R=32: Single-Factor Parameter Sweeps (wall_time_ms)
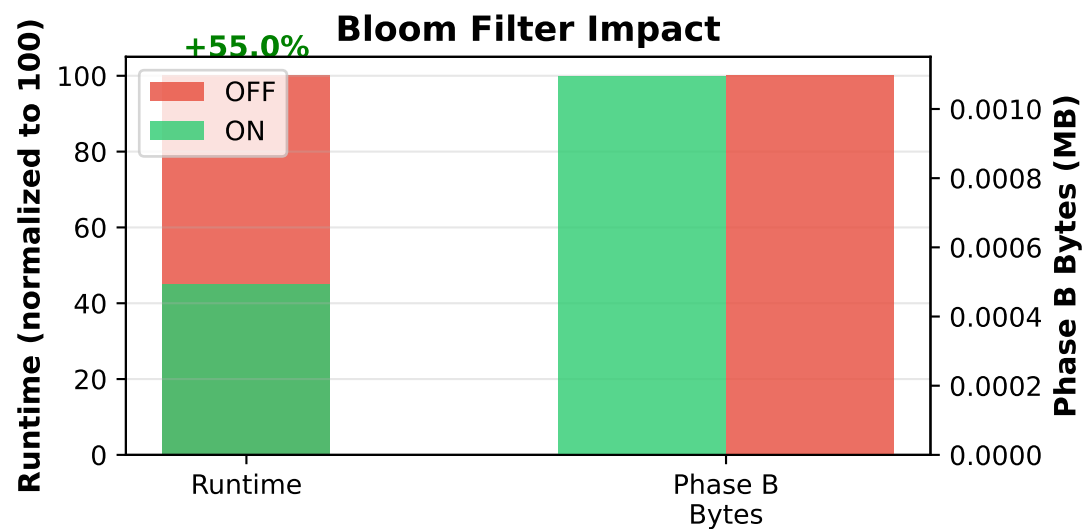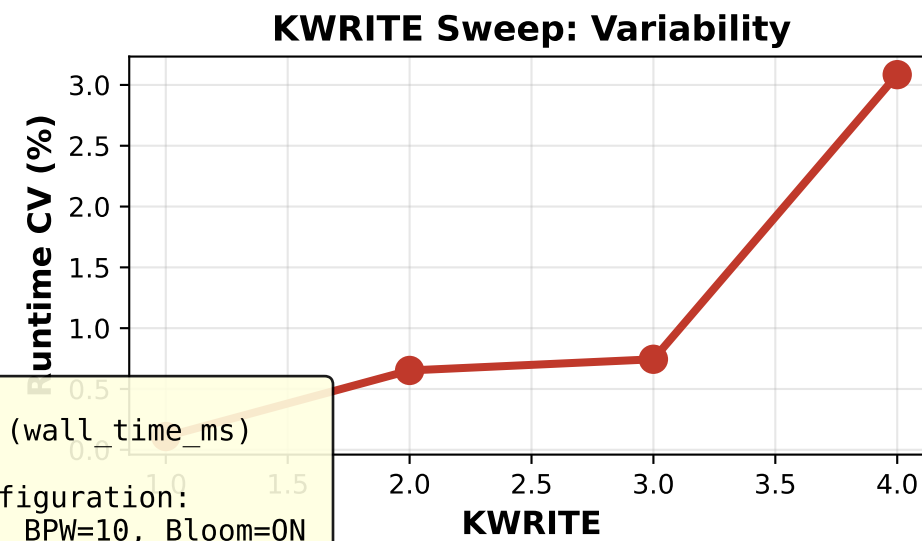