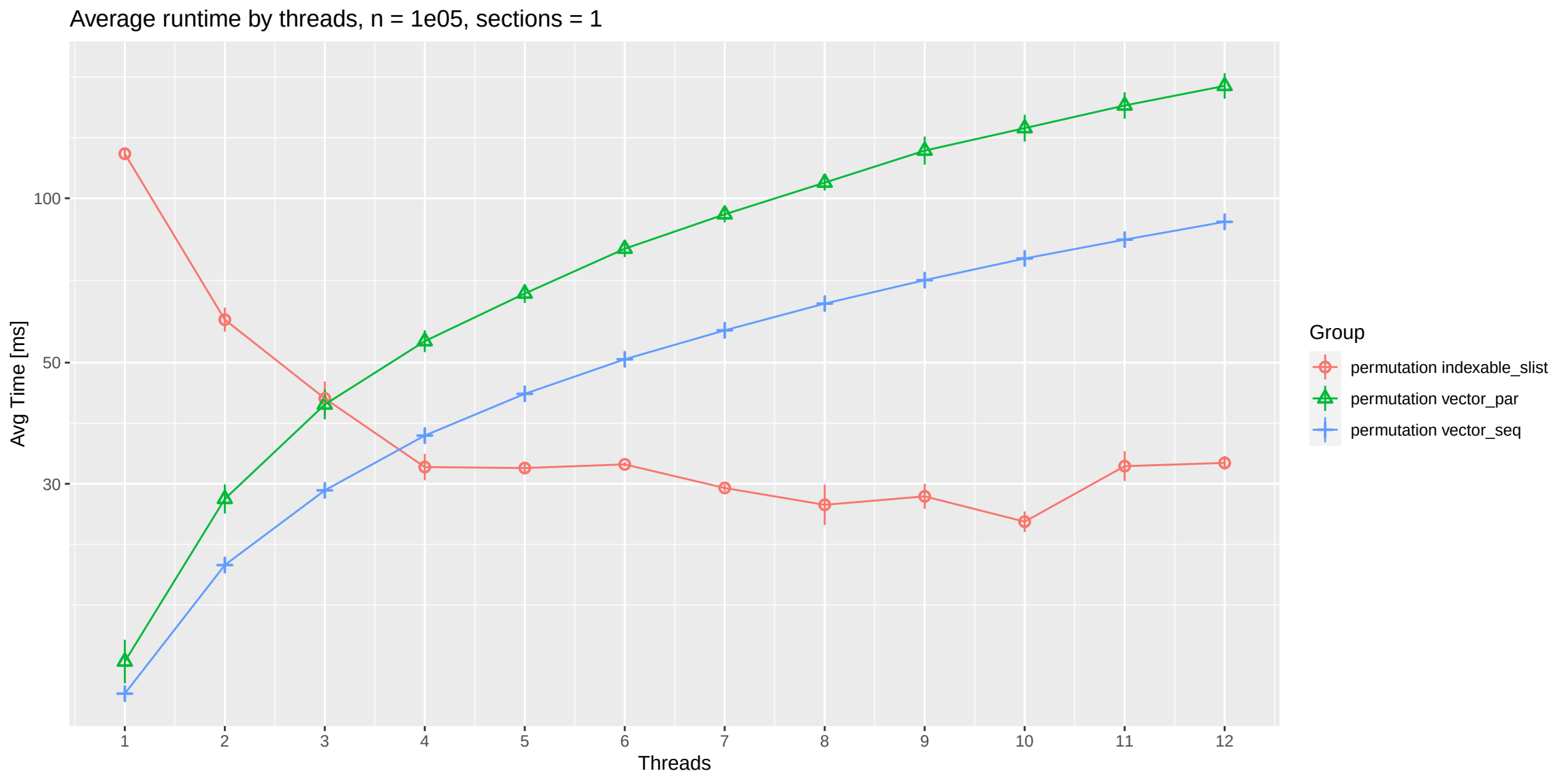
Experiment Info:

