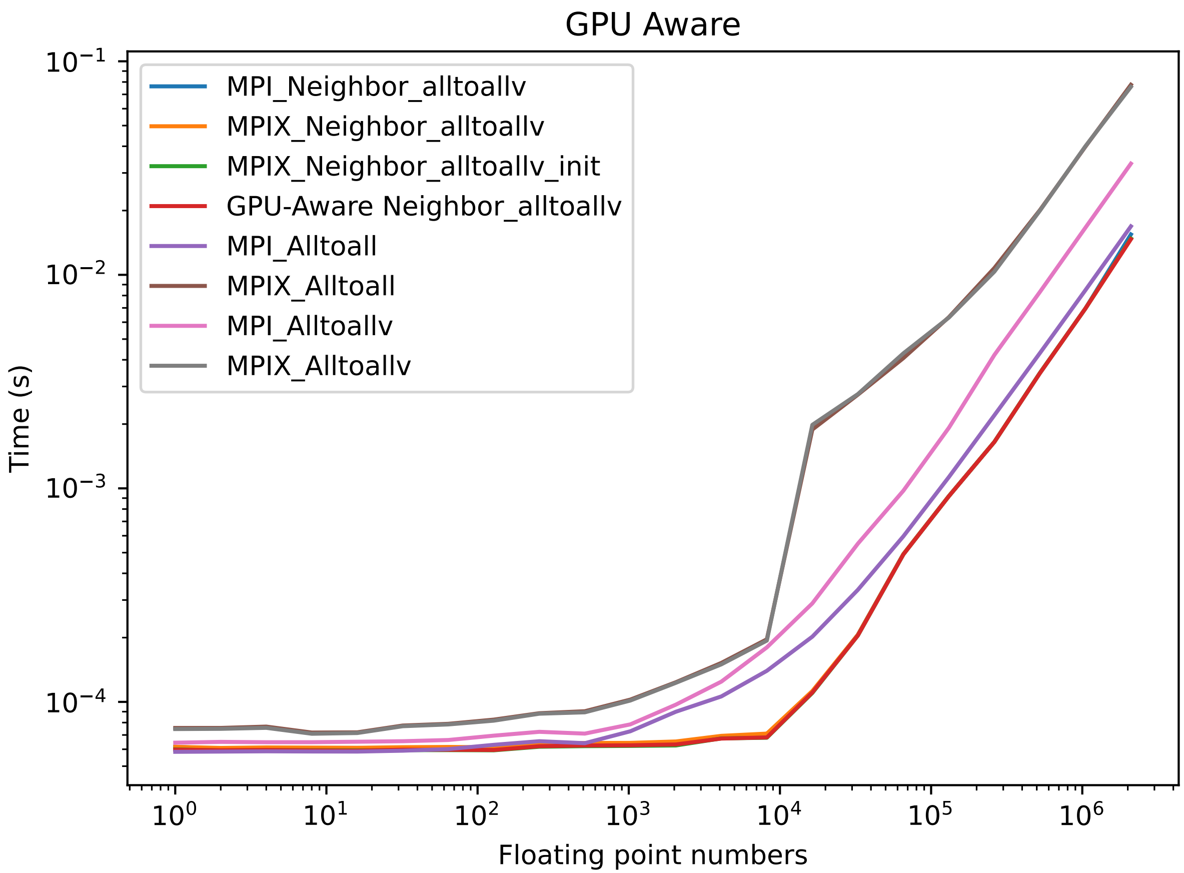
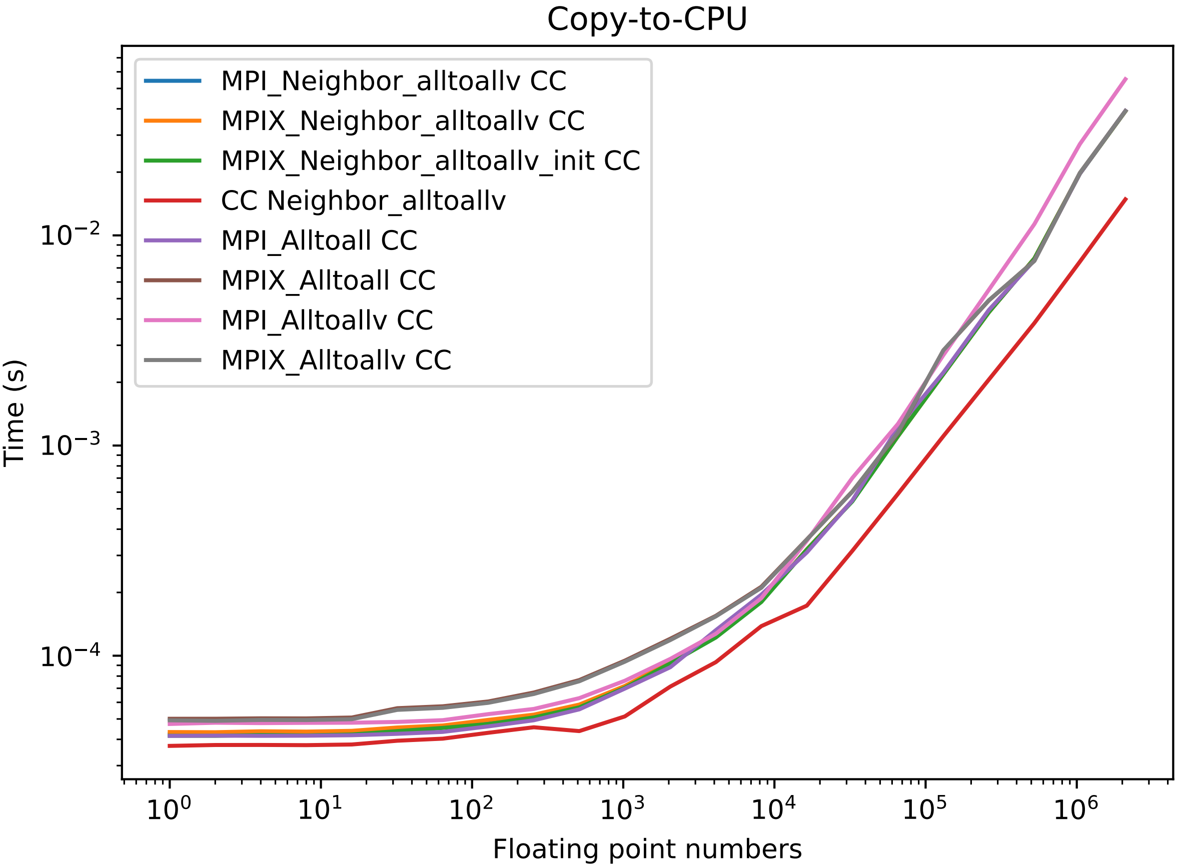
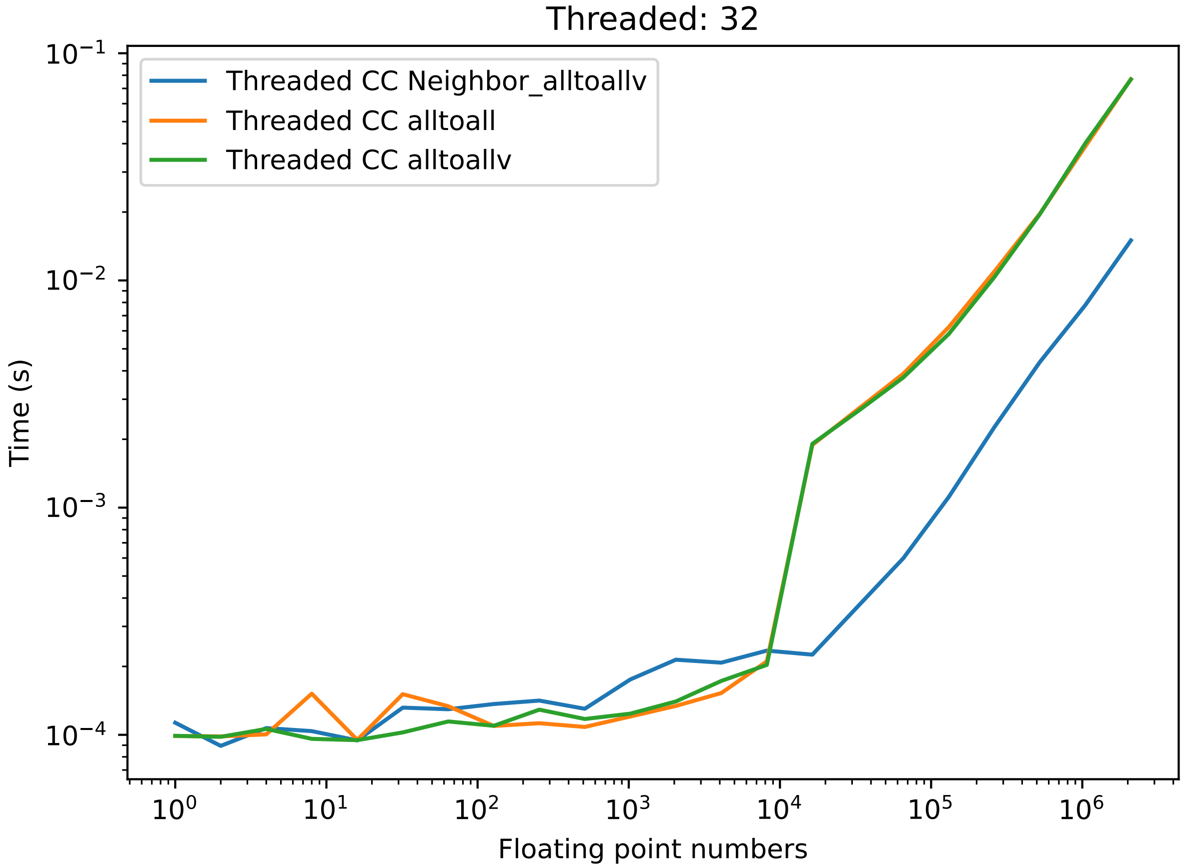