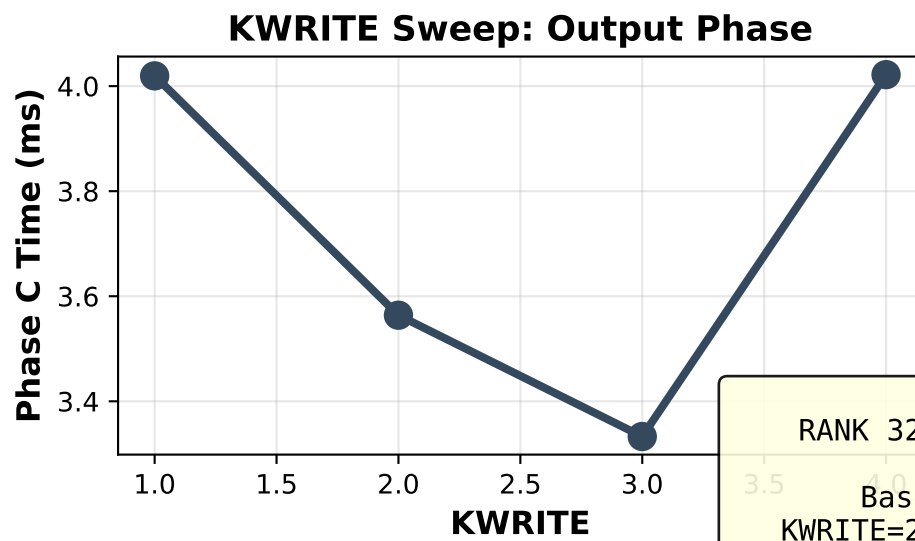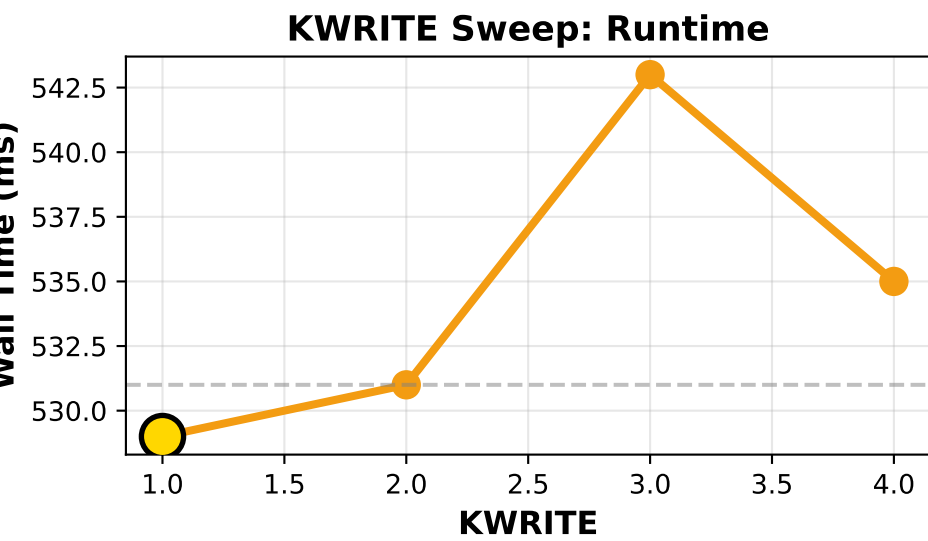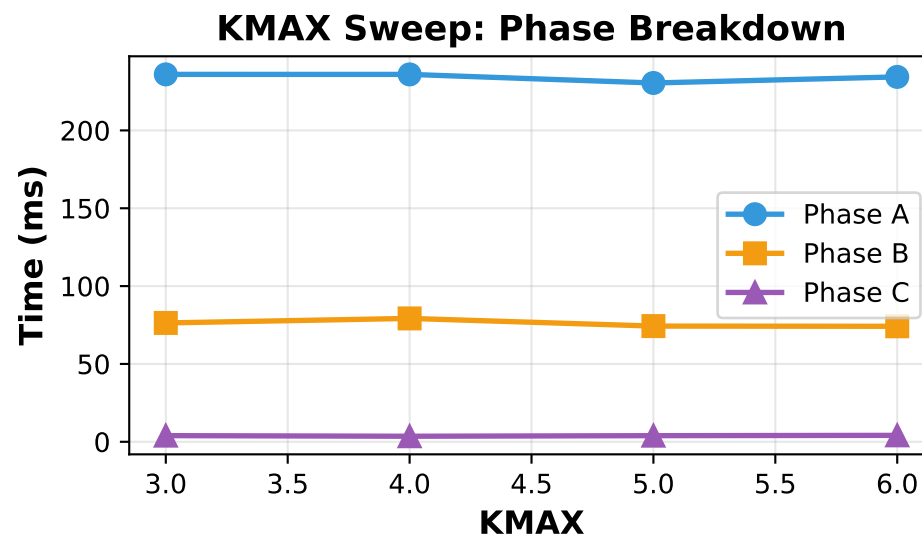