

TCP Search Server Benchmark Report

Generated: 2025-04-15 00:20:16

Performance Summary

ALL PERFORMANCE REQUIREMENTS MET

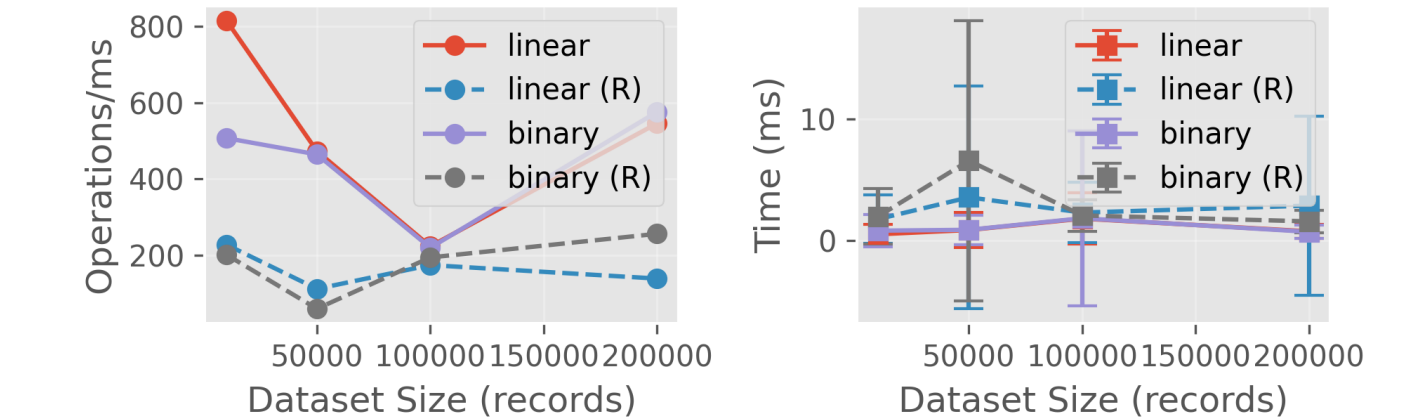
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Detailed Validation Results

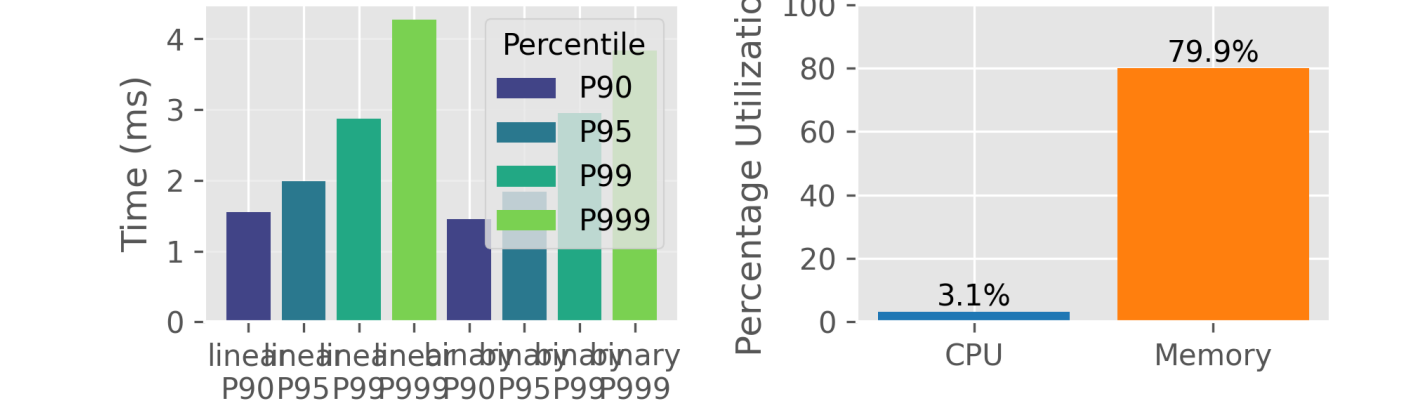
Test Case	Status	Details
LINEAR (reread_off)	PASS	Average: 0.73ms <= 100ms, 99th Percentile: 2.88ms <= 150ms, 99.9th Percentile: 4.27ms <= 200ms
LINEAR (reread_on)	PASS	Average: 2.86ms <= 500ms, 99th Percentile: 45.38ms <= 750ms, 99.9th Percentile: 81.54ms <= 1000ms
BINARY (reread_off)	PASS	Average: 0.70ms <= 15ms, 99th Percentile: 2.95ms <= 50ms, 99.9th Percentile: 3.83ms <= 70ms
BINARY (reread_on)	PASS	Average: 1.56ms <= 50ms, 99th Percentile: 4.21ms <= 100ms, 99.9th Percentile: 6.01ms <= 150ms

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Performance Analysis

Throughput (Operations per Millisecond) vs. Average Latency with Std Dev



Percentile Performance (200k records) vs. System Resource Utilization



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Raw Benchmark Data

Algorithm	Reread	FileSize	AvgTime	P99	P999	Samples
linear	False	10000	0.49	4.53	6.88	400
linear	True	10000	1.75	9.97	11.78	400
binary	False	10000	0.79	7.27	11.21	400
binary	True	10000	1.98	11.71	13.77	400
linear	False	50000	0.85	7.63	13.44	400
linear	True	50000	3.55	67.05	112.21	400
binary	False	50000	0.86	5.96	17.22	400
binary	True	50000	6.58	72.24	88.53	400
linear	False	100000	1.79	11.78	14.89	400
linear	True	100000	2.29	12.26	15.52	400
binary	False	100000	1.82	48.23	82.41	400
binary	True	100000	2.05	6.88	8.31	400
linear	False	200000	0.73	2.88	4.27	400
linear	True	200000	2.86	45.38	81.54	400
binary	False	200000	0.70	2.95	3.83	400
binary	True	200000	1.56	4.21	6.01	400