CS553 PROGRAMMING ASSIGNMENT 1

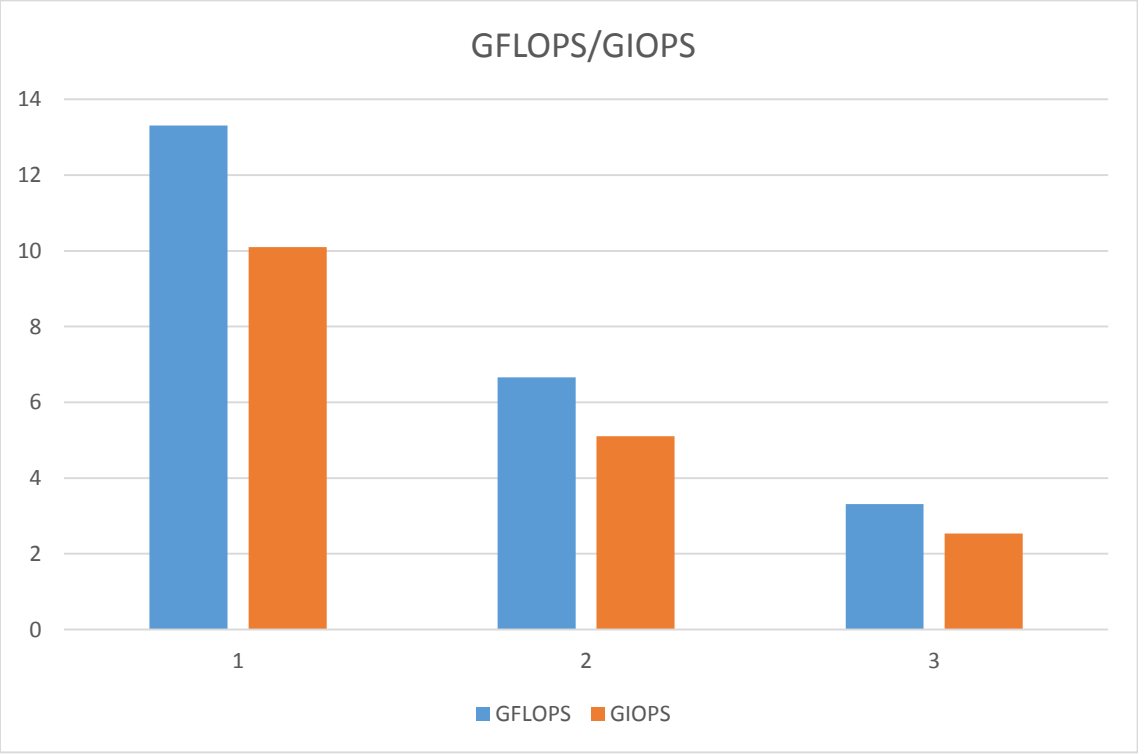
Performance Evaluation

CPU Benchmark

The following values of GFLOPS and GIOPS are obtained for varying concurrency of 1, 2 and 4 threads

Number of Threads	GFLOPS	GIOPS
1	13.308	10.105
2	6.66	5.1
4	3.315	2.535

The graph below plots out the above results for visual comparison:



Calculation of Efficiency:

Efficiency = (Practical Performance)/(Theoretical Performance) * 100

We find that Theoretical Performance = (CPU Speed in GHz) * (number of cores) * (instructions per cycle) = 2.5 * 2 * 8 = 40 GFLOPS

Hence, **Efficiency =** 7/40 = **17.5%**

Linpack Benchmark:

A value of 17 GFLOPS is obtained practically through the Linpack benchmark.

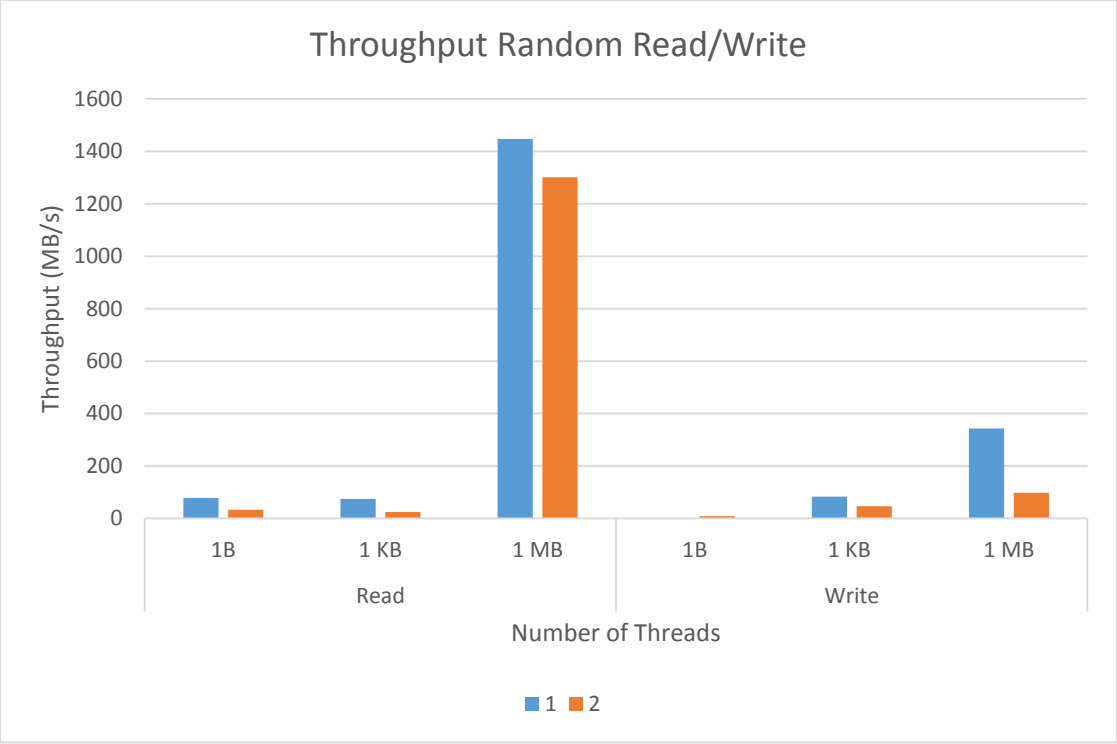
From this, we get Efficiency = (Practical Performance)/(Theoretical Performance) = 17/40 = 42.5%

