

# Benchmark Statistics Report

## OVERALL PERFORMANCE STATISTICS

Total Data Points: 16,440 (8,220 PostgreSQL, 8,220 pgx-lower)

Execution Time:

PostgreSQL - Mean: 540.36 ms, Median: 38.55 ms  
pgx-lower - Mean: 856.64 ms, Median: 138.27 ms  
Mean speedup: 0.63x

Memory Usage:

PostgreSQL - Mean: 33.05 MB, Median: 32.12 MB  
pgx-lower - Mean: 33.39 MB, Median: 32.12 MB  
Mean difference: -0.34 MB (pgx-lower higher)

## VARIANCE & CONSISTENCY ANALYSIS

Coefficient of Variation (lower = more consistent):

PostgreSQL: 18.4186  
pgx-lower: 1.6184  
→ pgx-lower is 91.2% more consistent

## BEST & WORST PERFORMANCE CASES

Top 5 Best Speedups:

1. q13: 0.79x (PG: 84.08ms → pgx: 106.97ms)
2. q21: 0.72x (PG: 103.63ms → pgx: 143.74ms)
3. q01: 0.52x (PG: 223.53ms → pgx: 431.16ms)
4. q18: 0.46x (PG: 219.84ms → pgx: 480.80ms)
5. q16: 0.30x (PG: 54.73ms → pgx: 182.09ms)

Top 5 Worst Speedups:

1. q05: 0.14x (PG: 43.52ms → pgx: 319.74ms)
2. q04: 0.13x (PG: 30.25ms → pgx: 241.38ms)
3. q20: 0.12x (PG: 16.13ms → pgx: 132.51ms)
4. q07: 0.12x (PG: 63.62ms → pgx: 547.79ms)
5. q17: 0.01x (PG: 1.12ms → pgx: 103.63ms)

Per-Query Performance Comparison						
Query	PG Median (ms)	pgx Median (ms)	Speedup	PG Mem (MB)	pgx Mem (MB)	Mem Δ (MB)
q01	223.53	431.16	0.52x	32.12	32.66	-0.54
q02	23.36	123.57	0.19x	32.00	32.12	-0.12
q03	77.45	552.83	0.14x	32.12	32.66	-0.54
q04	30.25	241.38	0.13x	32.12	32.66	-0.54
q05	43.52	319.74	0.14x	32.12	32.66	-0.54
q06	44.04	244.94	0.18x	32.12	32.66	-0.54
q07	63.62	547.79	0.12x	33.16	33.66	-0.50
q08	91.96	344.12	0.27x	32.12	32.66	-0.54
q09	125.90	593.30	0.21x	32.12	32.66	-0.54
q10	100.93	428.63	0.24x	32.12	32.66	-0.54
q11	22.16	135.81	0.16x	32.12	32.66	-0.54
q12	68.56	277.12	0.25x	32.12	32.66	-0.54
q13	84.08	106.97	0.79x	32.12	32.66	-0.54
q14	45.14	246.34	0.18x	32.12	32.66	-0.54
q15	44.91	259.74	0.17x	32.12	32.66	-0.54
q16	54.73	182.09	0.30x	32.12	32.72	-0.60
q17	1.12	103.63	0.01x	31.88	32.12	-0.24
q18	219.84	480.80	0.46x	32.12	32.66	-0.54
q19	96.37	362.29	0.27x	32.12	32.66	-0.54
q20	16.13	132.51	0.12x	31.88	32.00	-0.12
q21	103.63	143.74	0.72x	32.00	32.12	-0.12
q22	31.64	108.70	0.29x	32.12	32.66	-0.54

# Per-Configuration Statistics

Configuration	PG Time (ms)	pgx Time (ms)	Speedup	Mem Δ (MB)
SF=0.01, indexes disabled - excluding postgres {q07,q20}, 100 iterations	14.17	93.33	0.15x	-0.12
SF=0.01, indexes disabled, 5 iterations	15.25	96.04	0.16x	-0.75
SF=0.01, indexes enabled, 100 iterations	12.86	96.75	0.13x	-0.12
SF=0.16, indexes enabled, 5 iterations	104.06	502.26	0.21x	-0.48
SF=0.16, indexes enabled, excluding {q17,q20}, 100 iterations	96.62	504.95	0.19x	-0.46
SF=1, indexes disabled, excluding {q02,q17,q20,q21}, 100 iterations	511.43	2878.57	0.18x	-0.28