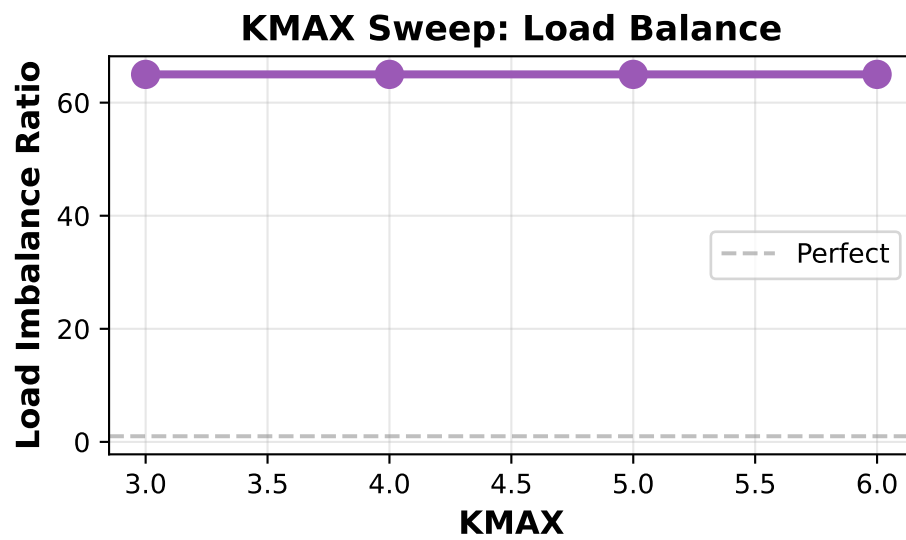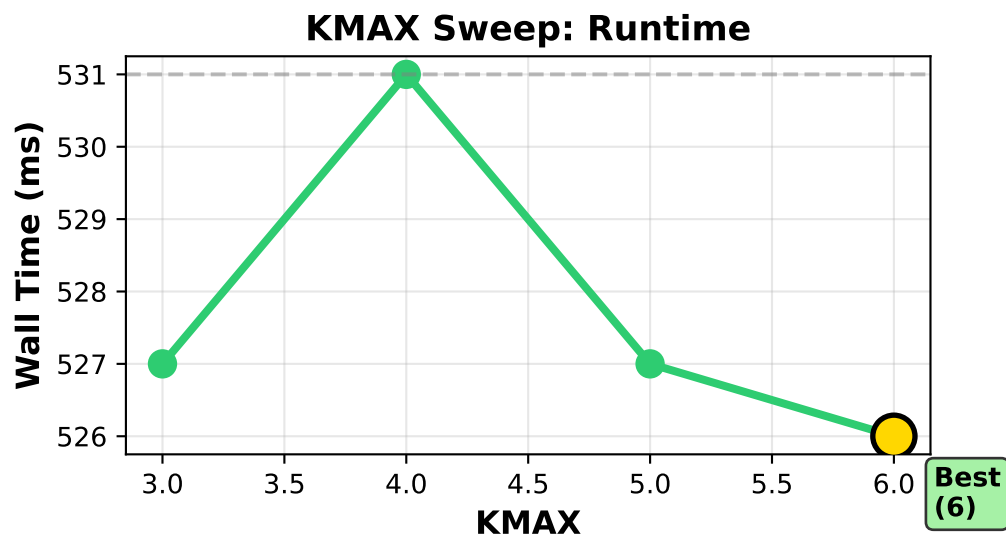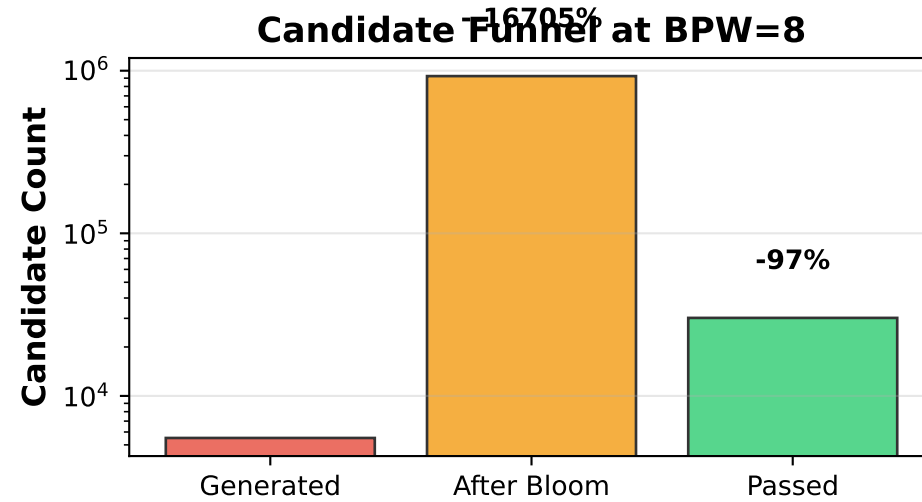