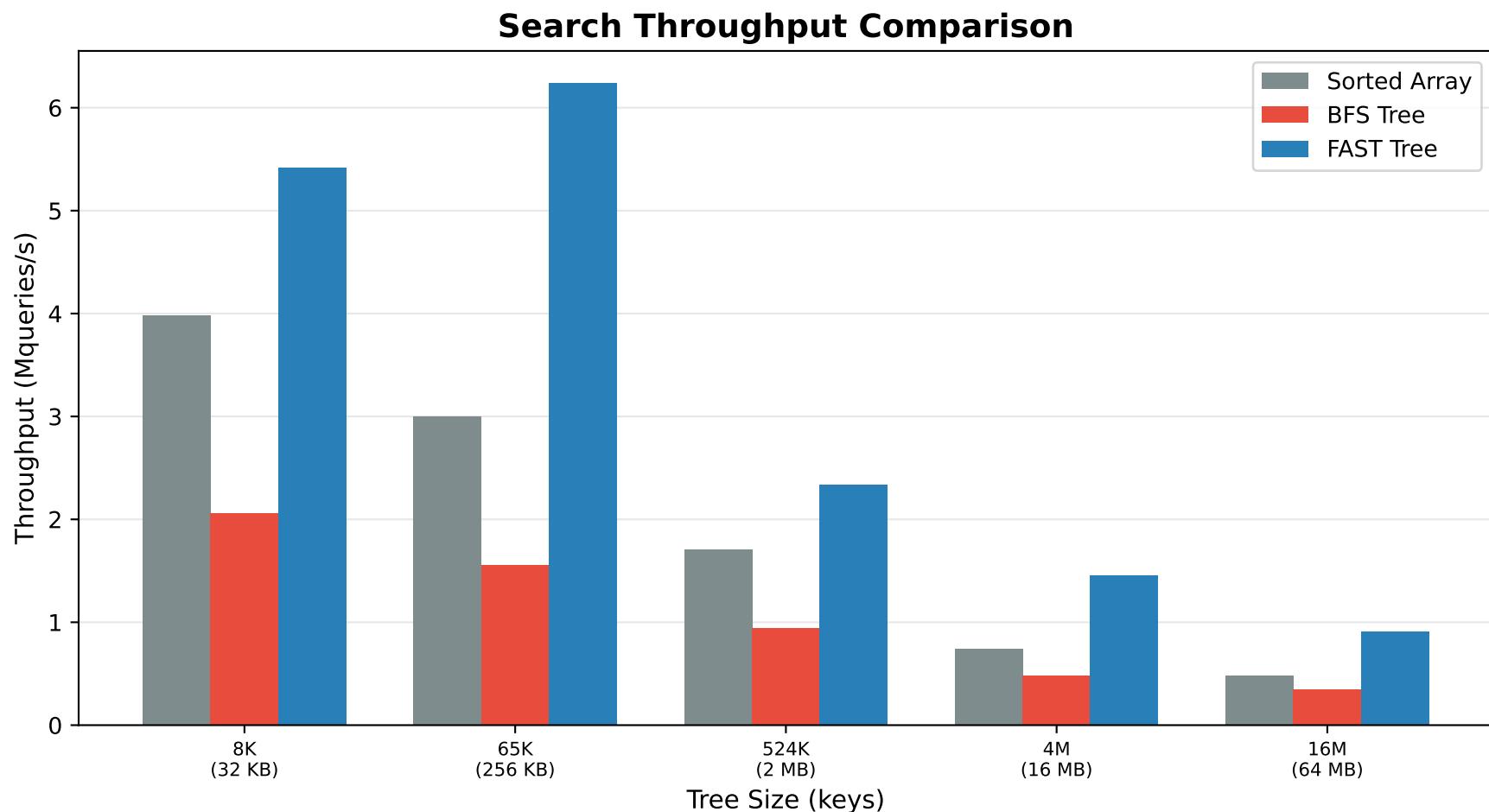


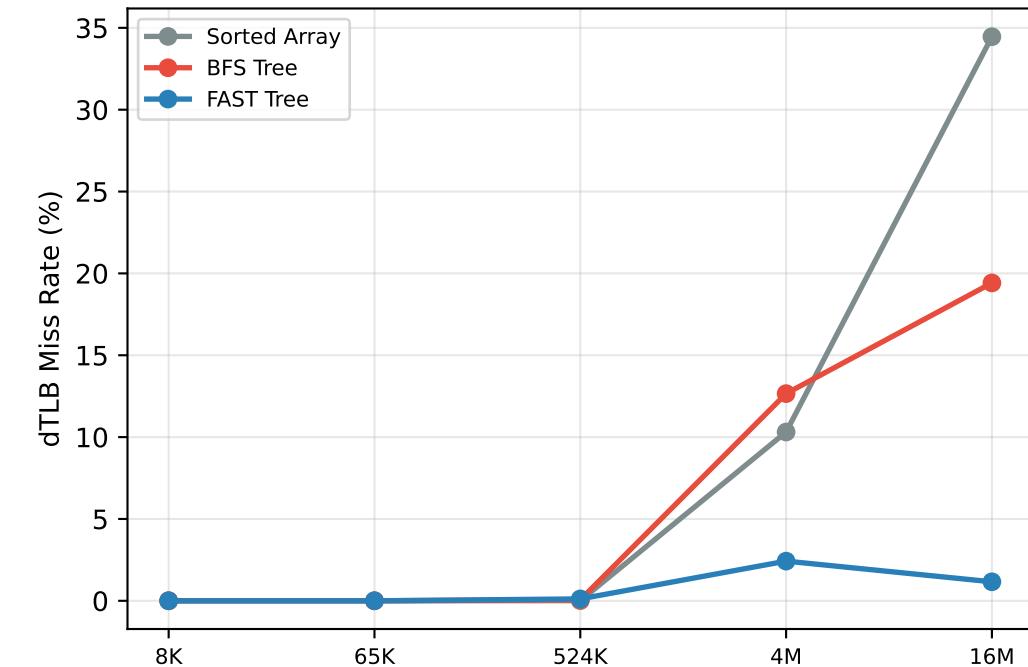
# FAST Tree Performance Report

Date: 2026-02-20T01:06:35  
CPU: 13th Gen Intel(R) Core(TM) i7-1370P  
Kernel: 6.17.10-300.fc43.x86\_64  
Caches: L1d=32 KB, L2=2 MB, L3=24 MB  
Page size: 4 KB  
Queries per test: 5,000,000  
Perf counters: yes

