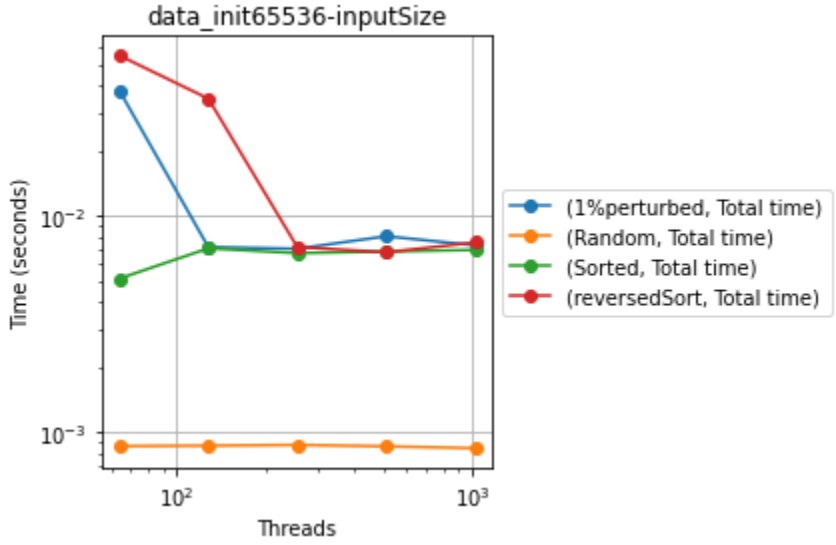
Radix

Cuda

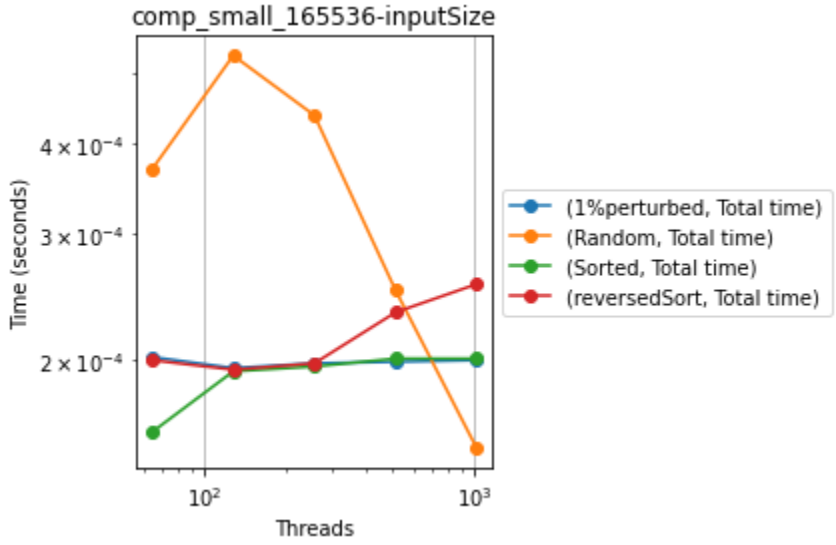
Strong Scaling:

Graphed for input size = 65536

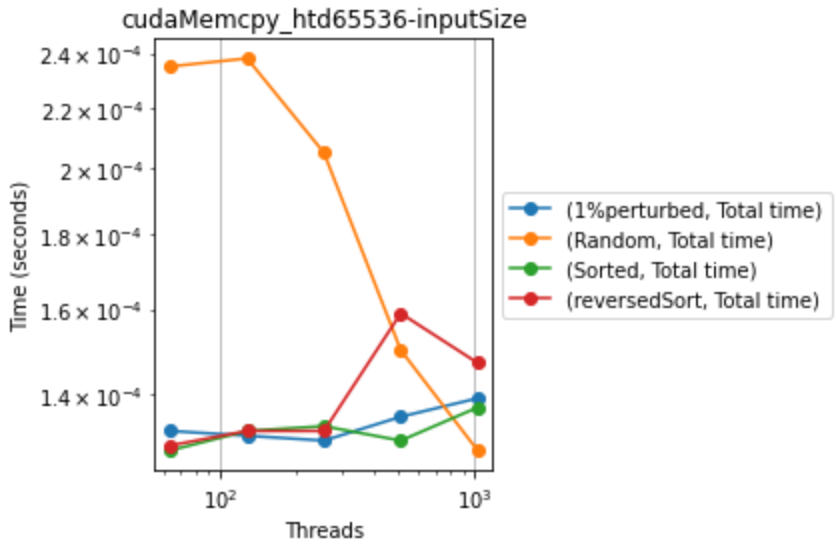
1. Data init



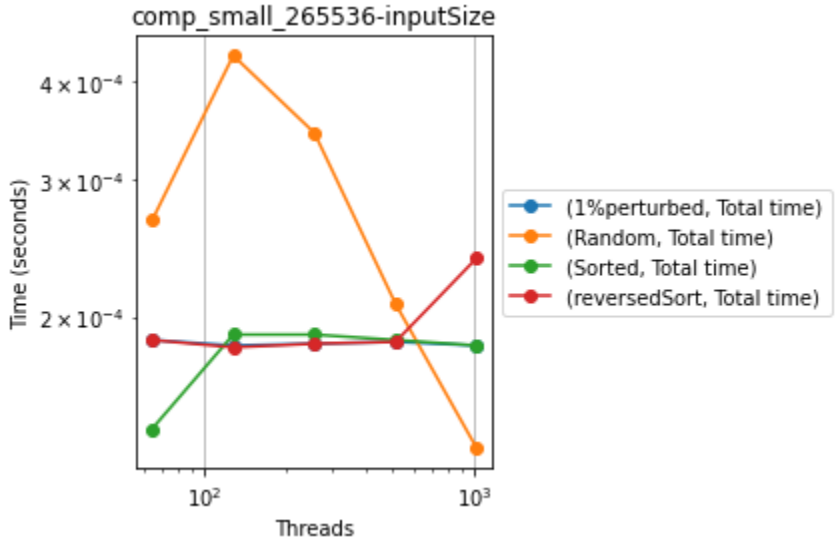
2. Comp small 1



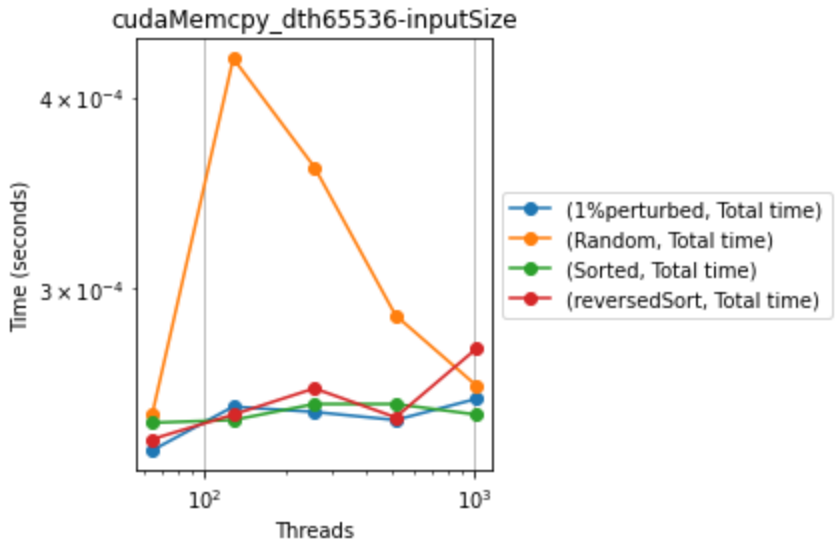
3. cudaMemcpy_htd - host to device



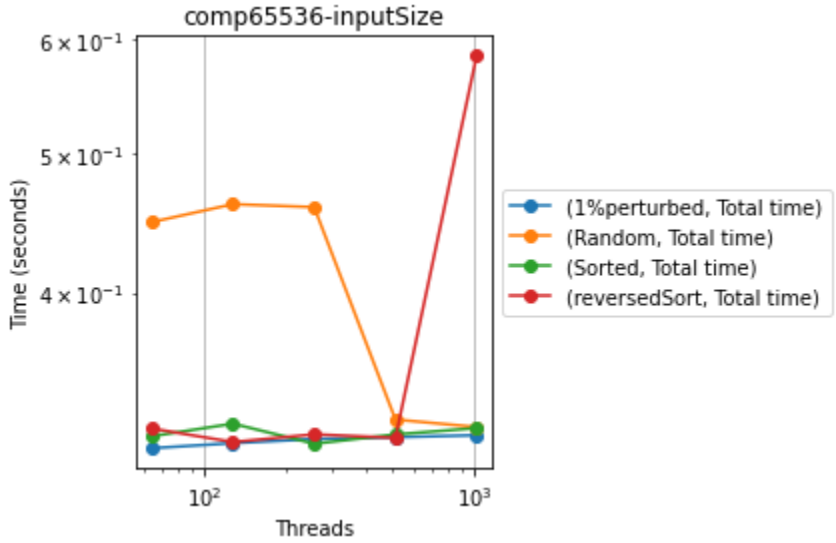
4. Comp small 2



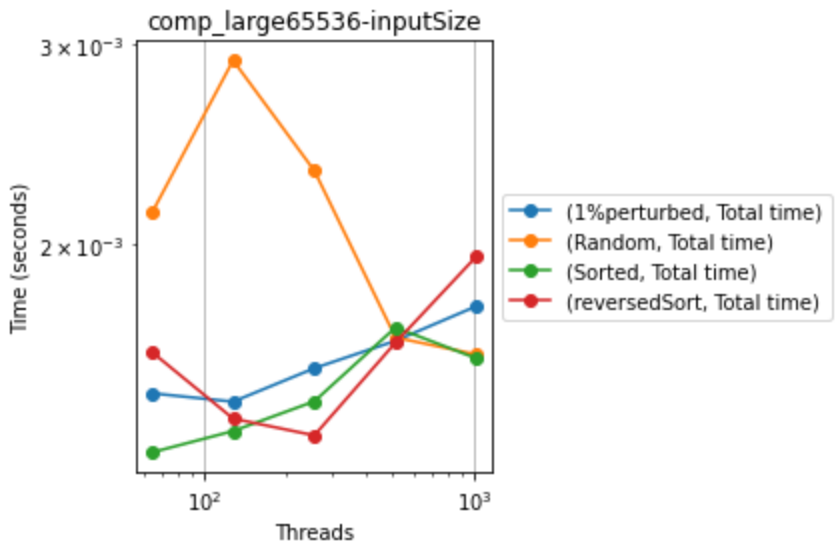
5. cudamemcpy _dth - device to host



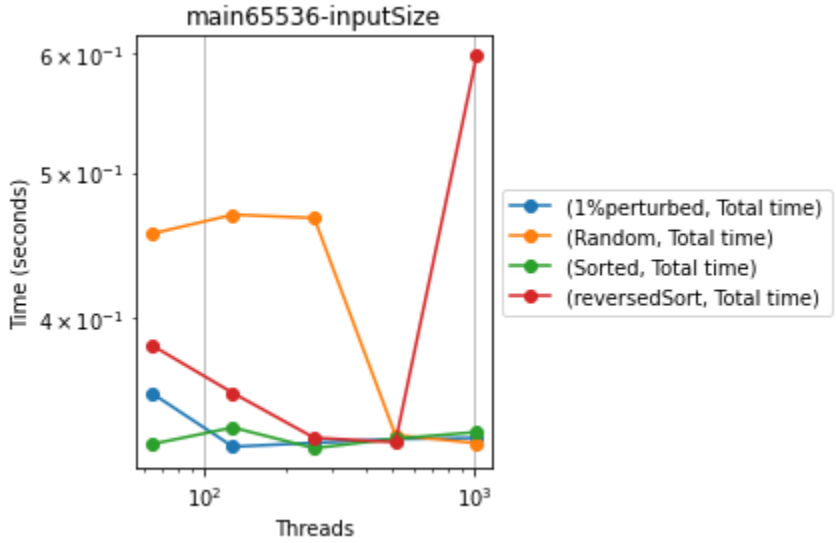
6. Comp



7. Comp large



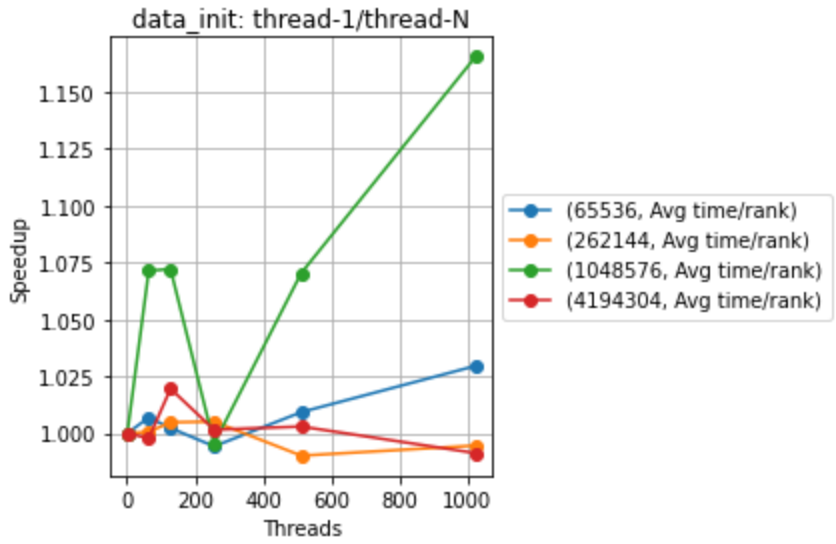
8. Main



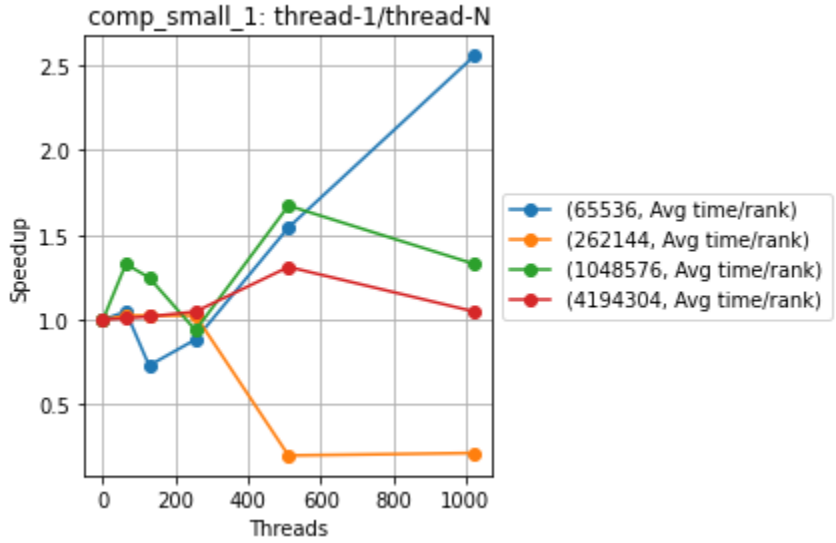
Speed up:

