentage of utilization with respect to the theoretical maximum. Breakdowns show the throughput for each individual sub-metric of Compute and Memory to clearly identify the highest contributor. High-level overview of the utilization for compute and memory resources of the GPU presented as a roofline chart.

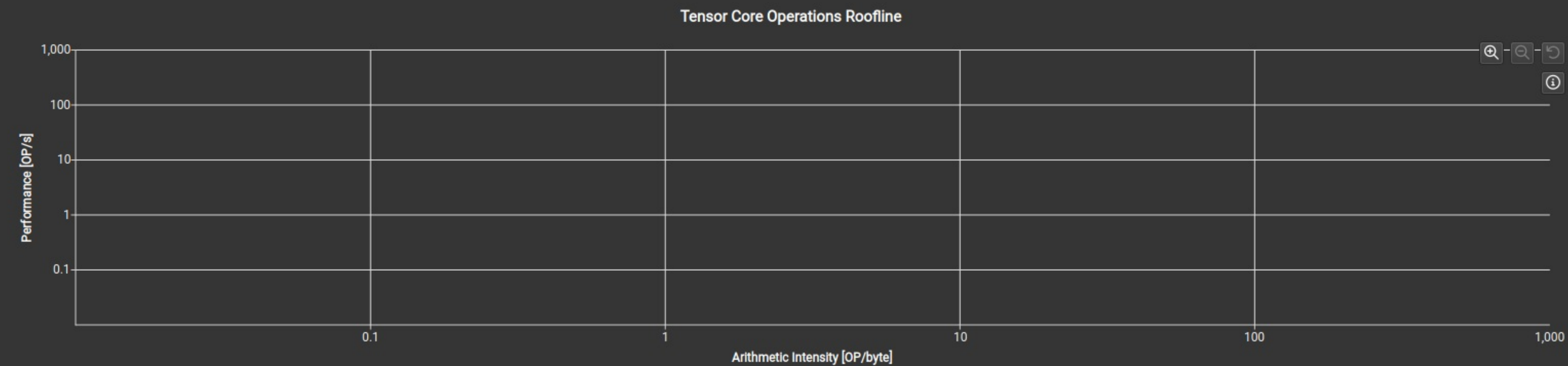
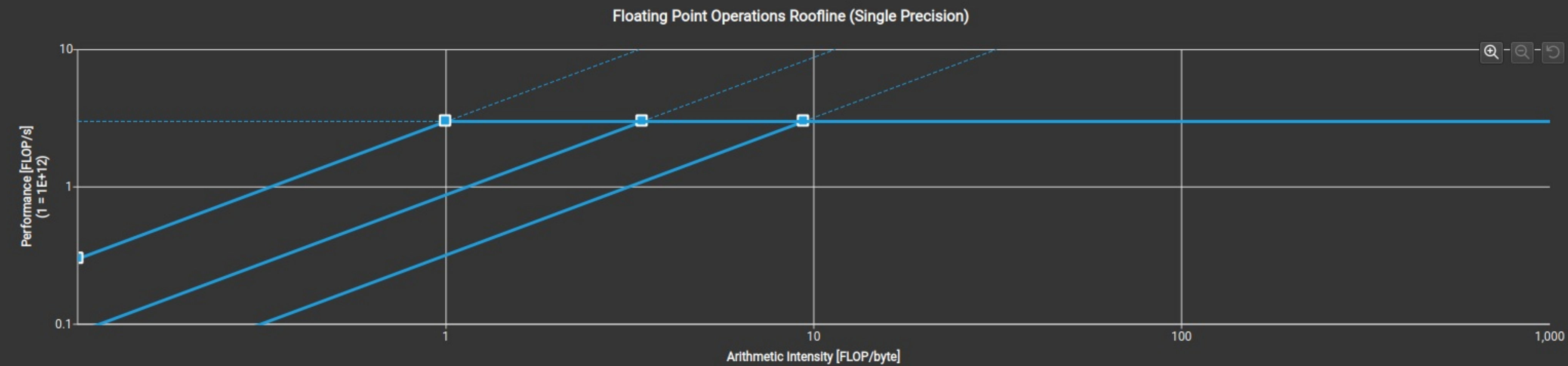
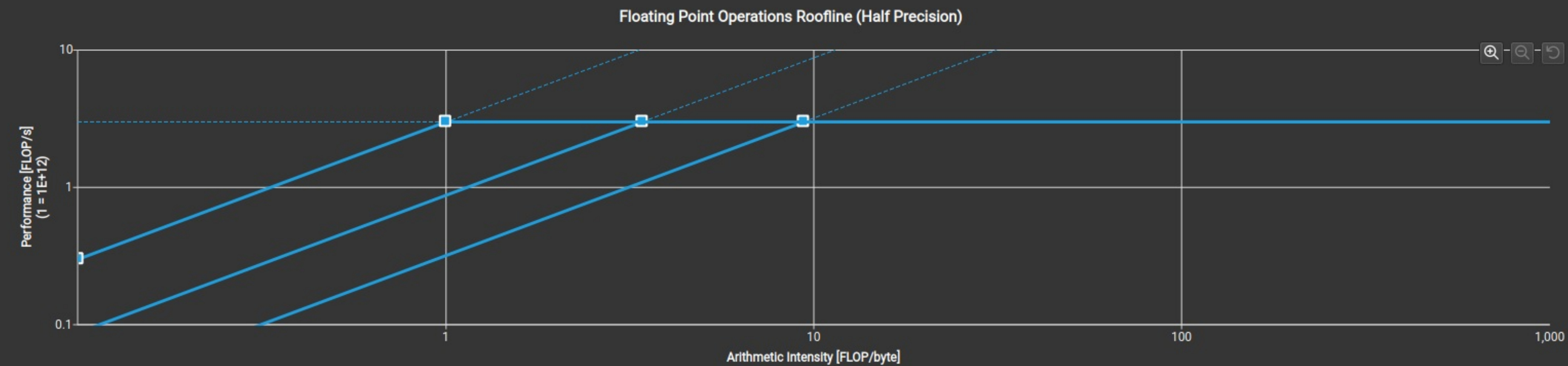
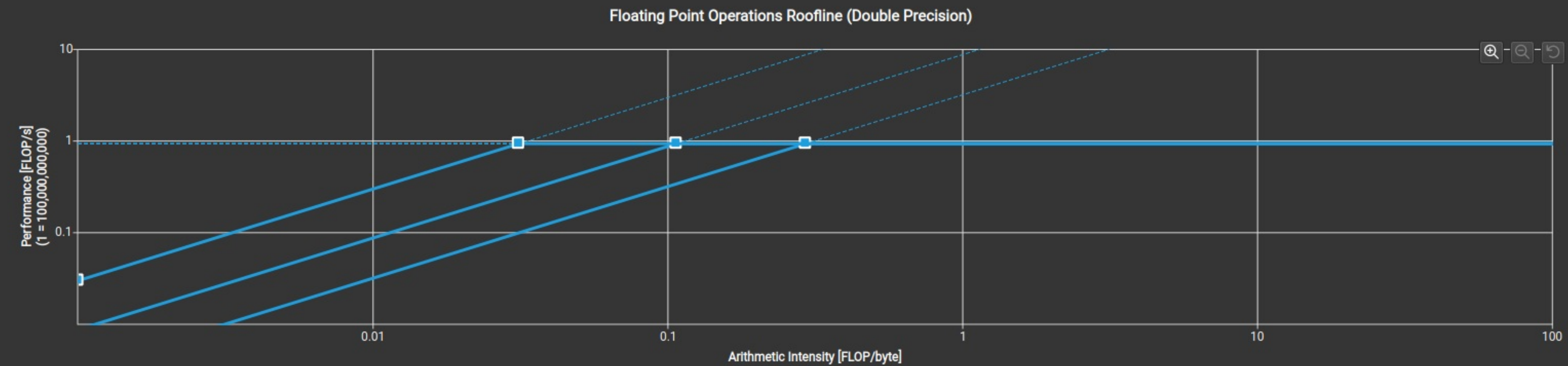
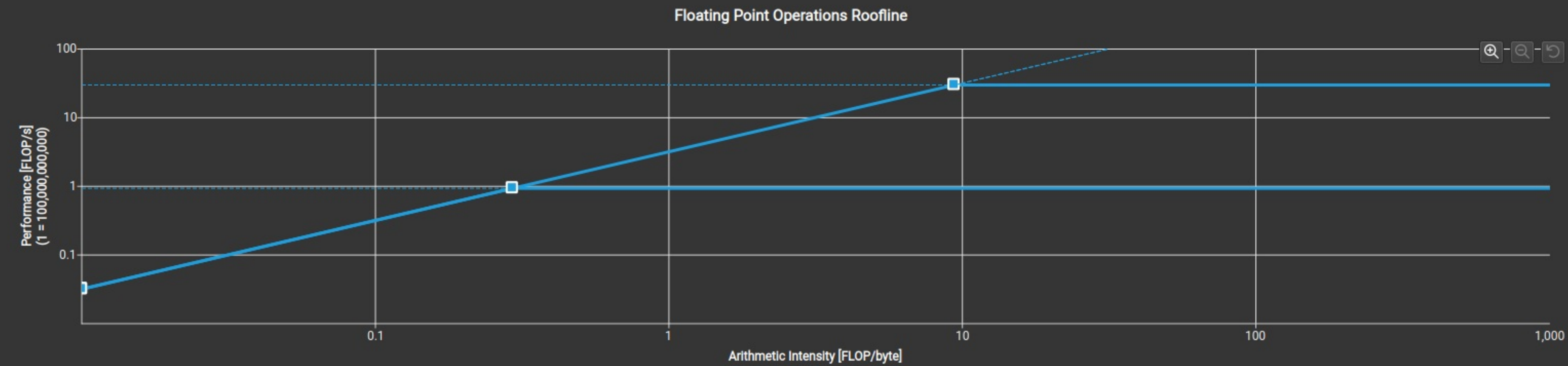
Compute (SM) Throughput [%]	3.06	Duration [ms]	1.25
Memory Throughput [%]	3.06	Elapsed Cycles [cycle]	731,548
L1/TEX Cache Throughput [%]	4.46	SM Active Cycles [cycle]	711,448.95
L2 Cache Throughput [%]	0.69	SM Frequency [Mhz]	584.96
DRAM Throughput [%]	1.53	DRAM Frequency [Ghz]	4.98