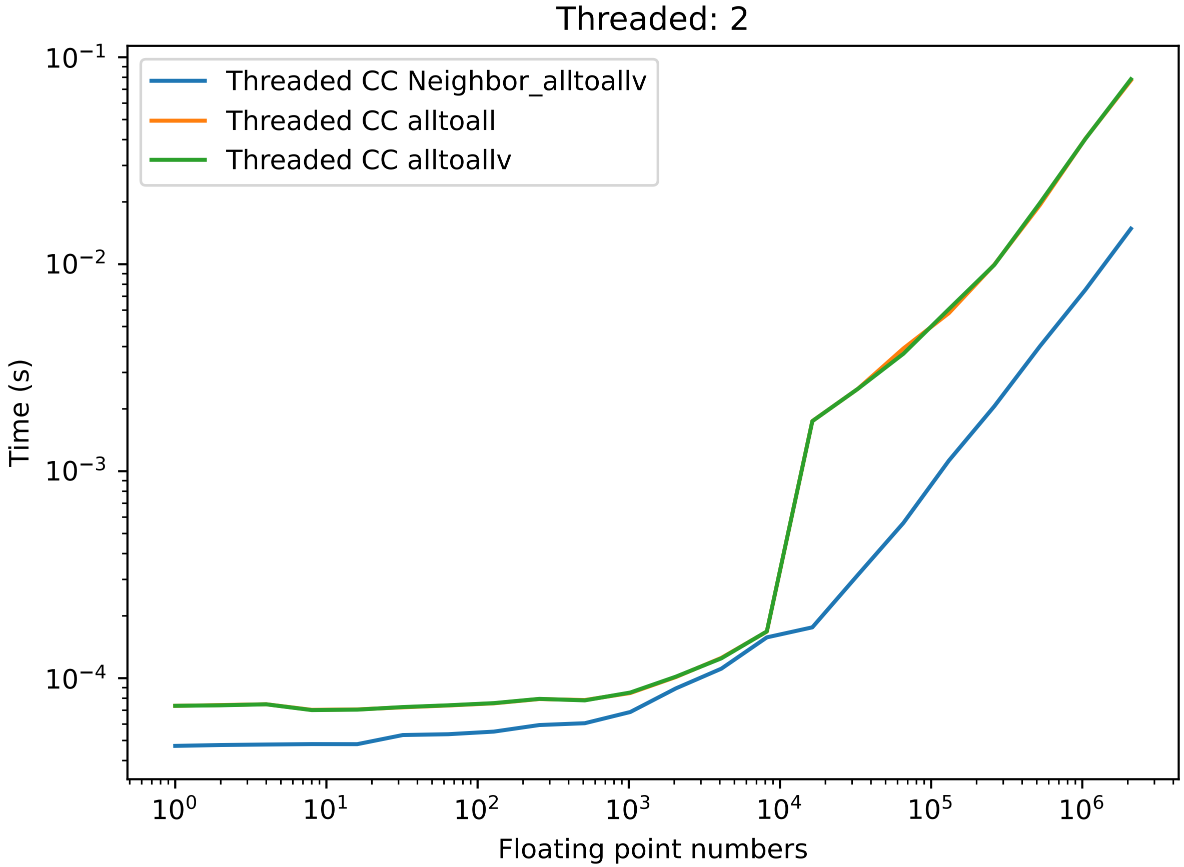
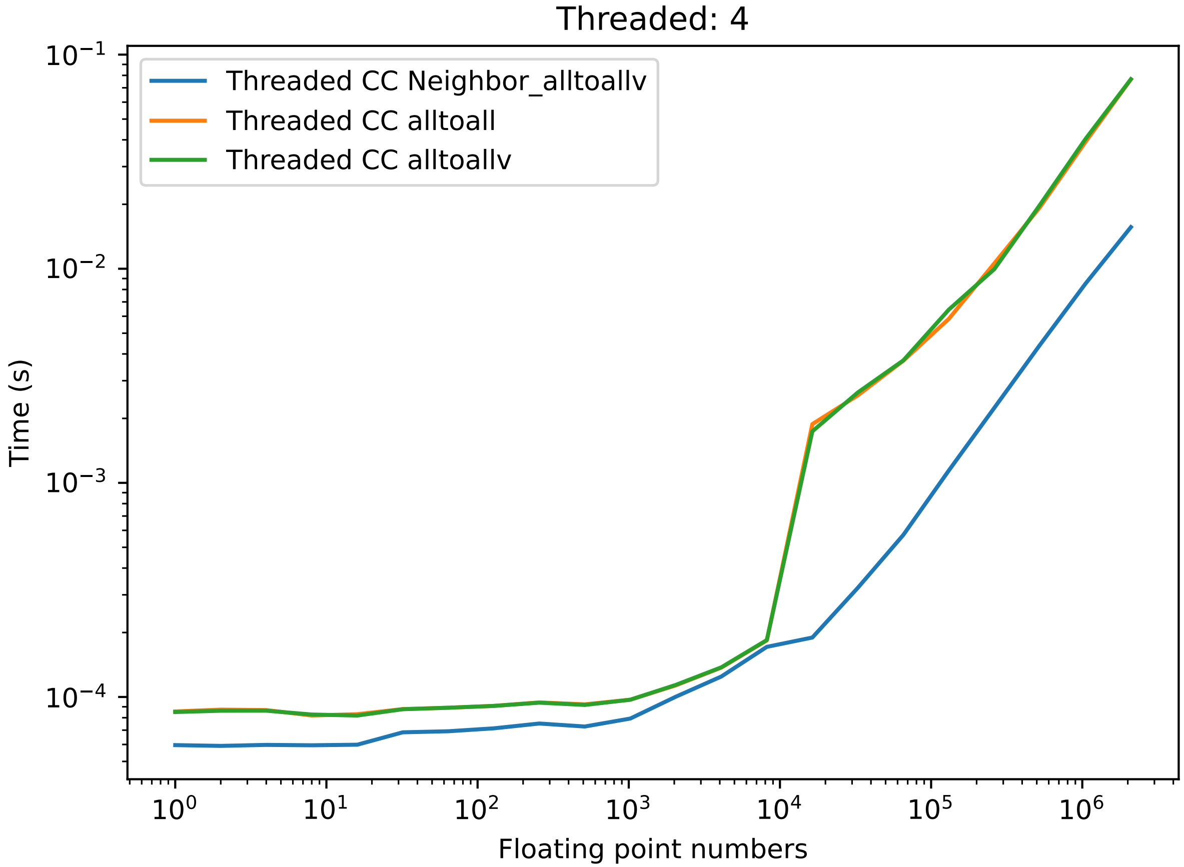