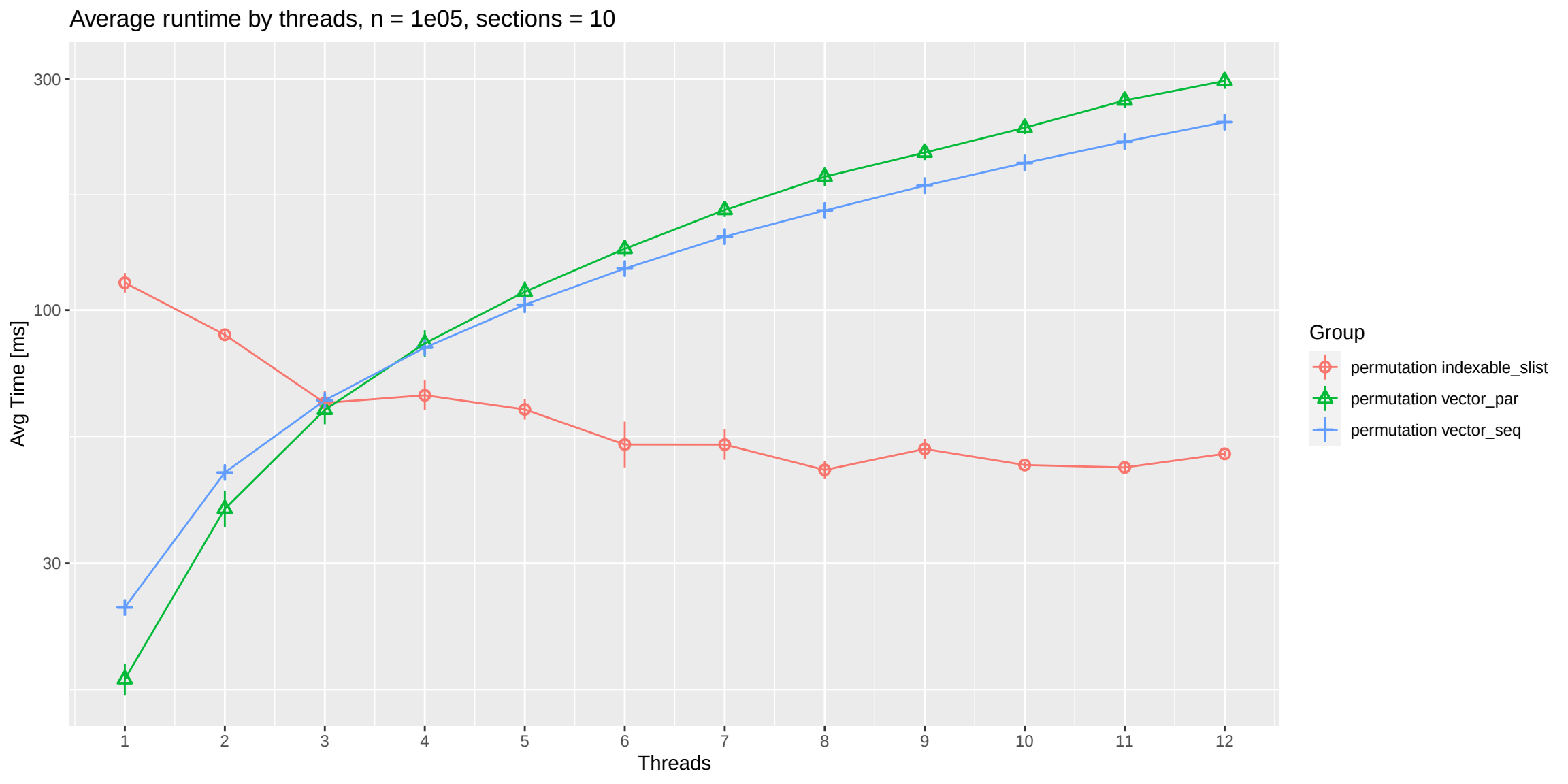
machine: 6 core laptop with 12 threads

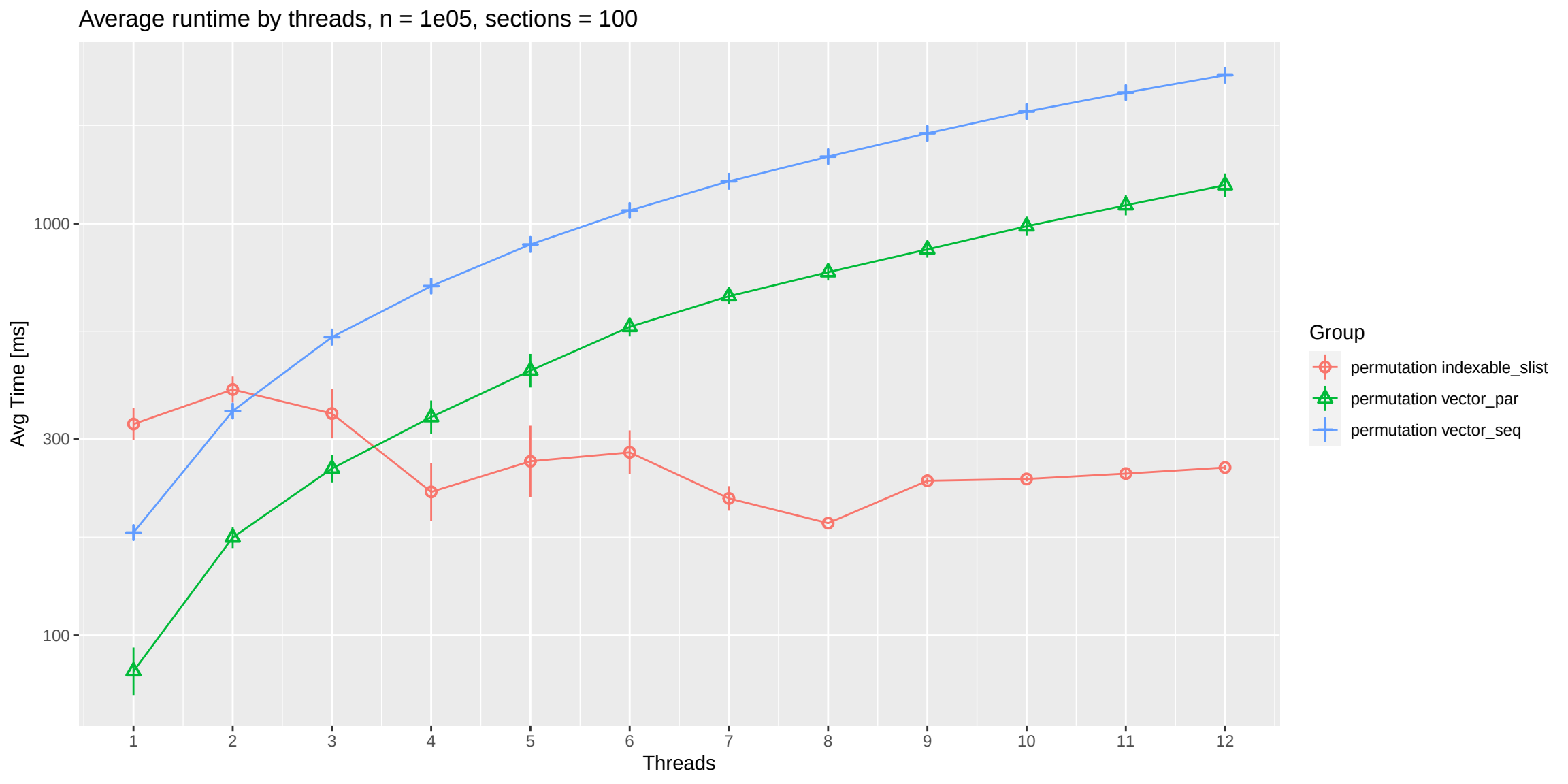
Shuffling:
- permuation: std::shuffle (n random swaps)
- weak−shuffle: n random swaps with adjacent elements in the array