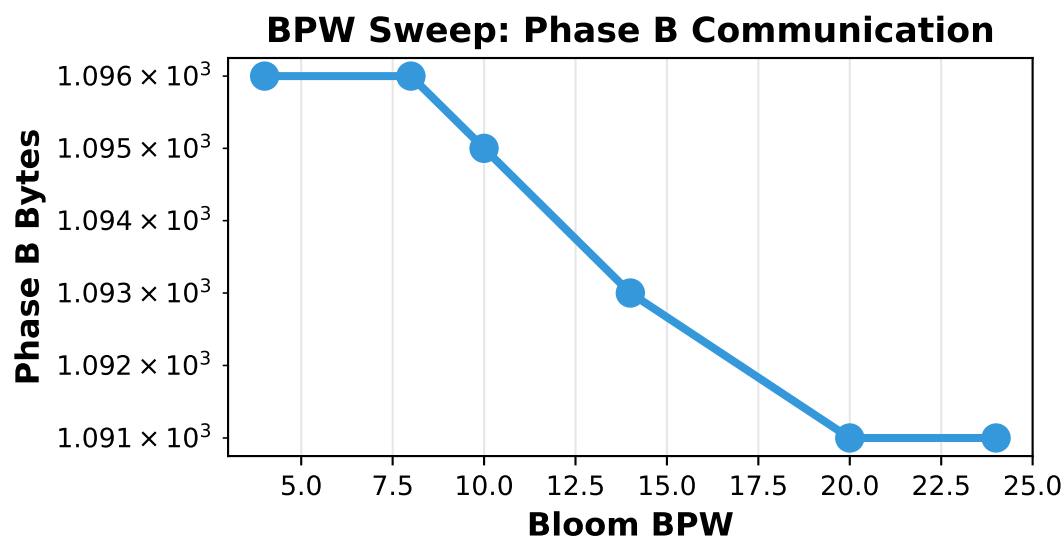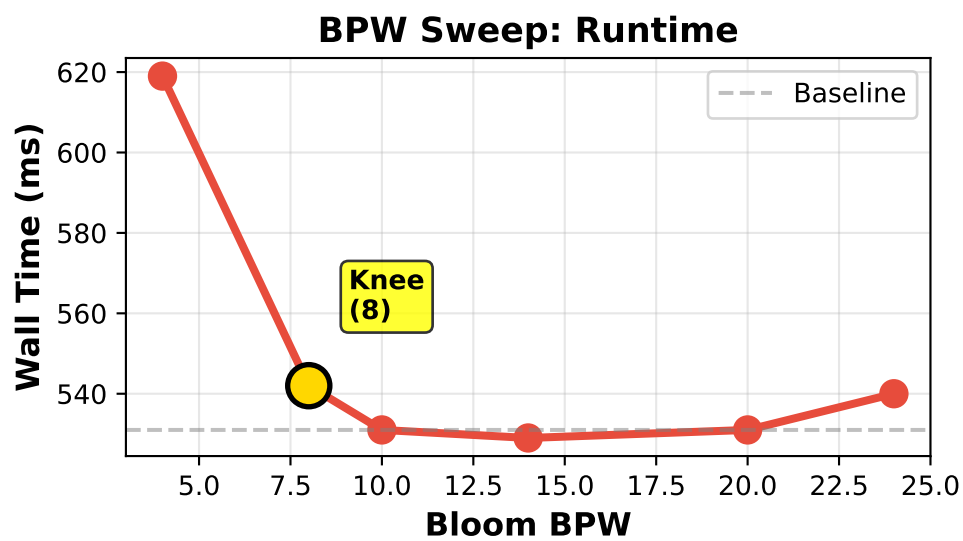
RANK 32 SUMMARY (wall_time_ms)