Graphed Random Data set

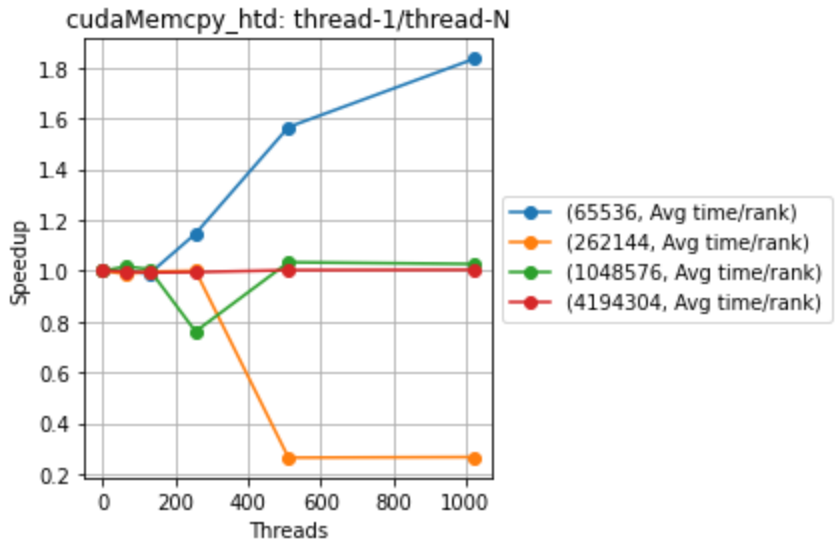
1. Data init



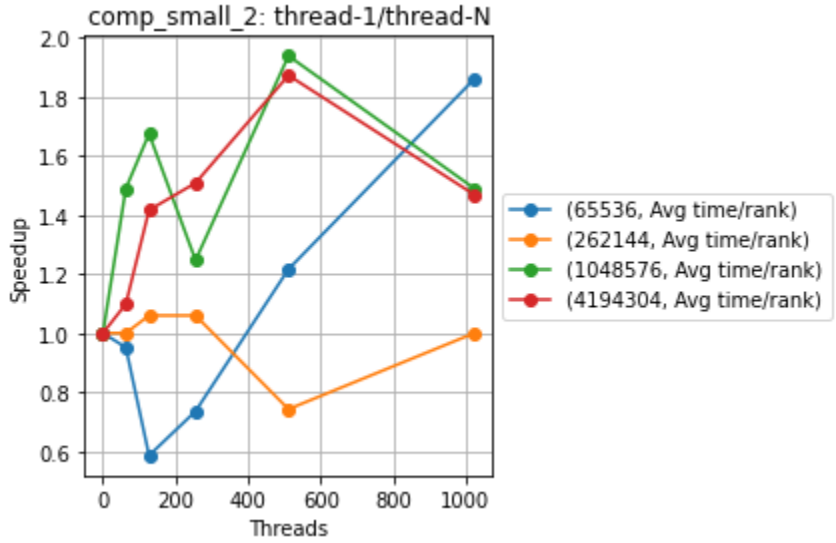
2. Comp small 1



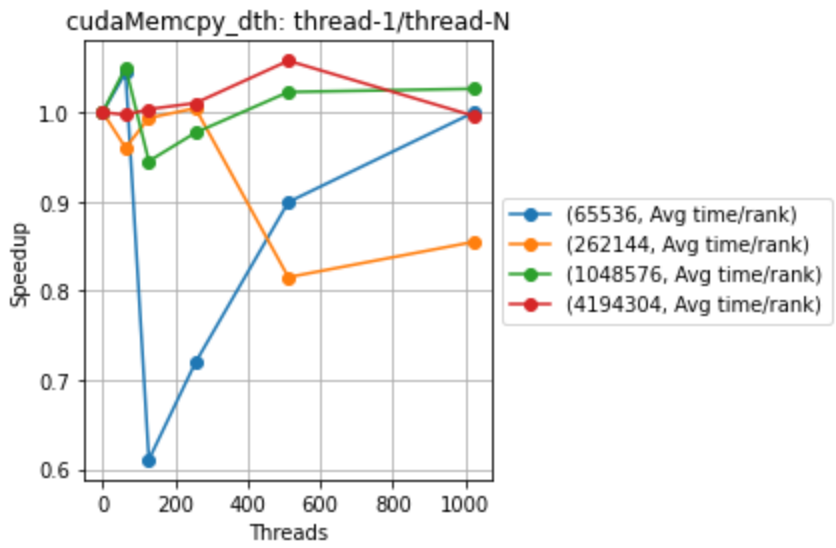
3. cudaMemcpy_htd - host to device



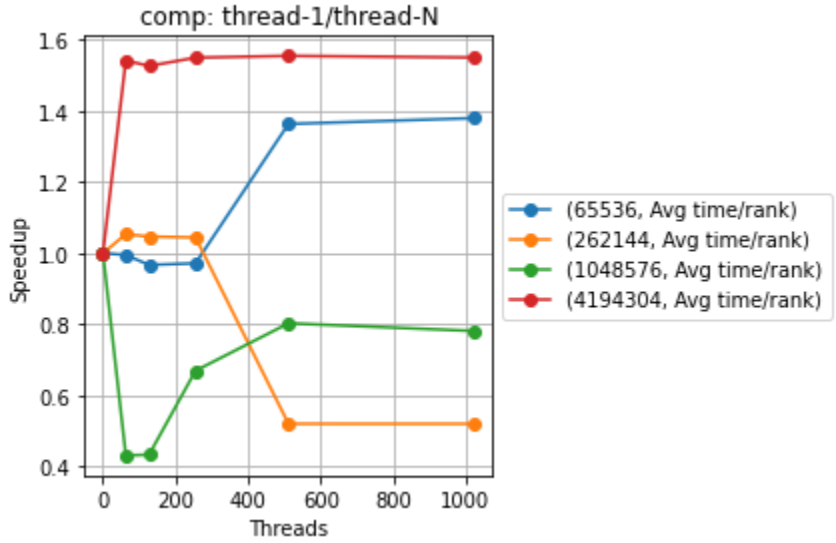
4. Comp small 2



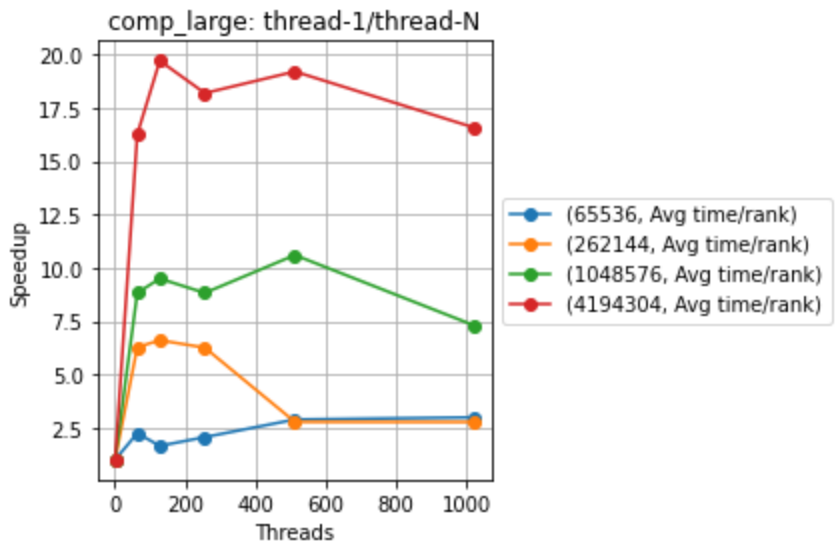
5. cudamemcpy _dth - device to host



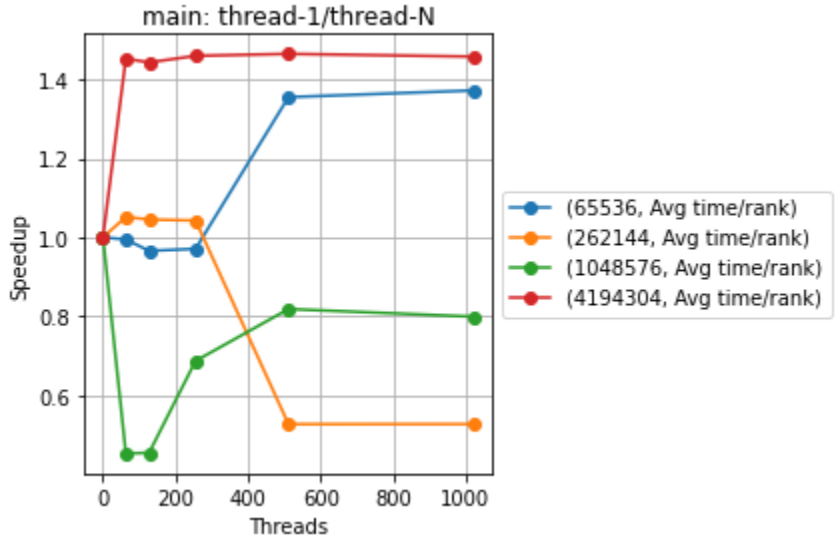
6. Comp



7. Comp large



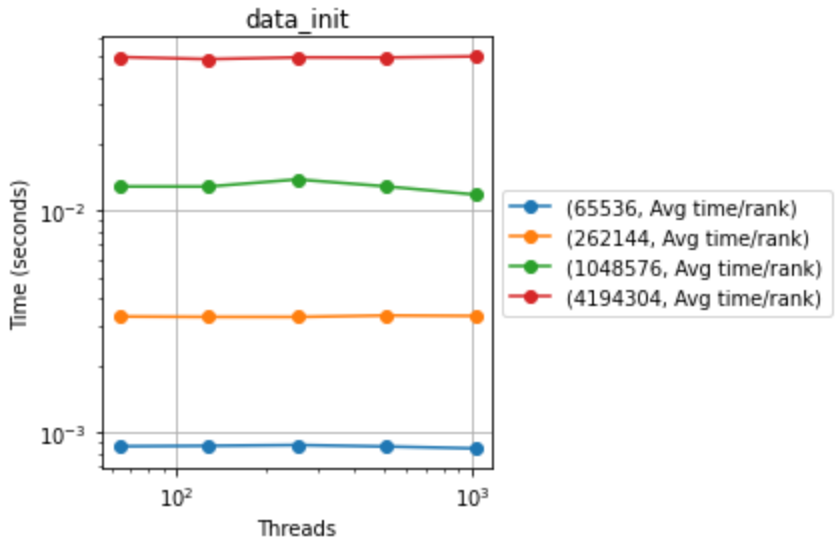
8. Main



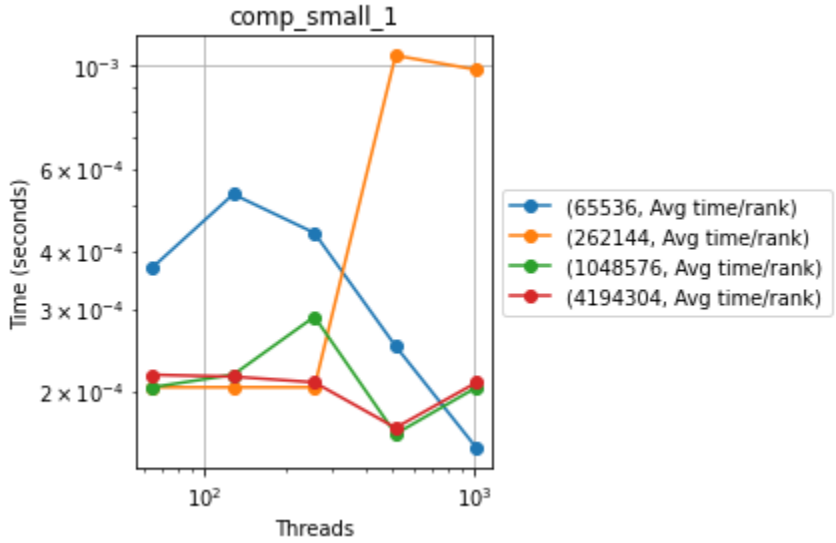
Weak Scaling:

Done with Random Data Set

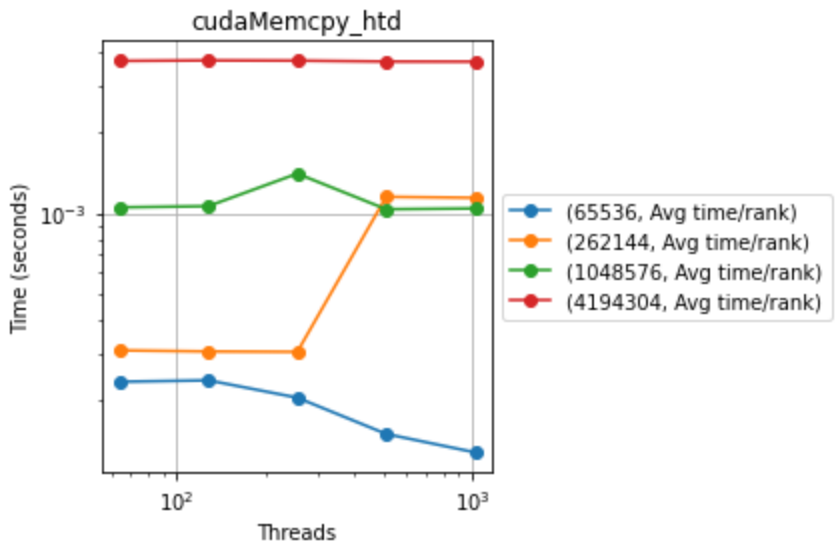
1. Data init



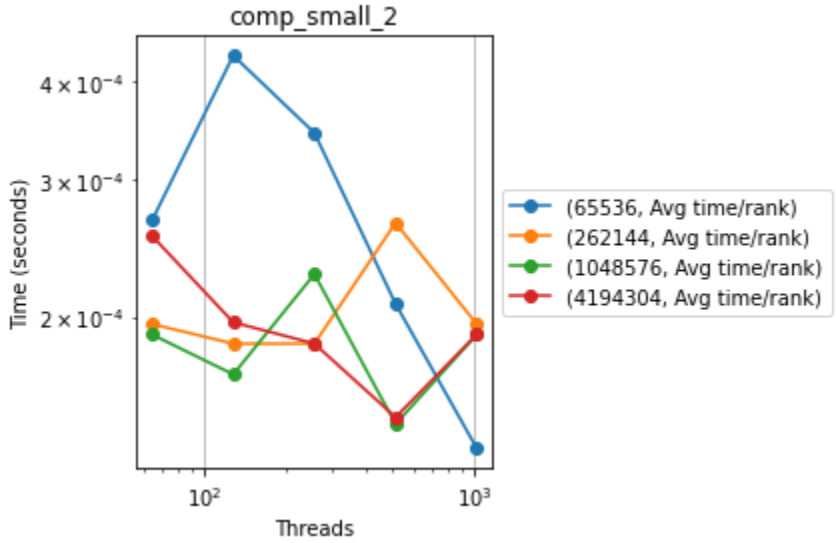
2. Comp small 1



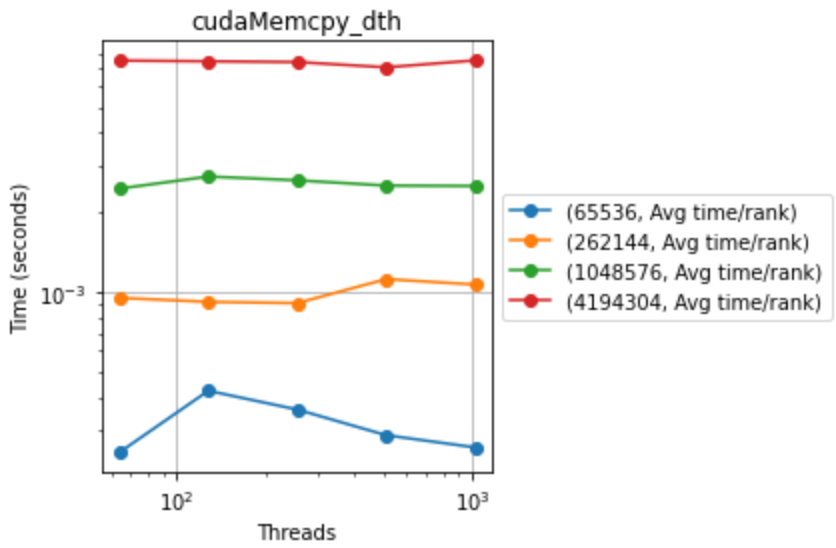
3. cudaMemcpy_htd - host to device



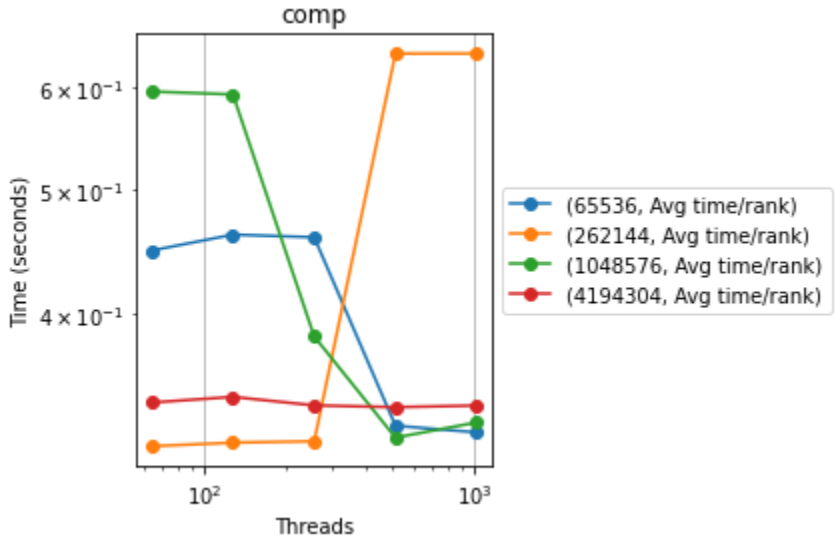
4. Comp small 2



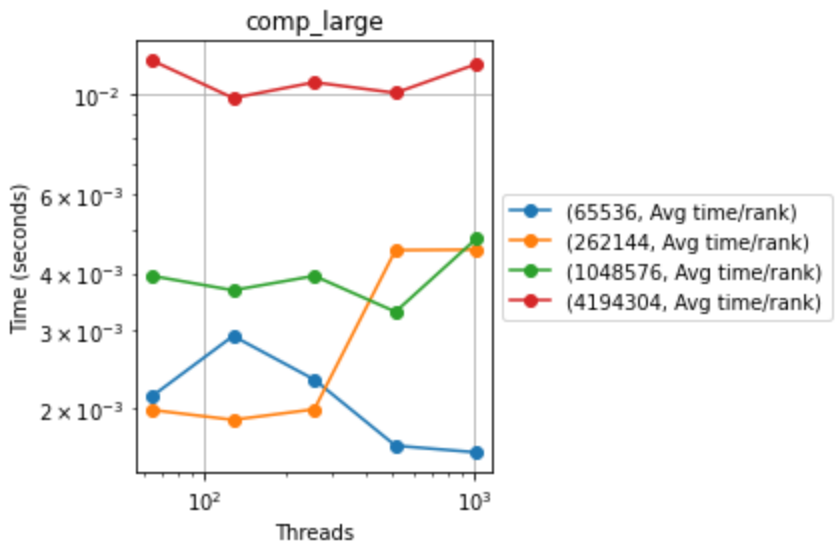
5. cudamemcpy _dth - device to host



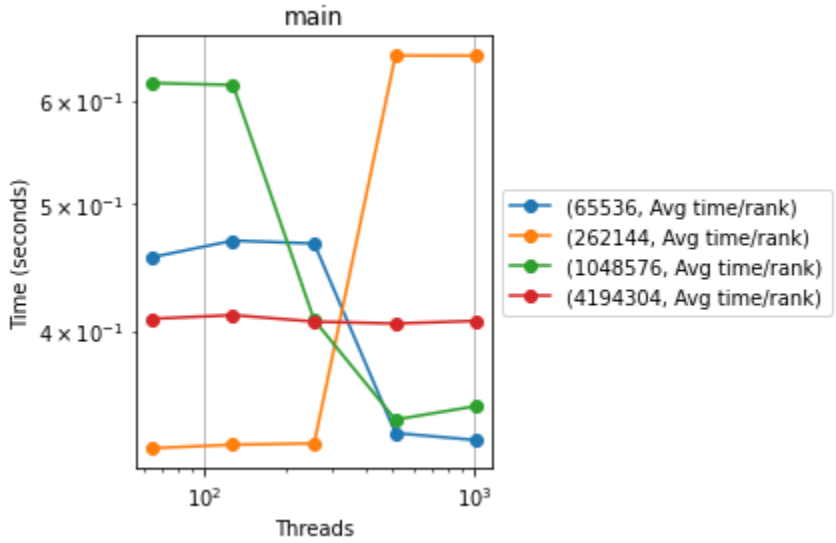