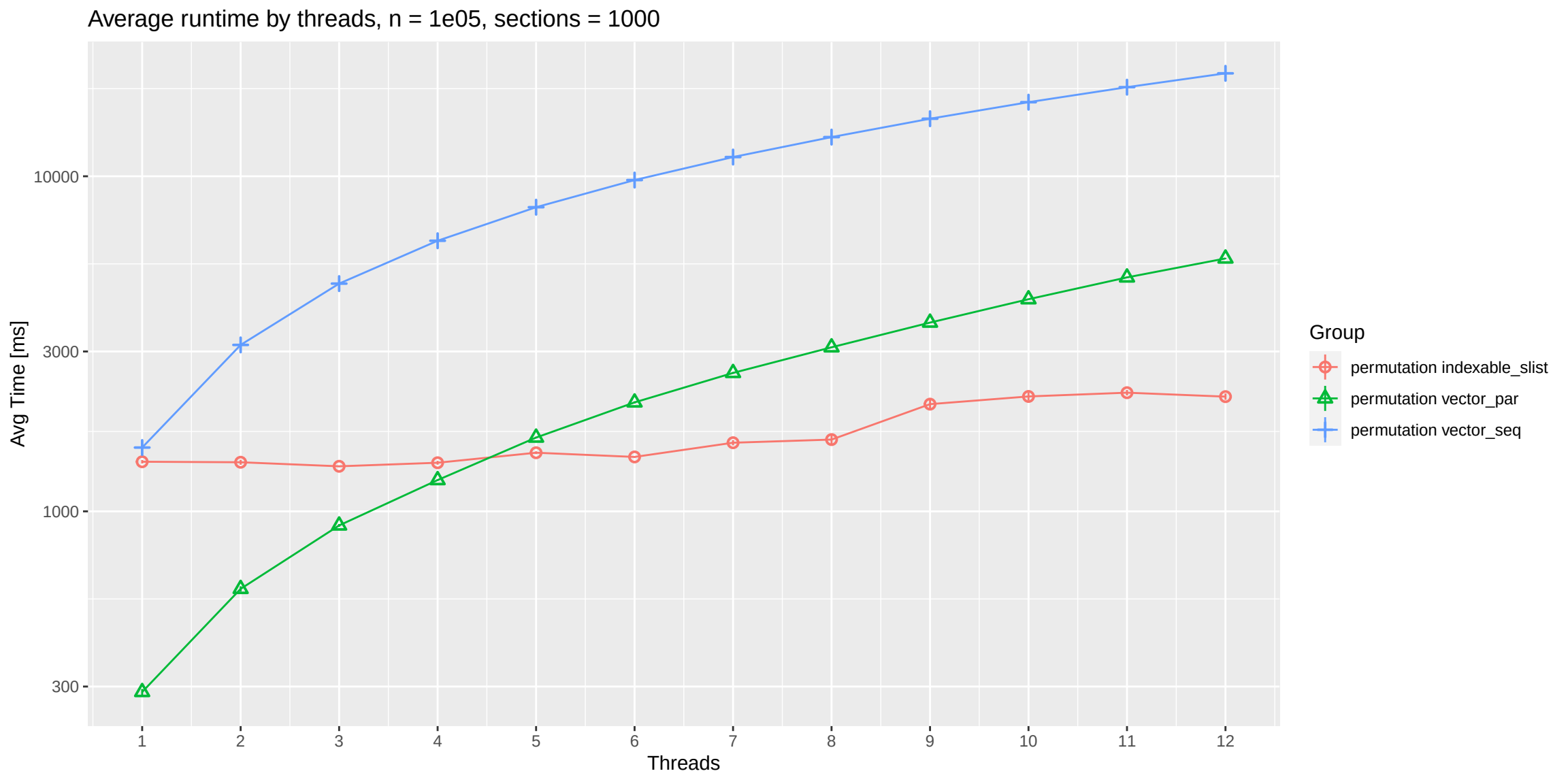
Benchmark: 5 iterations, k inserts, followed by k rank queries for each section (k = n / sections)
- Disjoint: the current section is shuffled and equally divided to each thread