Baseline Configuration:
KWRITE=2, KMAX=4, BPW=10, Bloom=ON
Time: 531 ms
CV: 0.65%

Best Configurations:
BPW sweep: 14 → 529 ms (0.4% faster)
KMAX sweep: 6 → 526 ms
KWRITE sweep: 1 → 529 ms

Phase Breakdown (baseline):
Phase A: 236 ms (44.4%)
Phase B: 79 ms (14.9%)
Phase C: 4 ms (0.7%)

Communication:
Total Messages: 51233990
Total Bytes: 3.90e+05
Load Balance: 65.00

Memory:
Peak RSS: 0 MB

R=32: BPW × KMAX Interaction (KWRITE=2, Bloom ON)

Runtime (ms)

KMAX \ Bloom BPW	4	8	10	14	20	24
3	616	547	527	524	532	535
4	619	542	531	529	531	540
5	625	538	527	526	532	550
6	623	537	526	525	531	540

Phase B Bytes

KMAX \ Bloom BPW	4	8	10	14	20	24
3	1.10e+03	1.10e+03	1.10e+03	1.09e+03	1.09e+03	1.09e+03
4	1.10e+03	1.10e+03	1.10e+03	1.09e+03	1.09e+03	1.09e+03
5	1.10e+03	1.10e+03	1.10e+03	1.09e+03	1.09e+03	1.09e+03
6	1.10e+03	1.10e+03	1.10e+03	1.09e+03	1.09e+03	1.09e+03

Load Imbalance Ratio

KMAX \ Bloom BPW	4	8	10	14	20	24
3	65.00	65.00	65.00	65.00	65.00	65.00
4	65.00	65.00	65.00	65.00	65.00	65.00
5	65.00	65.00	65.00	65.00	65.00	65.00
6	65.00	65.00	65.00	65.00	65.00	65.00

Phase A Time (ms)

KMAX \ Bloom BPW	4	8	10	14	20	24
3	243	237	236	236	237	241
4	241	241	236	238	242	240
5	247	233	230	240	238	249
6	225	226	234	223	216	231

Phase B Time (ms)

KMAX \ Bloom BPW	4	8	10	14	20	24
3	127	90	76	70	73	70
4	128	83	79	77	76	72
5	134	80	74	71	70	74
6	129	82	74	72	75	78

Phase C Time (ms)

KMAX \ Bloom BPW	4	8	10	14	20	24
3	3	3	4	5	6	7
4	3	3	4	4	6	8
5	3	3	4	5	7	8
6	3	4	4	5	6	7