6. Comp



7. Comp large


comp_large
Time (seconds)
Threads
(65536, Avg time/rank)
(262144, Avg time/rank)
(1048576, Avg time/rank)
(4194304, Avg time/rank)

8. Main

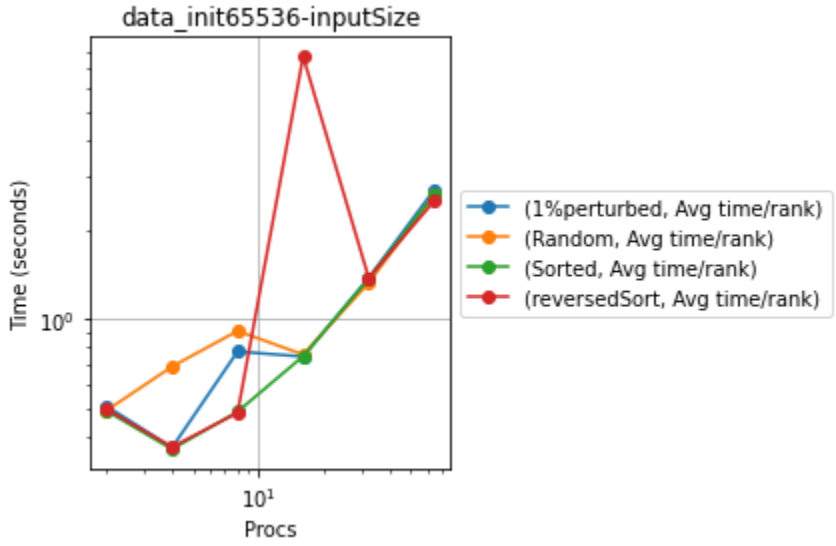

main
Time (seconds)
Threads
(65536, Avg time/rank)
(262144, Avg time/rank)
(1048576, Avg time/rank)
(4194304, Avg time/rank)

MPI

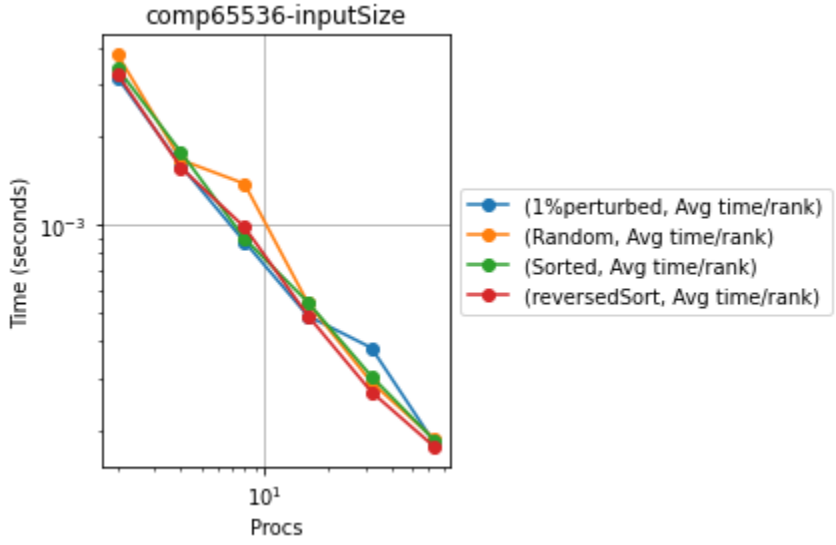
Strong Scaling:

Input Size = 63356

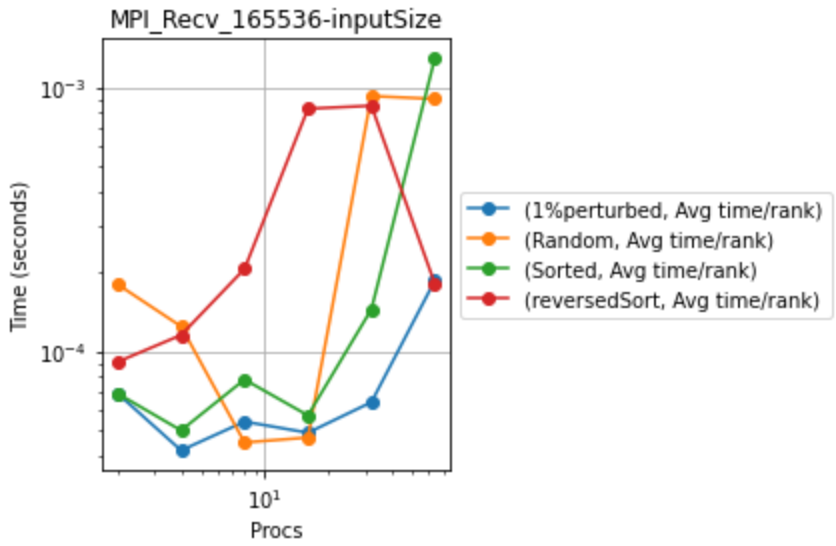
1. Data init



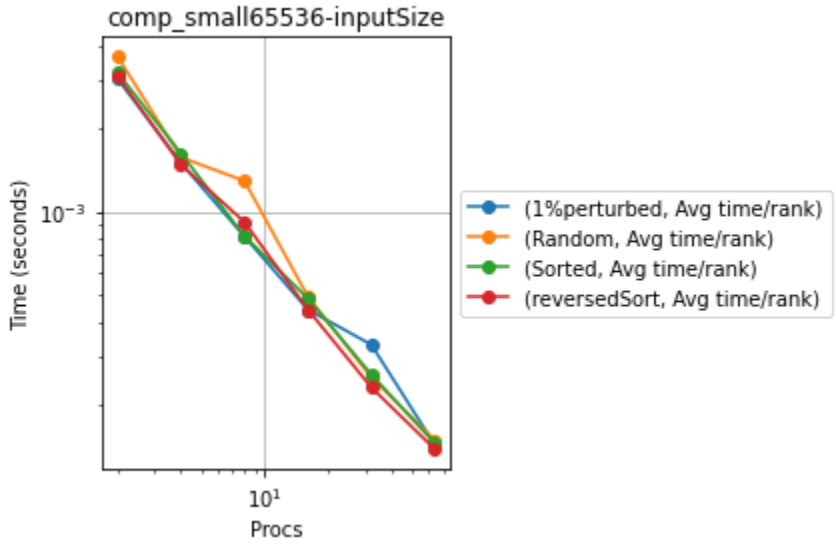
2. Comp



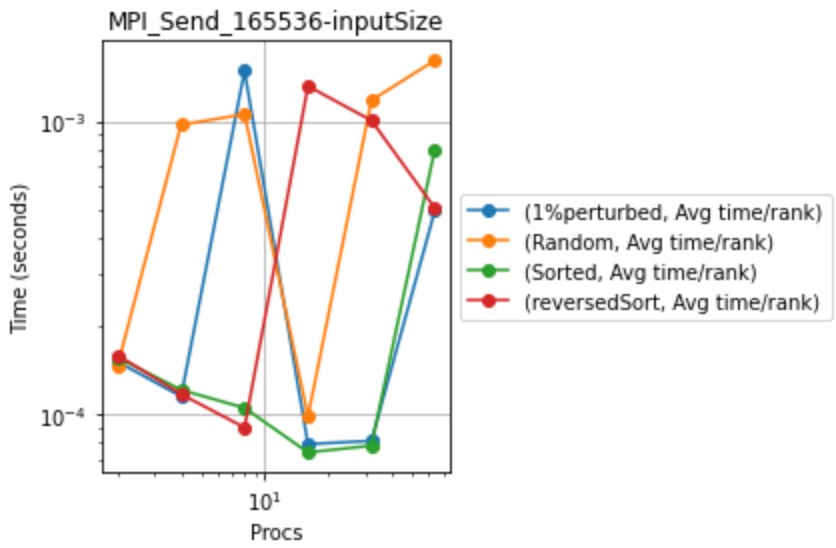
3. MPI Recv 1



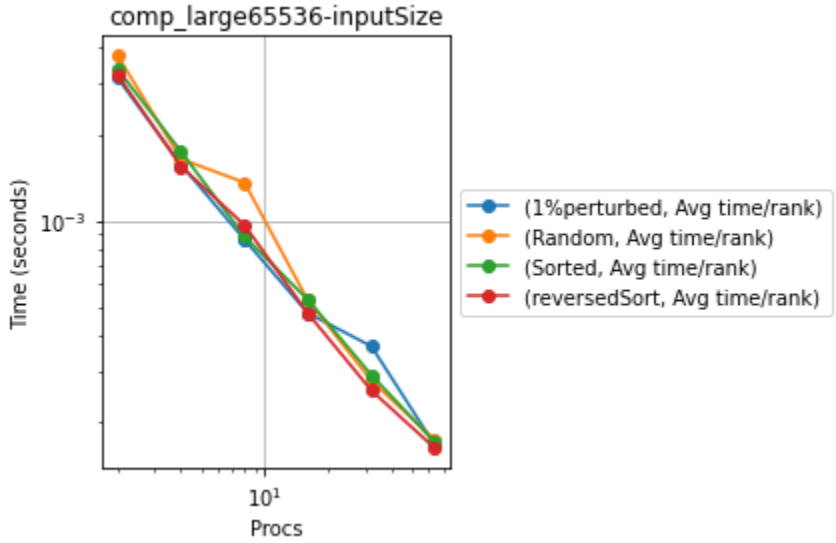
4. Comp small



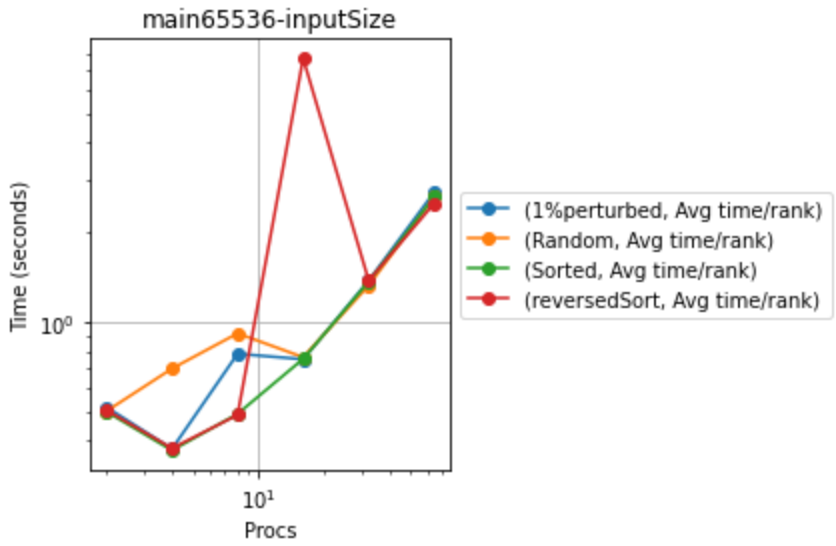
5. MPI Send 1



6. Comp Large



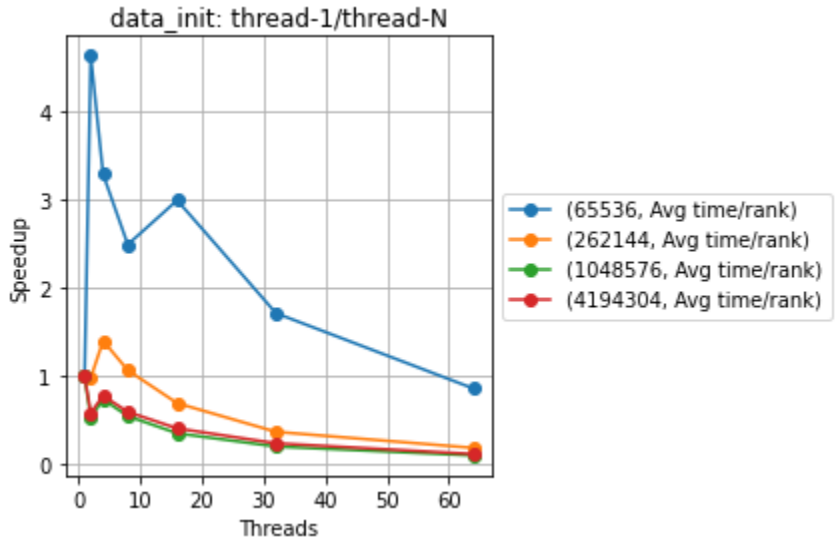
7. Main


main65536-inputSize
Time (seconds)
10^0
10^1
Procs
(1%perturbed, Avg time/rank)
(Random, Avg time/rank)
(Sorted, Avg time/rank)
(reversedSort, Avg time/rank)

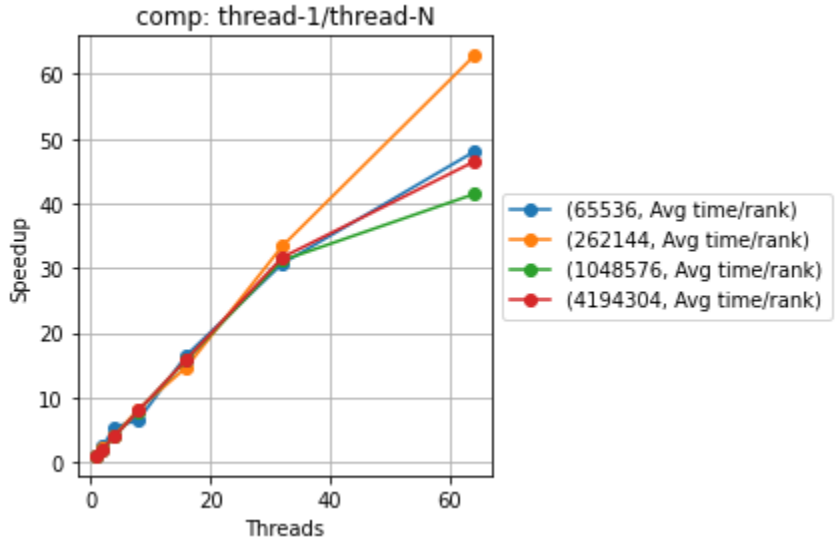
Speedup:

Graphed with Random Datasets

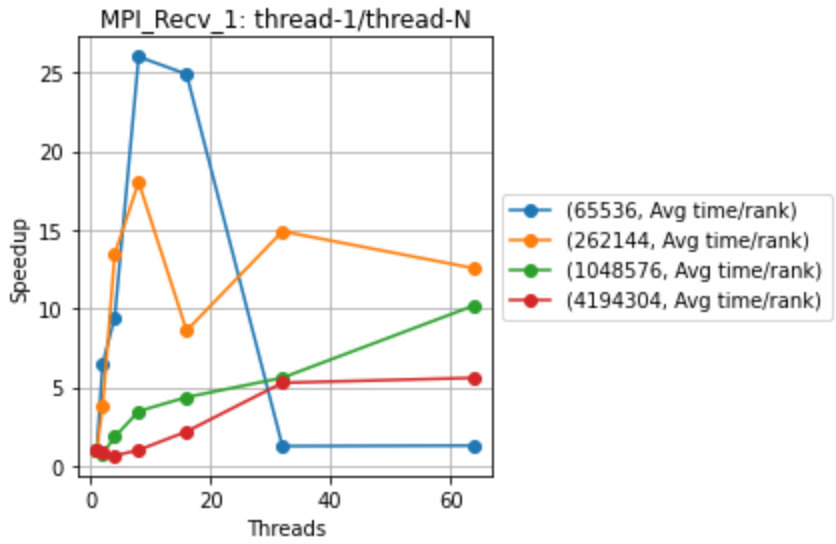
1. Data init



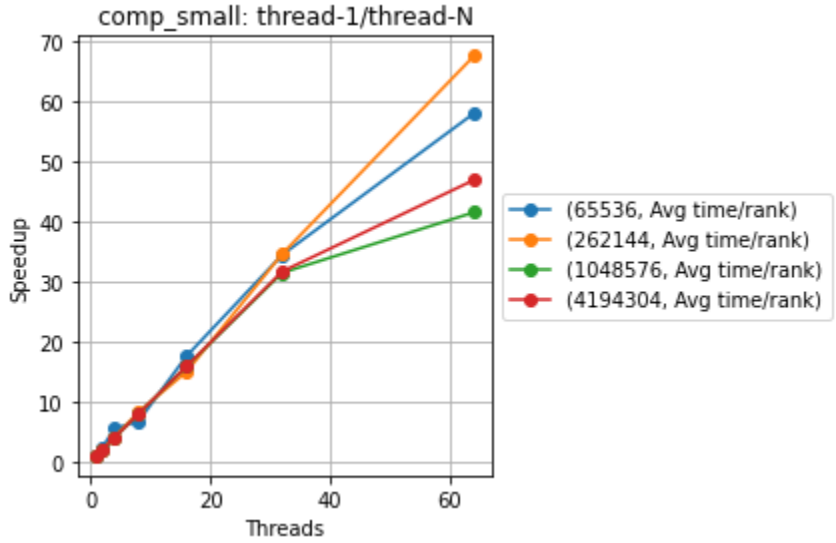
2. Comp



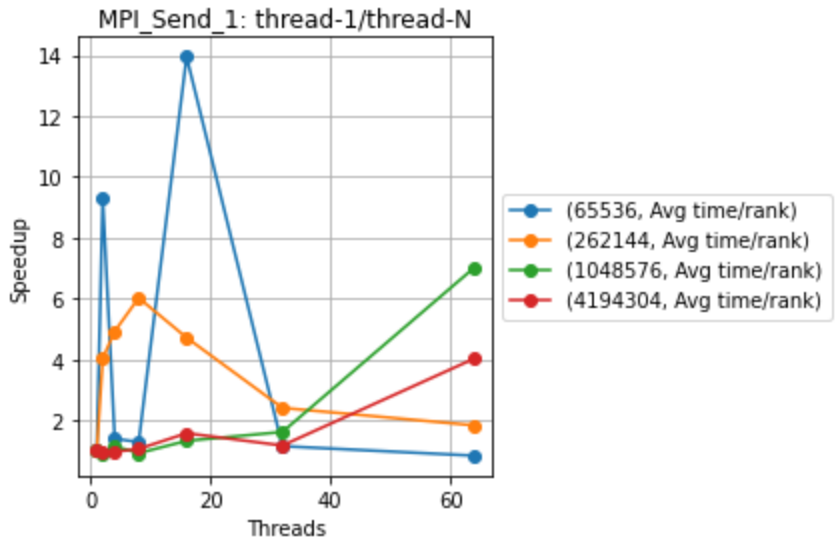
3. MPI Recv 1



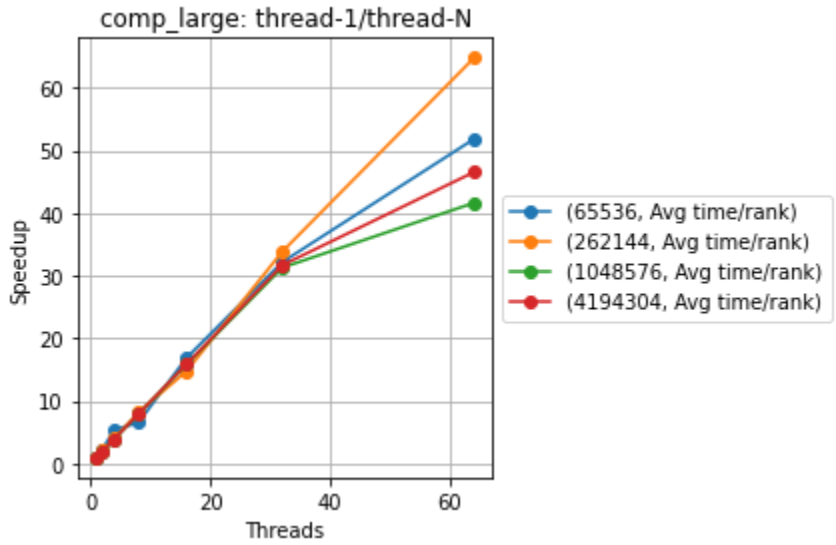
4. Comp small



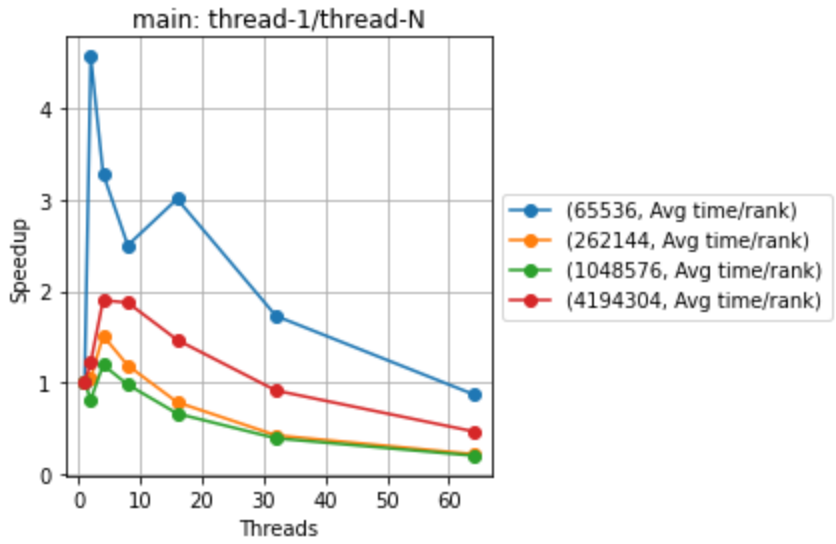
5. MPI Send 1



6. Comp Large

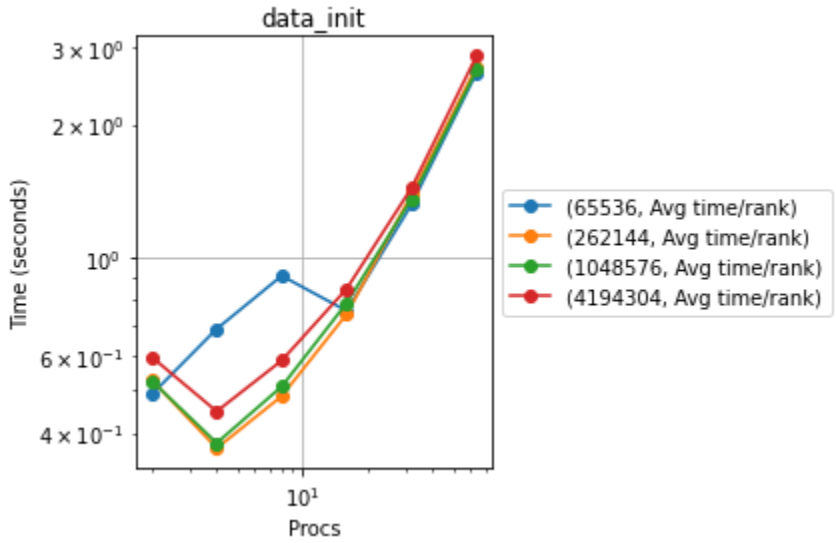


7. Main

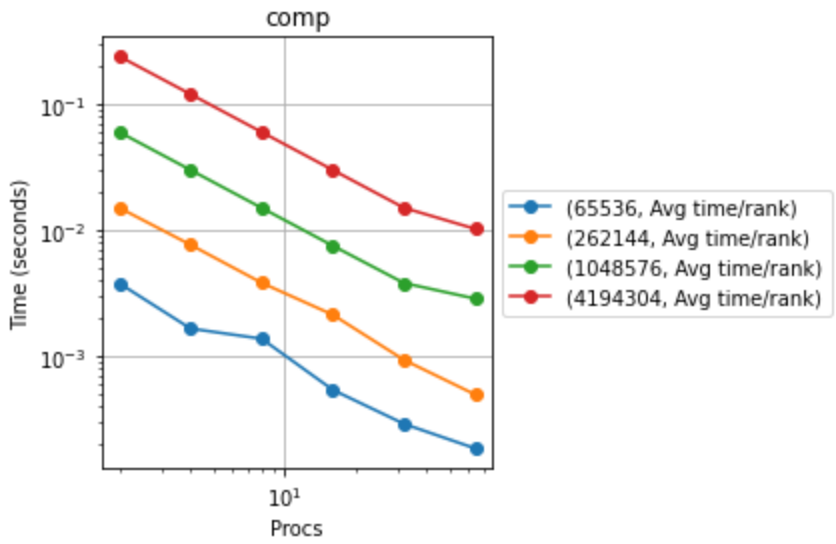


Weak Scaling:

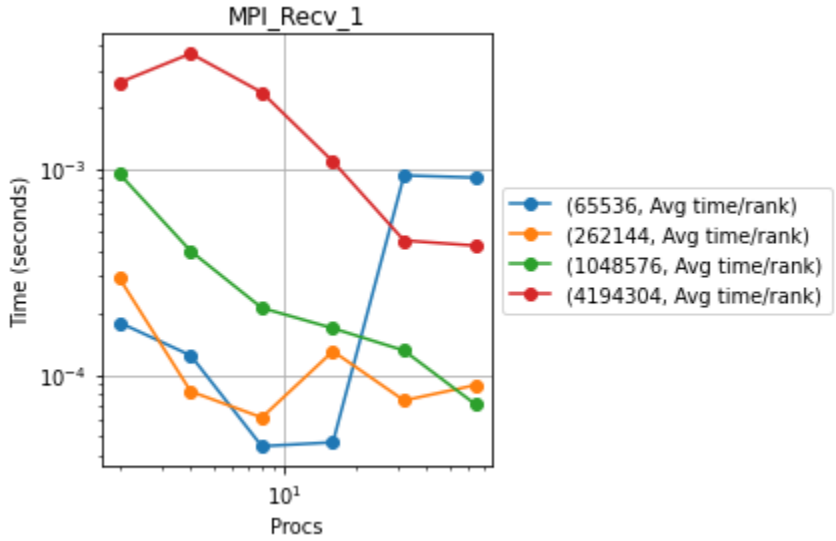
1. Data init



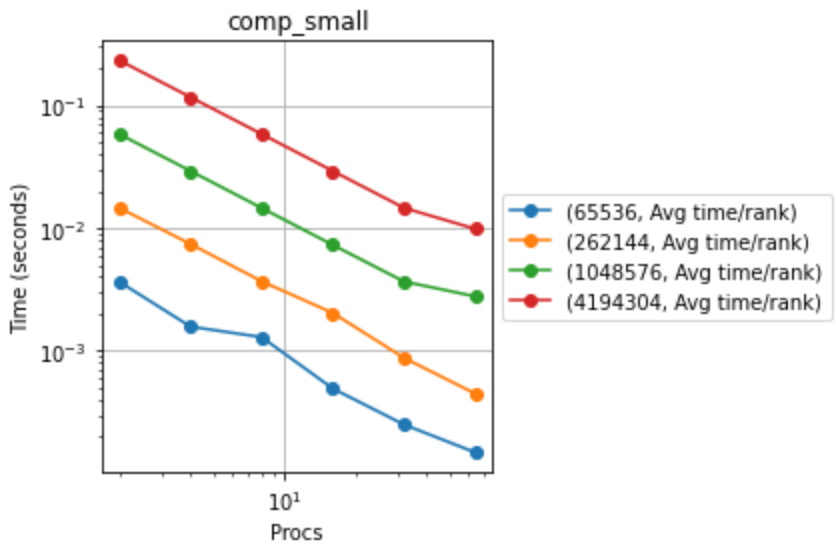
2. Comp



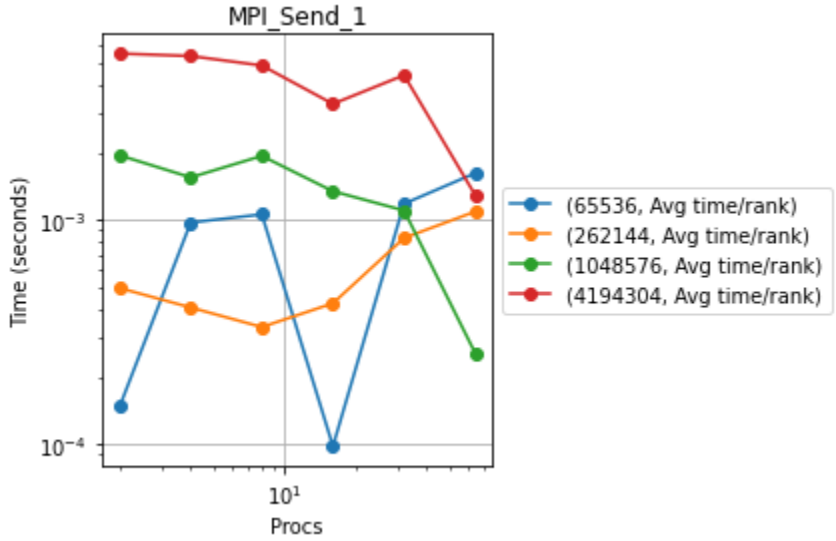
3. MPI Recv 1



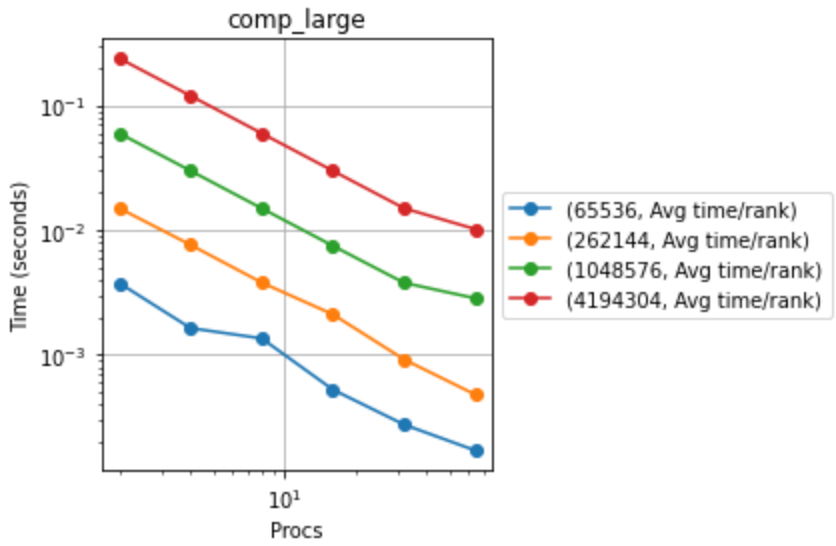
4. Comp small



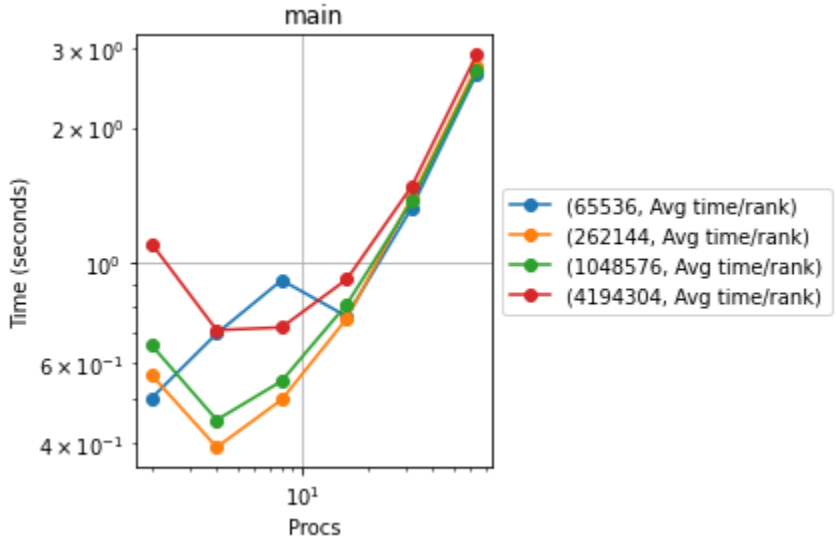
5. MPI Send 1



6. Comp Large


comp_large
Time (seconds)
10^{-1}
10^{-2}
10^{-3}
10^{1}
Procs
(65536, Avg time/rank)
(262144, Avg time/rank)
(1048576, Avg time/rank)
(4194304, Avg time/rank)

7. Main


main
Time (seconds)
3×10^{0}
2×10^{0}
10^{0}
6×10^{-1}
4×10^{-1}
10^{1}
Procs
(65536, Avg time/rank)
(262144, Avg time/rank)
(1048576, Avg time/rank)
(4194304, Avg time/rank)