DISK BENCHMARK

Random Read/Write

Throughput

	Throughput Random Read/Write					
Thread	**Read**			**Write**		
	1B	**1 KB**	**1 MB**	**1B**	**1 KB**	**1 MB**
1	78.9	74.34	1448	1.12	82.97	342.7
2	32.76	24.8	1301.23	8.54	47.2	98.38



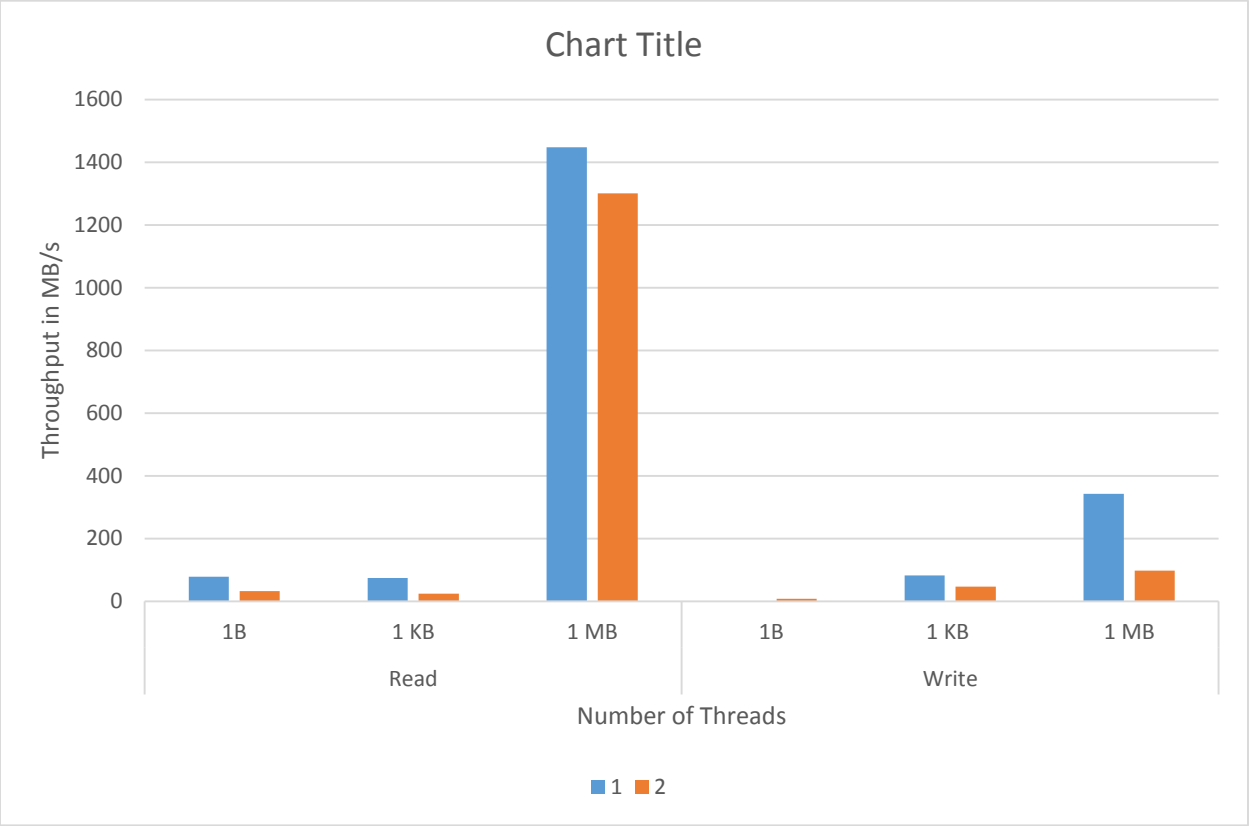
Latency

	Latency Random Read/Write (ms)					
Thread	**Read**			**Write**		
	1B	**1 KB**	**1 MB**	**1B**	**1 KB**	**1 MB**
1	1657	2.441	2.156	69753	139.54	523.97
2	3043.67	4.02	1.98	126876.1	163.23	7685.51

Sequential Read/Write

Throughput

	Throughput Sequential Read/Write					
Thread	**Read**			**Write**		
	1B	**1 KB**	**1 MB**	**1B**	**1 KB**	**1 MB**
1	108.76	90.5	1065	1.32	87.3	267.43
2	53.62	53	921.54	2.39	46.89	98.6



Latency

	Latency Sequential Read/Write (ms)					
Thread	**Read**			**Write**		
	1B	**1 KB**	**1 MB**	**1B**	**1 KB**	**1 MB**
1	1203	2.43	2.96	76434	124.54	489
2	2212.32	4.21	2.14	134754	217.37	1023