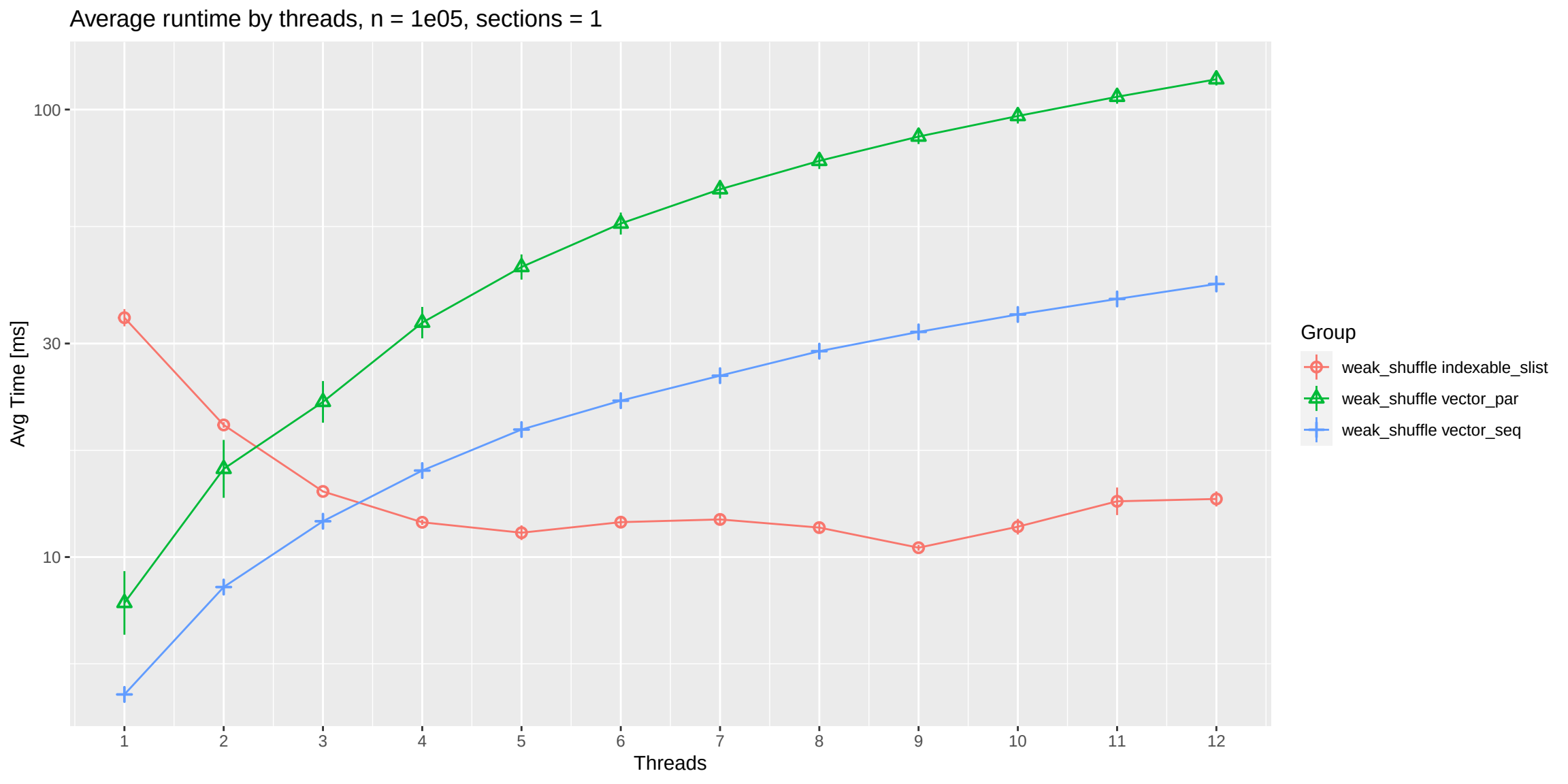
Variants:
- Indexable_slist: k inserts (parallel), compute indizes (sequential), k rank queries (parallel)
- vector_seq: push_back (sequential), std::sort (sequential), std::lowerbound to determine rank (parallel)
- vector_par: push_back (sequential), __gnu_parallel::sort (parallel), std::lowerbound to determine rank (parallel)

