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results.pdf

TEST: Number of Processes / Threads vs. Time

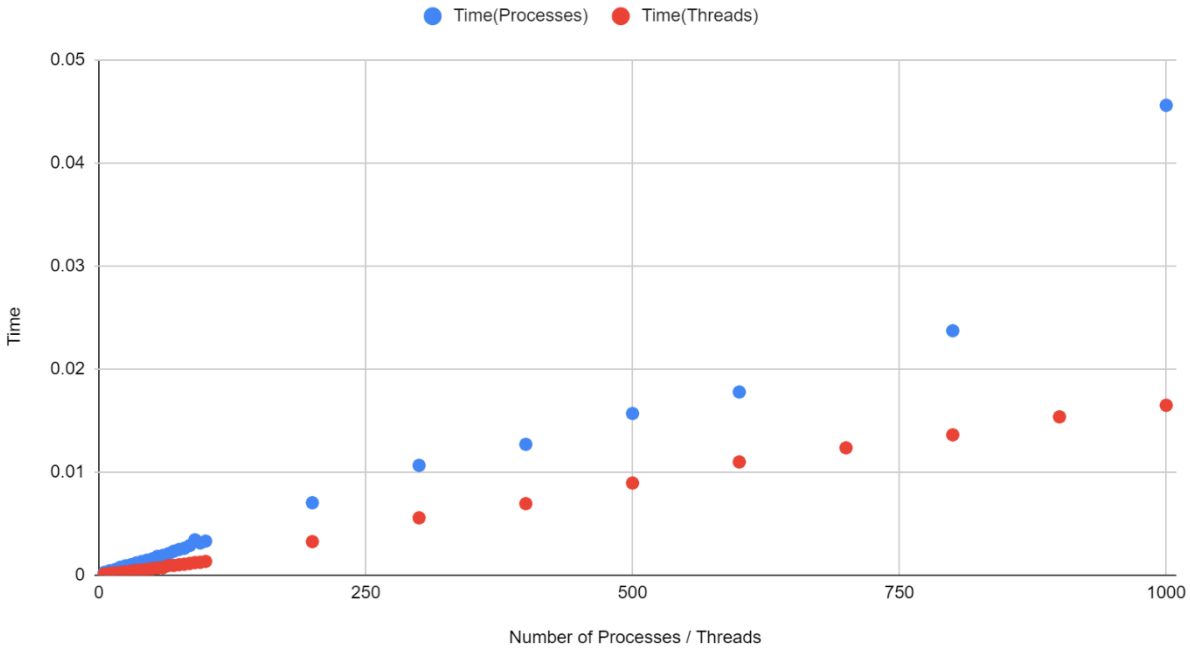
Time is in microseconds
Size of array is 20000