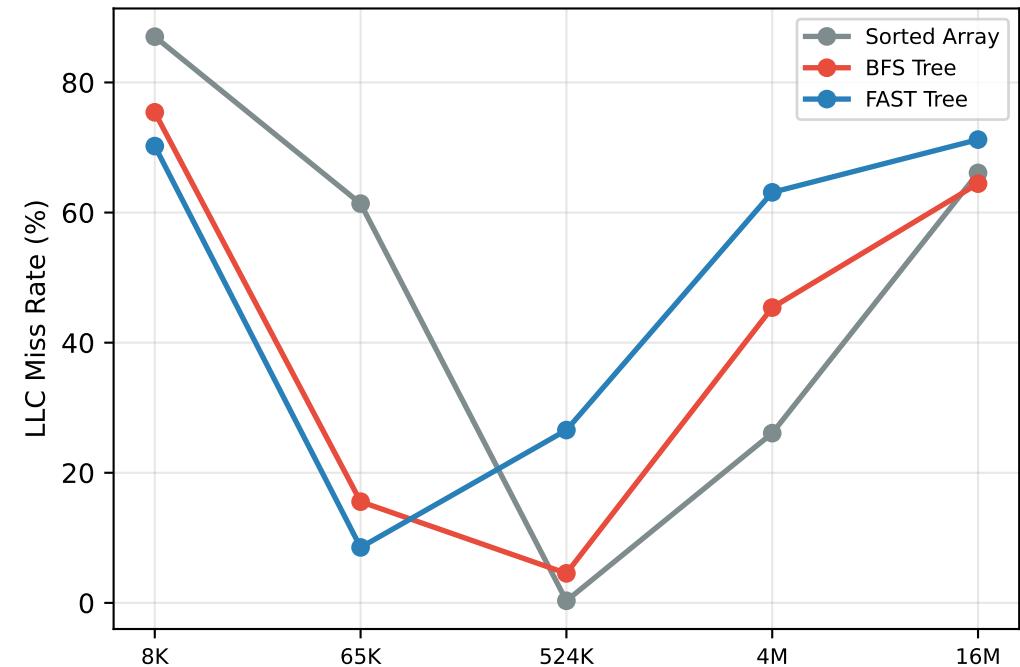


# Hardware Performance Counter Analysis

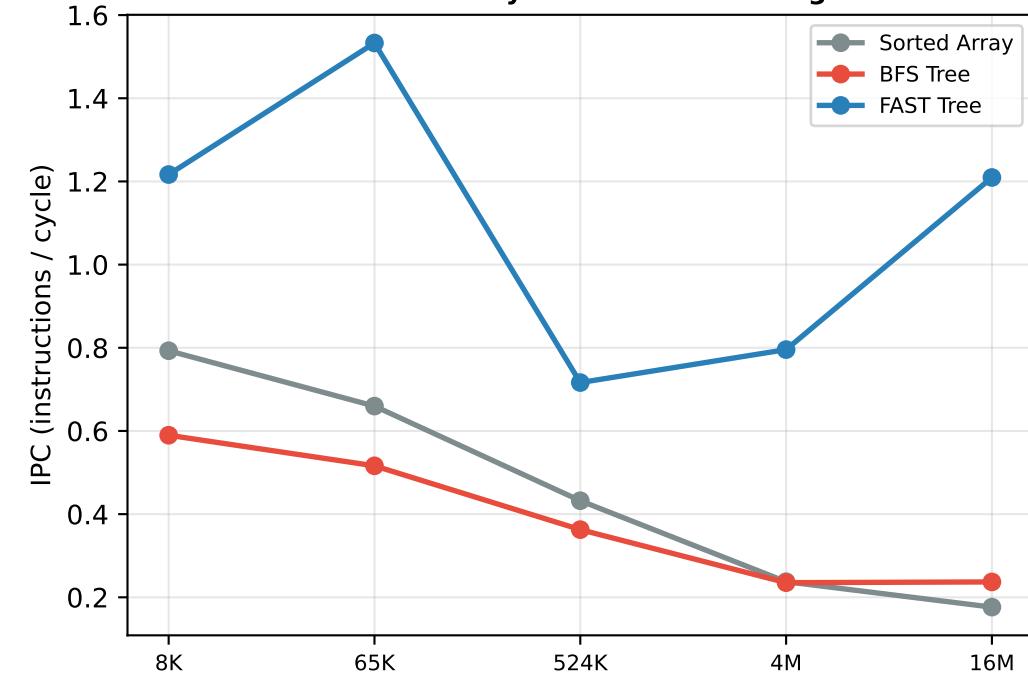
dTLB Load Misses — Page Blocking Effect



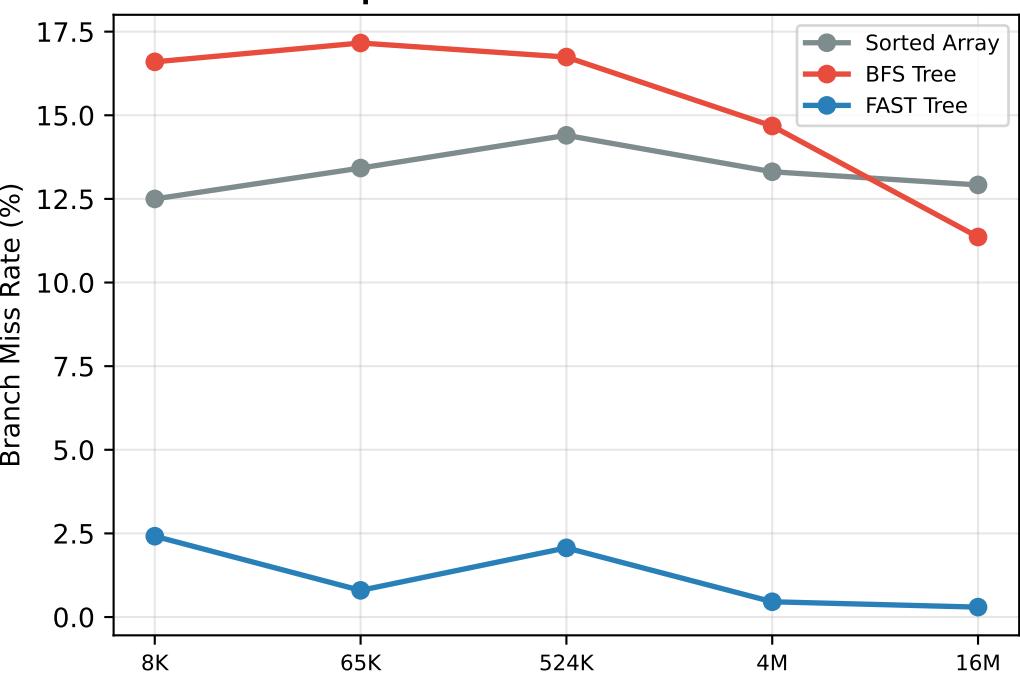
LLC Load Misses — Cache Line Blocking Effect



Instructions Per Cycle — SIMD Blocking Effect



Branch Mispredictions — SIMD Reduces Branches



## Detailed Results Table

Size	Method	Mq/s	ns/q	L1d miss%	LLC miss%	dTLB miss%	IPC	Br miss%
8K	Sorted Array	3.98	251.1	0.8	87.0	0.0	0.79	12.5
8K	BFS Tree	2.06	485.0	5.8	75.4	0.0	0.59	16.6
8K	FAST Tree	5.42	184.3	4.2	70.2	0.0	1.22	2.4
65K	Sorted Array	3.00	333.8	47.5	61.4	0.0	0.66	13.4
65K	BFS Tree	1.56	642.3	47.1	15.6	0.0	0.52	17.2
65K	FAST Tree	6.24	160.4	11.2	8.5	0.0	1.53	0.8
524K	Sorted Array	1.71	583.7	106.7	0.3	0.0	0.43	14.4
524K	BFS Tree	0.94	1060.8	78.1	4.5	0.1	0.36	16.7
524K	FAST Tree	2.34	427.2	14.1	26.6	0.1	0.72	2.1
4M	Sorted Array	0.74	1344.4	122.8	26.1	10.3	0.24	13.3
4M	BFS Tree	0.48	2102.9	96.4	45.4	12.7	0.24	14.7
4M	FAST Tree	1.46	685.6	10.1	63.1	2.4	0.80	0.5
16M	Sorted Array	0.48	2067.2	154.9	66.1	34.5	0.18	12.9
16M	BFS Tree	0.35	2863.3	87.9	64.4	19.4	0.24	11.4
16M	FAST Tree	0.91	1095.6	4.5	71.2	1.2	1.21	0.3