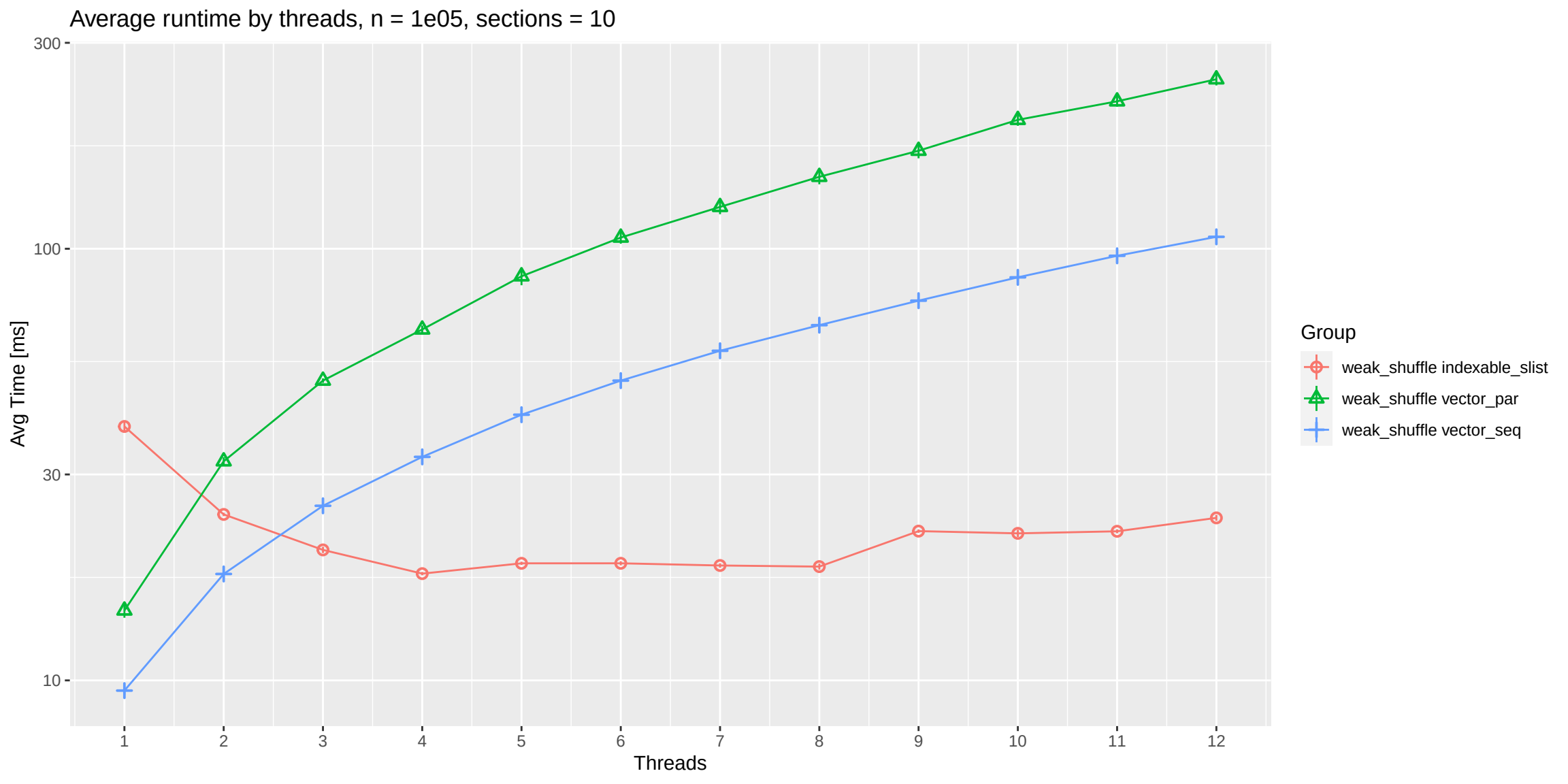

Average runtime by threads, n = 1e05, sections = 1
Avg Time [ms]
100
50
30
1
2
3
4
5
6
7
8
9
10
11
12
Threads
Group
permutation indexable_slist
permutation vector_par
permutation vector_seq

