

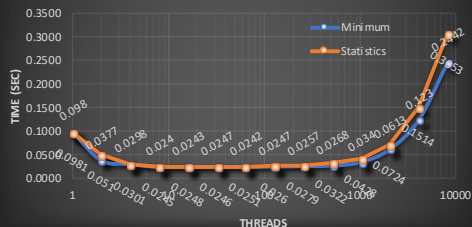
List Minimum	Threads	Min	Time	Speedup	Efficiency
1	2	24	0.0980	1.00	100.00%
2	2	24	0.0377	2.60	129.97%
3	4	24	0.0298	3.29	82.21%
4	8	24	0.0240	4.08	51.04%
5	16	24	0.0243	4.03	25.21%
6	32	24	0.0247	3.97	12.40%
7	64	24	0.0242	4.05	6.33%
8	128	24	0.0247	3.97	3.10%
9	256	24	0.0257	3.81	1.49%
10	512	24	0.0268	3.66	0.71%
11	1024	24	0.0340	2.88	0.28%
12	2048	24	0.0613	1.60	0.08%
13	4096	24	0.1230	0.80	0.02%
14	8192	24	0.2442	0.40	0.00%
Barrier	2	2	0.0002		
	4	4	0.0003		
	8	8	0.0004		
	16	16	0.0006		
	32	32	0.0009		
	64	64	0.0018		
	128	128	0.0036		
	256	256	0.0070		
	512	512	0.0144		
	1024	1024	0.0295		
	2048	2048	0.0603		
	4096	4096	0.1238		
	8192	8192	0.2523		
	16384	16384	0.5022		

List Statistics	Threads	Mean	Standard Deviaton	Time	Speedup	Efficiency
	1	24.00	0.00	0.0981	1.00	100.00%
	2	31.50	7.50	0.051	1.92	96.18%
	4	46.25	25.25	0.0301	3.26	81.48%
	8	72.13	36.20	0.0245	4.00	50.05%
	16	133.38	94.56	0.0248	3.96	24.72%
	32	250.56	233.01	0.0246	3.99	12.46%
	64	492.69	508.78	0.0251	3.91	6.11%
	128	1283.78	1487.63	0.026	3.77	2.95%
	256	2634.32	2765.05	0.0279	3.52	1.37%
	512	5432.88	5835.93	0.0322	3.05	0.60%
	1024	10951.99	10937.18	0.0428	2.29	0.22%
	2048	21348.19	21569.54	0.0724	1.35	0.07%
	4096	43838.39	44523.82	0.1514	0.60	0.02%
	8192	87238.53	87845.55	0.3053	0.32	0.00%

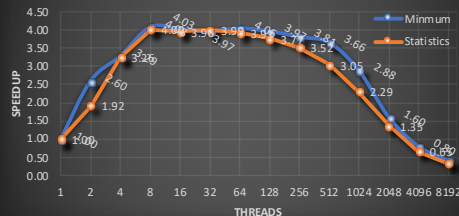
The reason why execution time increases with the number of threads for the find\_minimum function is because the stored minimums for each threaded list must be updated before exiting the find\_minimum function. As a result of updating the global minimum, the process becomes serial as it parses through each local minimum.

For the growth of execution time of Barrier with relation to the number of threads is the result of the sleep time for the work function and the pthread wait command. As the number of threads increase, the number of threads in sleep waiting to be woke increases. Only until the last thread has initiated can the function broadcast and resume.

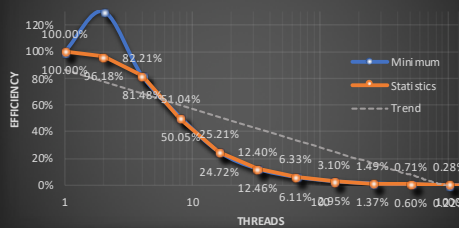
## Execution Time vs Thread Count



## Speedup vs Thread Count



## Efficiency vs Thread Count



## Execution Time vs Thread Count