Latency Issue This kernel exhibits low compute throughput and memory bandwidth utilization relative to the peak performance of this device. Achieved compute throughput and/or memory bandwidth below 60.0% of peak typically indicate latency issues. Look at [Scheduler Statistics](#) and [Warp State Statistics](#) for potential reasons.

Roofline Analysis The ratio of peak float (fp32) to double (fp64) performance on this device is 32:1. The kernel achieved 0% of this device's fp32 peak performance and 0% of its fp64 peak performance. See the [Kernel Profiling Guide](#) for more details on roofline analysis.



Compute Throughput Breakdown		Memory Throughput Breakdown	
SM: Inst Executed Pipe Lsu [%]	3.06	L1: LsuIn Requests [%]	3.06
SM: Issue Active [%]	2.16	L1: Data Pipe Lsu Wavefronts [%]	2.23
SM: Inst Executed [%]	1.92	DRAM: Cycles Active [%]	1.53
SM: Mio Pq Write Cycles Active [%]	1.75	DRAM: Dram Sectors [%]	1.12
SM: Mio Pq Read Cycles Active [%]	1.44	L1: Lsu Writeback Active [%]	0.87
SM: Mio Inst Issued [%]	1.19	L1: M Xbar2l1tex Read Sectors [%]	0.76
SM: Pipe Alu Cycles Active [%]	1.07	L2: T Sectors [%]	0.69
SM: Pipe Fma Cycles Active [%]	0.75	L2: Lts2xbar Cycles Active [%]	0.68
SM: Inst Executed Pipe Cbu Pred On Any [%]	0.56	L2: T Tag Requests [%]	0.40
SM: Inst Executed Pipe Adu [%]	0.50	GPU: Compute Memory Access Throughput Internal Activity [%]	0.40
SM: Mio2rf Writeback Active [%]	0.43	L1: M L1tex2xbar Req Cycles Active [%]	0.39
SM: Inst Executed Pipe Uniform [%]	0.43	L2: D Sectors Fill Device [%]	0.38
SM: Inst Executed Pipe Tex [%]	0.01	L2: Xbar2lts Cycles Active [%]	0.37
SM: Memory Throughput Internal Activity [%]	0	L1: Data Bank Writes [%]	0.31
SM: Pipe Tensor Cycles Active [%]	0	L2: D Sectors [%]	0.30
SM: Pipe Shared Cycles Active [%]	0	L2: D Atomic Input Cycles Active [%]	0.27
SM: Pipe Fp64 Cycles Active [%]	0	L1: Data Bank Reads [%]	0.24
IDC: Request Cycles Active [%]	0	L1: Texin Sm2tex Req Cycles Active [%]	0.05
SM: Instruction Throughput Internal Activity [%]	0	L1: F Wavefronts [%]	0.00
SM: Inst Executed Pipe Xu [%]	0	L1: Data Pipe Tex Wavefronts [%]	0
SM: Inst Executed Pipe Ipa [%]	0	L1: Tex Writeback Active [%]	0
SM: Inst Executed Pipe Fp16 [%]	0	L2: D Sectors Fill Sysmem [%]	0
		GPU: Compute Memory Request Throughput Internal Activity [%]	0



	# Operations	# Operations / Cycle	# Operations / s	Peak %	Peak Operations / Cycle	Peak Operations / s
Src:fp16,bf16,tf32 Dst:fp32	0	0	0	0	40,960	23,982.26
Src:fp16 Dst:fp16	0	0	0	0	40,960	23,982.26
Src:int1	0	0	0	0	81,920	47,964.53
Src:int4	0	0	0	0	81,920	47,964.53
Src:int8	0	0	0	0	81,920	47,964.53

GPU and Memory Workload Distribution

Analysis of workload distribution in active cycles of SM, SMP, SMSP, L1 & L2 caches, and DRAM

Average SM Active Cycles [cycle]	711,448.95	Average L1 Active Cycles [cycle]	711,448.95
Average L2 Active Cycles [cycle]	113,705.59	Average SMSP Active Cycles [cycle]	199,262.37
Average DRAM Active Cycles [cycle]	95,521	Total SM Elapsed Cycles [cycle]	29,289,088
Total L1 Elapsed Cycles [cycle]	29,289,088	Total L2 Elapsed Cycles [cycle]	34,213,952
Total SMSP Elapsed Cycles [cycle]	117,156,352	Total DRAM Elapsed Cycles [cycle]	49,836,032

SMSPs Workload Imbalance Est. Speedup: 10.90% One or more SMSPs have a much lower number of active cycles than the average number of active cycles. Maximum instance value is 40.05% above the average, while the minimum instance value is 64.80% below the average.

L2 Slices Workload Imbalance Est. Speedup: 9.45% One or more L2 Slices have a much higher number of active cycles than the average number of active cycles. Maximum instance value is 88.90% above the average, while the minimum instance value is 29.70% below the average.

Workload Distribution				
	Average	Min	Max	Sum
SM Active Cycles	711,448.95	696,942	726,880	28,457,958
SMSP Active Cycles	199,262.37	70,149	332,358	31,881,979
L1 Active Cycles	711,448.95	696,942	726,880	28,457,958
L2 Active Cycles	113,705.59	79,931	1,024,283	3,638,579
DRAM Active Cycles	95,521	94,900	96,532	764,168