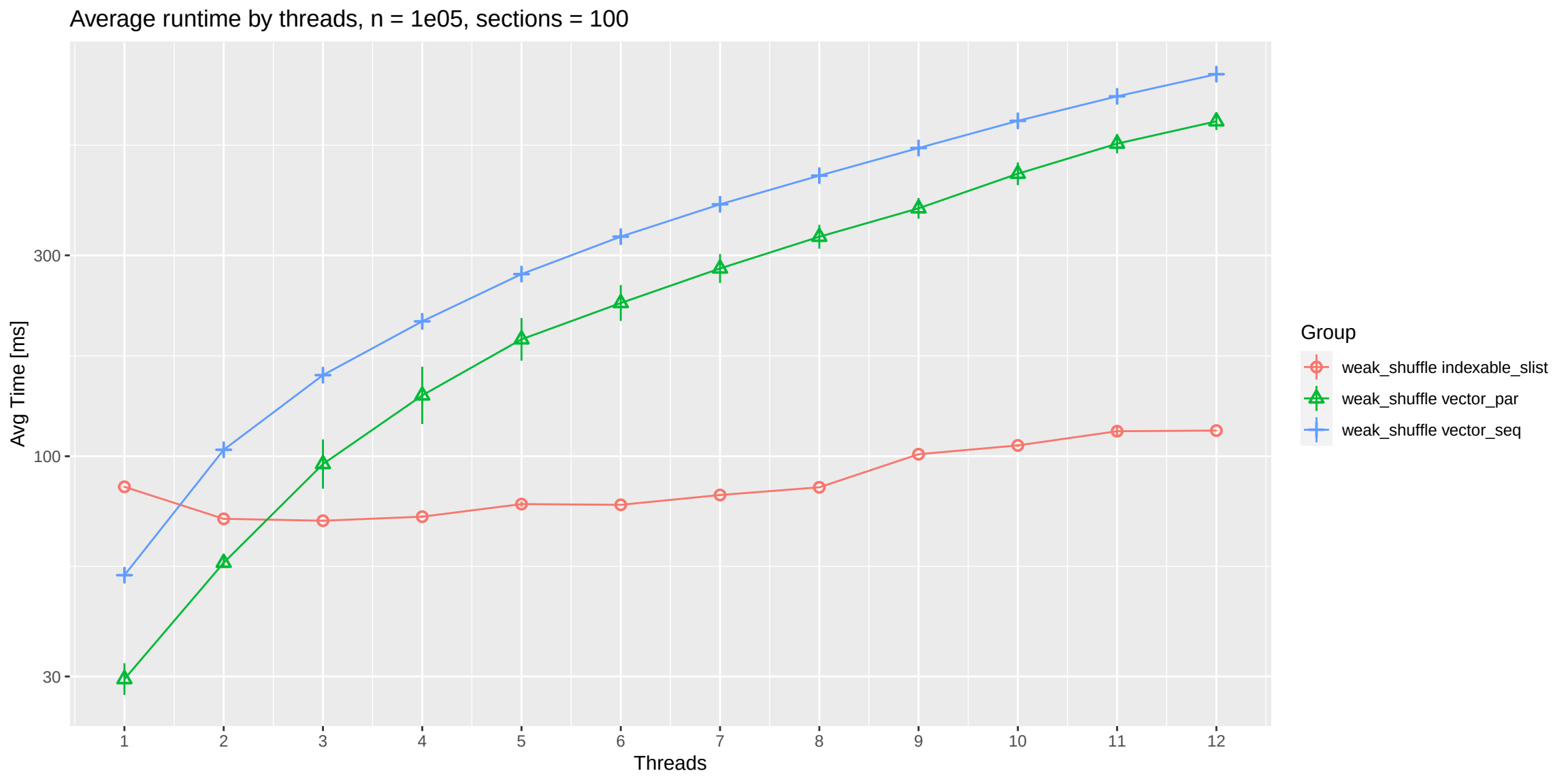

Average runtime by threads, n = 1e05, sections = 10
Avg Time [ms]
300
100
30
1
2
3
4
5
6
7
8
9
10
11
12
Threads
Group
permutation indexable_slist
permutation vector_par
permutation vector_seq