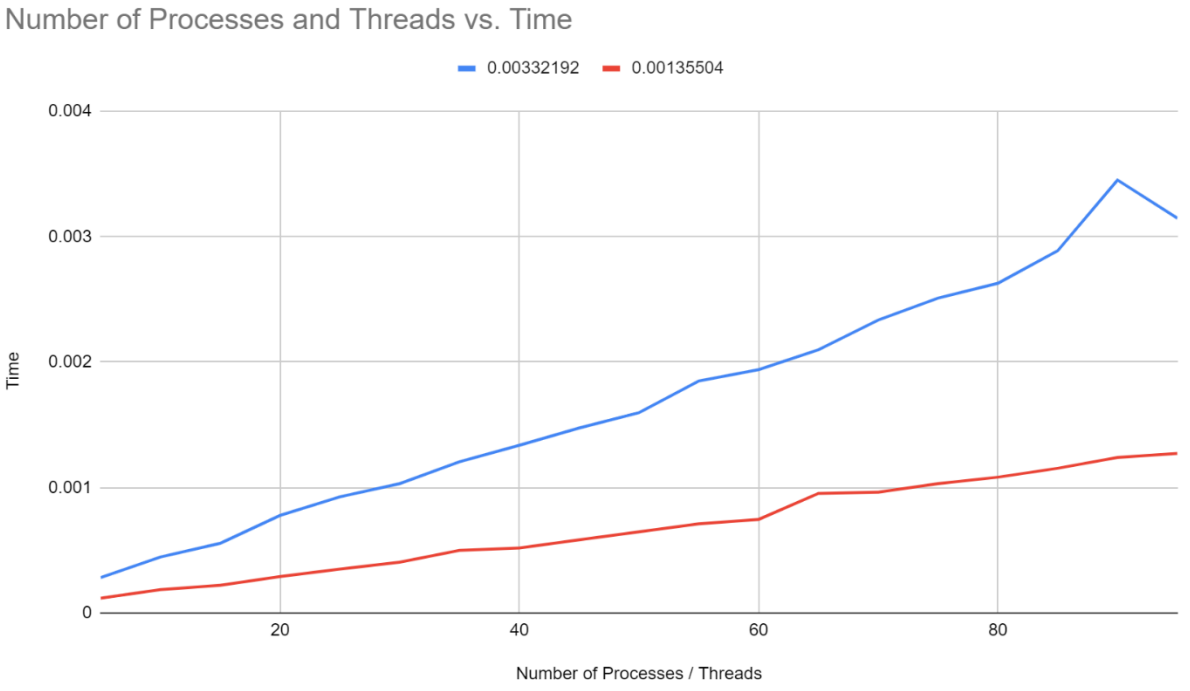
Results found from this test:

- As the number of processes and threads increase, the average time taken to find the index increases as well
- Threads are faster than processes for every test
- There is no tradeoff point for parallelism that we could find, as for each test the time decreases the less threads / processes there are

Time(Processes)	Time(Threads)	Number of Processes/ Threads	Size each search
0.0455935	0.01649864	1000	20
	0.01537736	900	22
0.023731	0.01363064	800	25
	0.01237236	700	28
0.0177885	0.01100284	600	33
0.0157	0.0089562	500	40
0.0127095	0.00695788	400	50
0.01067	0.00558288	300	66
0.007045	0.00327268	200	100
0.00332192	0.00135504	100	200
0.00314664	0.00127208	95	210
0.00345024	0.0012404	90	222
0.00288744	0.00115476	85	235
0.00262836	0.00108368	80	250

0.00251028	0.00103288	75	266
0.00233588	0.00096444	70	285
0.00209852	0.00095408	65	307
0.00193996	0.00074724	60	333
0.00185032	0.00071195	55	363
0.001598	0.00064907	50	400
0.00147568	0.00058536	45	444
0.00133808	0.00052012	40	500
0.00120668	0.00050133	35	571
0.00103204	0.00040671	30	666
0.00092724	0.00035097	25	800
0.0007798	0.00029164	20	1000
0.00055708	0.00022211	15	1333
0.00044832	0.00018769	10	2000
0.00028384	0.00011942	5	4000


Number of Processes and Threads vs. Time
Time(Processes)
Time(Threads)
0.05
0.04
0.03
0.02
0.01
0
Time
0
250
500
750
1000
Number of Processes / Threads


Number of Processes and Threads vs. Time
0.00332192
0.00135504
0.004
0.003
0.002
0.001
0
Time
20
40
60
80
Number of Processes / Threads

TEST: Size of List vs. Time

Time is in microseconds
Amount of Processes / Threads is 25

Results found from this test:

- There is a point at which the size of the array does not matter for time to find the key, this is around a size of 1000, where each process/thread is searching through 40 indices
- There is no tradeoff point of processes vs. threads, as threads are always faster than processes, this is consistent with our data

Size of array	Time(Processes)	Time(Threads)
100	0.00083048	0.00053204
250	0.00086996	0.00050656
500	0.00090712	0.0004596
750	0.00092624	0.00044064
1000	0.00101288	0.00045596
1250	0.00090556	0.00051068
1500	0.00105696	0.0005014
2000	0.0009362	0.000443
5000	0.00101928	0.00046956