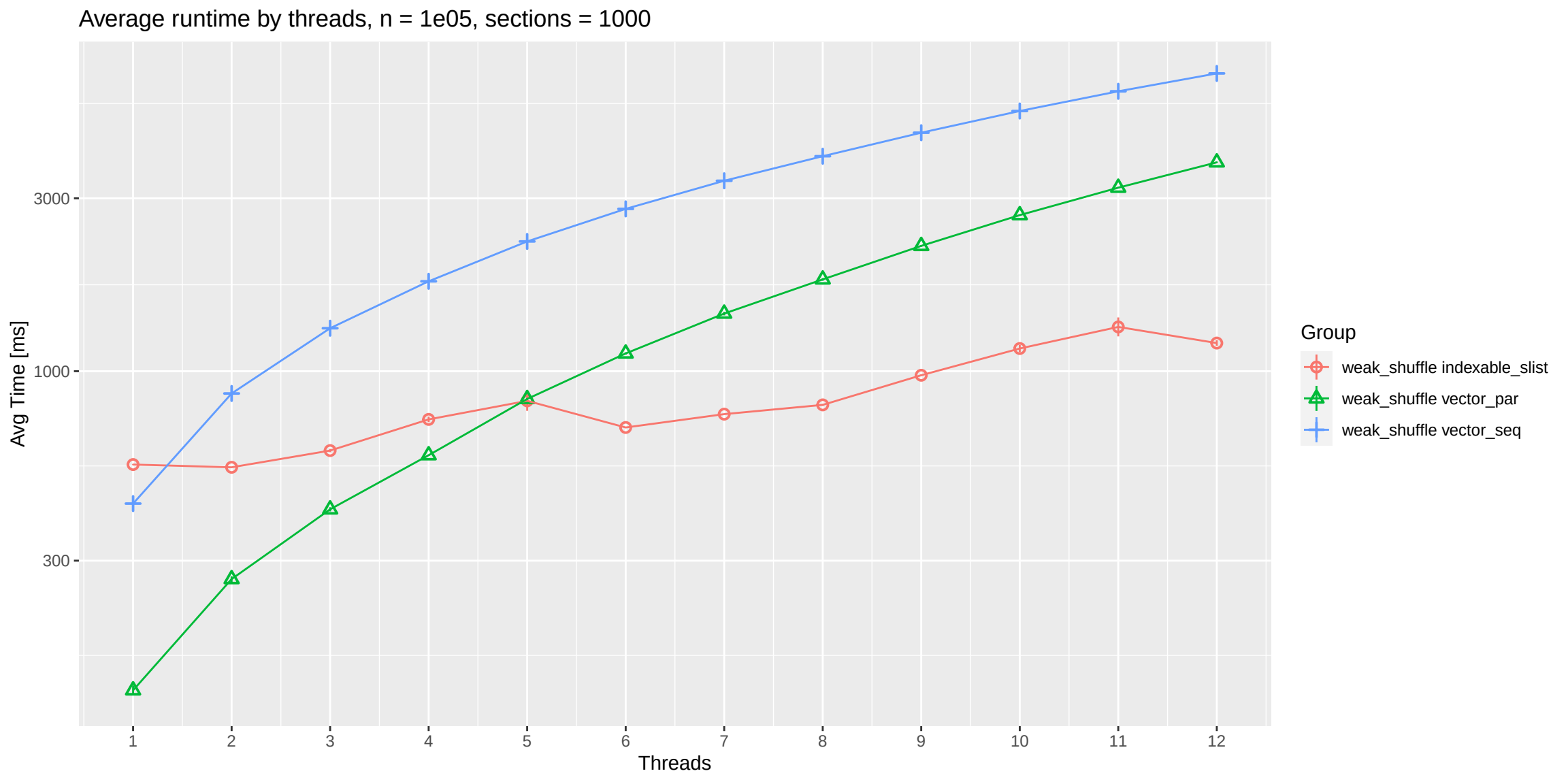

Average runtime by threads, n = 1e05, sections = 100
Avg Time [ms]
1000
300
100
1
2
3
4
5
6
7
8
9
10
11
12
Threads
Group
permutation indexable_slist
permutation vector_par
permutation vector_seq

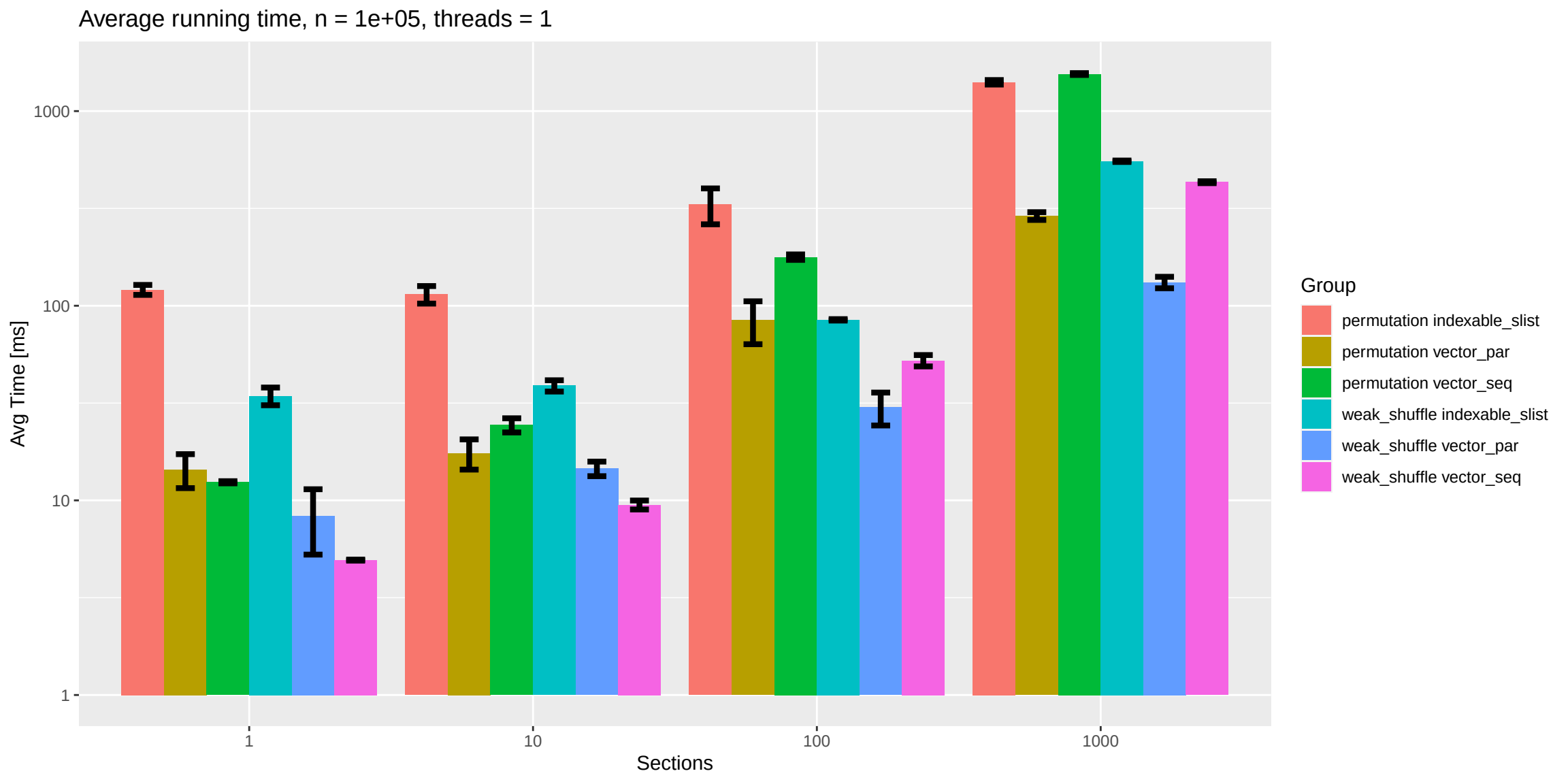

Average runtime by threads, n = 1e05, sections = 1000
Avg Time [ms]
10000
3000
1000
300
1
2
3
4
5
6
7
8
9
10
11
12
Threads
Group
permutation indexable_slist
permutation vector_par
permutation vector_seq

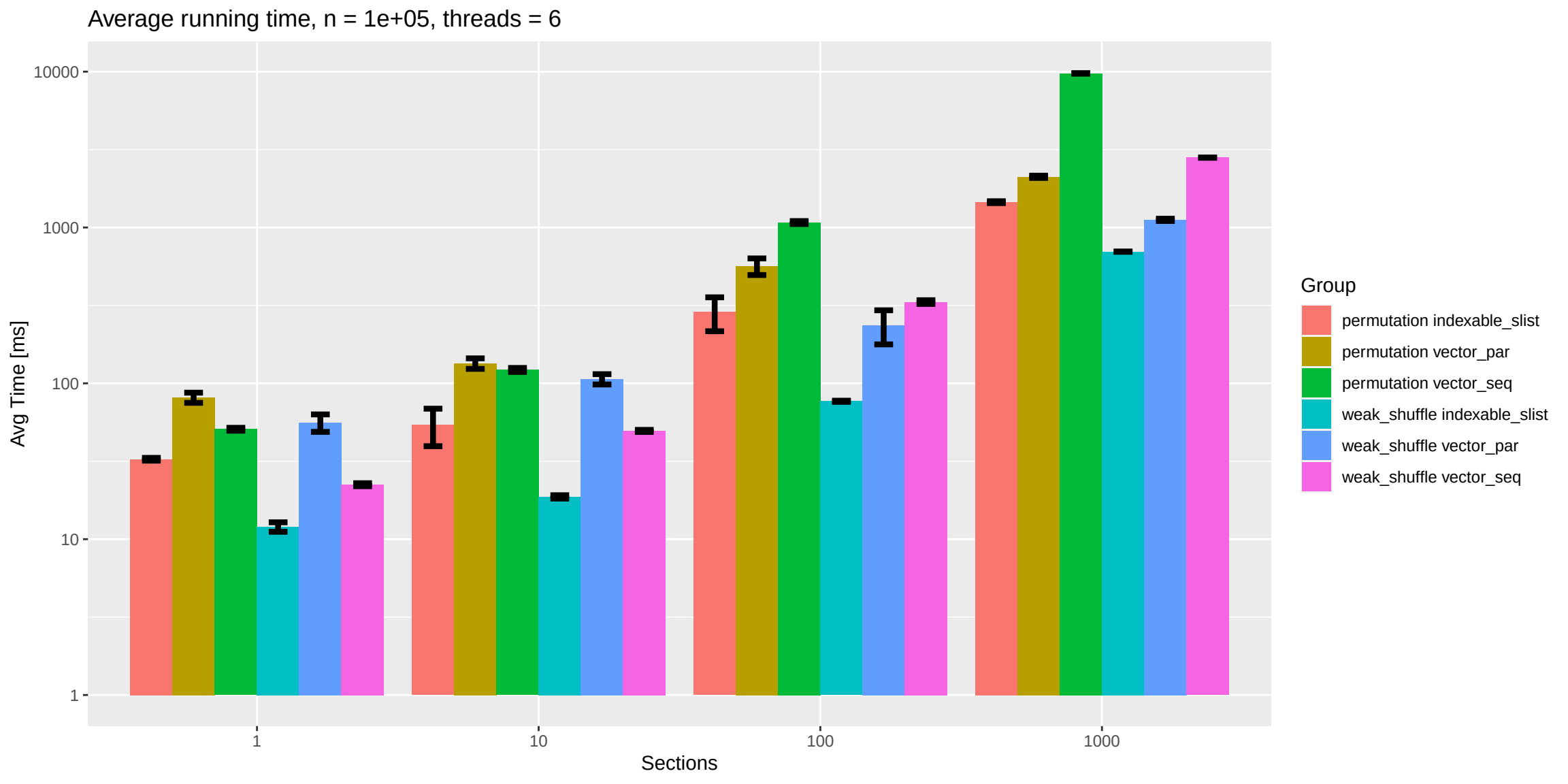

Average runtime by threads, n = 1e05, sections = 1
Avg Time [ms]
100
30
10
1
2
3
4
5
6
7
8
9
10
11
12
Threads
Group
weak_shuffle indexable_slist
weak_shuffle vector_par
weak_shuffle vector_seq


Average runtime by threads, n = 1e05, sections = 10
Avg Time [ms]
300
100
30
10
1
2
3
4
5
6
7
8
9
10
11
12
Threads
Group
weak_shuffle indexable_slist
weak_shuffle vector_par
weak_shuffle vector_seq


Average runtime by threads, n = 1e05, sections = 100
Avg Time [ms]
300
100
30
1
2
3
4
5
6
7
8
9
10
11
12
Threads
Group
weak_shuffle indexable_slist
weak_shuffle vector_par
weak_shuffle vector_seq


Average runtime by threads, n = 1e05, sections = 1000
Avg Time [ms]
3000
1000
300
1
2
3
4
5
6
7
8
9
10
11
12
Threads
Group
weak_shuffle indexable_slist
weak_shuffle vector_par
weak_shuffle vector_seq


Average running time, n = 1e+05, threads = 1
Avg Time [ms]
1000
100
10
1
1
10
100
1000
Sections
Group
permutation indexable_slist
permutation vector_par
permutation vector_seq
weak_shuffle indexable_slist
weak_shuffle vector_par
weak_shuffle vector_seq


Average running time, n = 1e+05, threads = 6
Avg Time [ms]
10000
1000
100
10
1
1
10
100
1000
Sections
Group
permutation indexable_slist
permutation vector_par
permutation vector_seq
weak_shuffle indexable_slist
weak_shuffle vector_par
weak_shuffle vector_seq