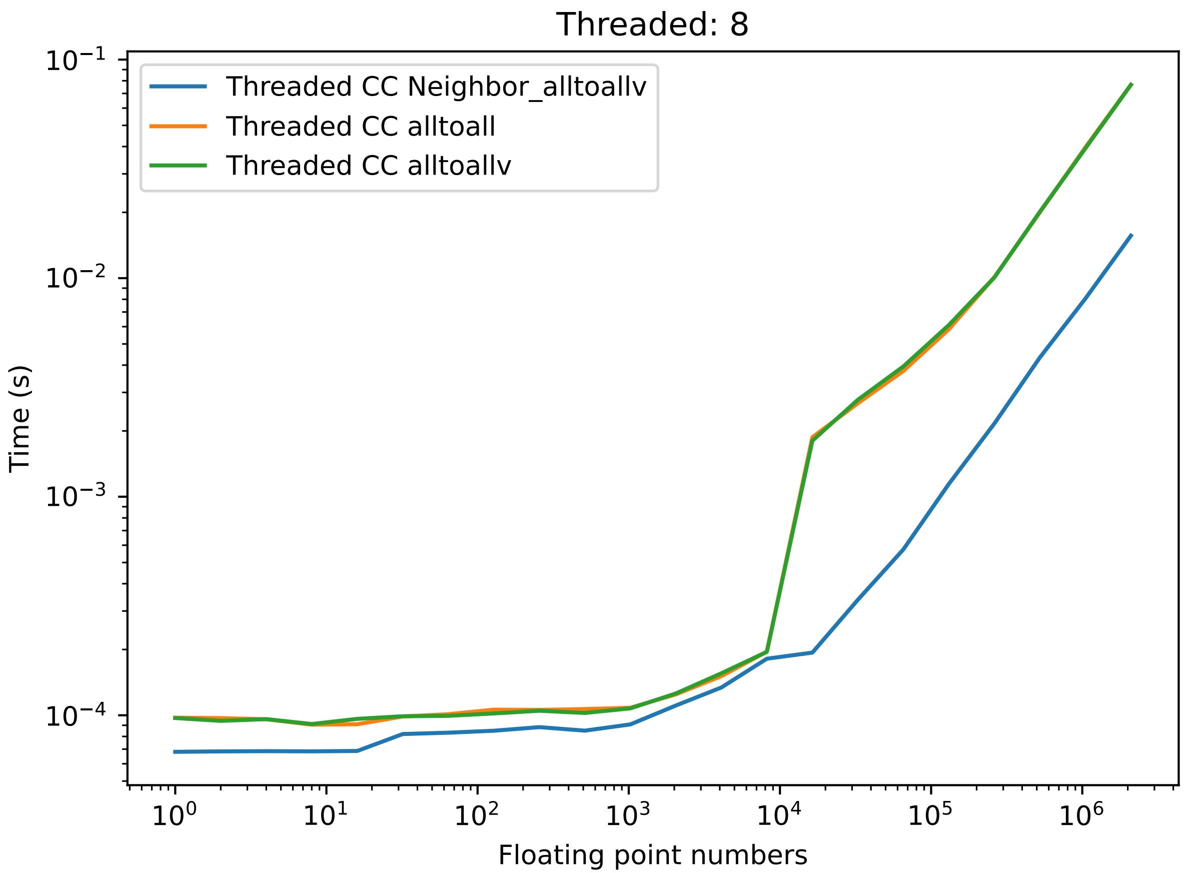

GPU Aware
MPI_Neighbor_alltoallv
MPIX_Neighbor_alltoallv
MPIX_Neighbor_alltoallv_init
GPU-Aware Neighbor_alltoallv
MPI_Alltoall
MPIX_Alltoall
MPI_Alltoallv
MPIX_Alltoallv
Time (s)
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{0}
10^{1}
10^{2}
10^{3}
10^{4}
10^{5}
10^{6}
Floating point numbers

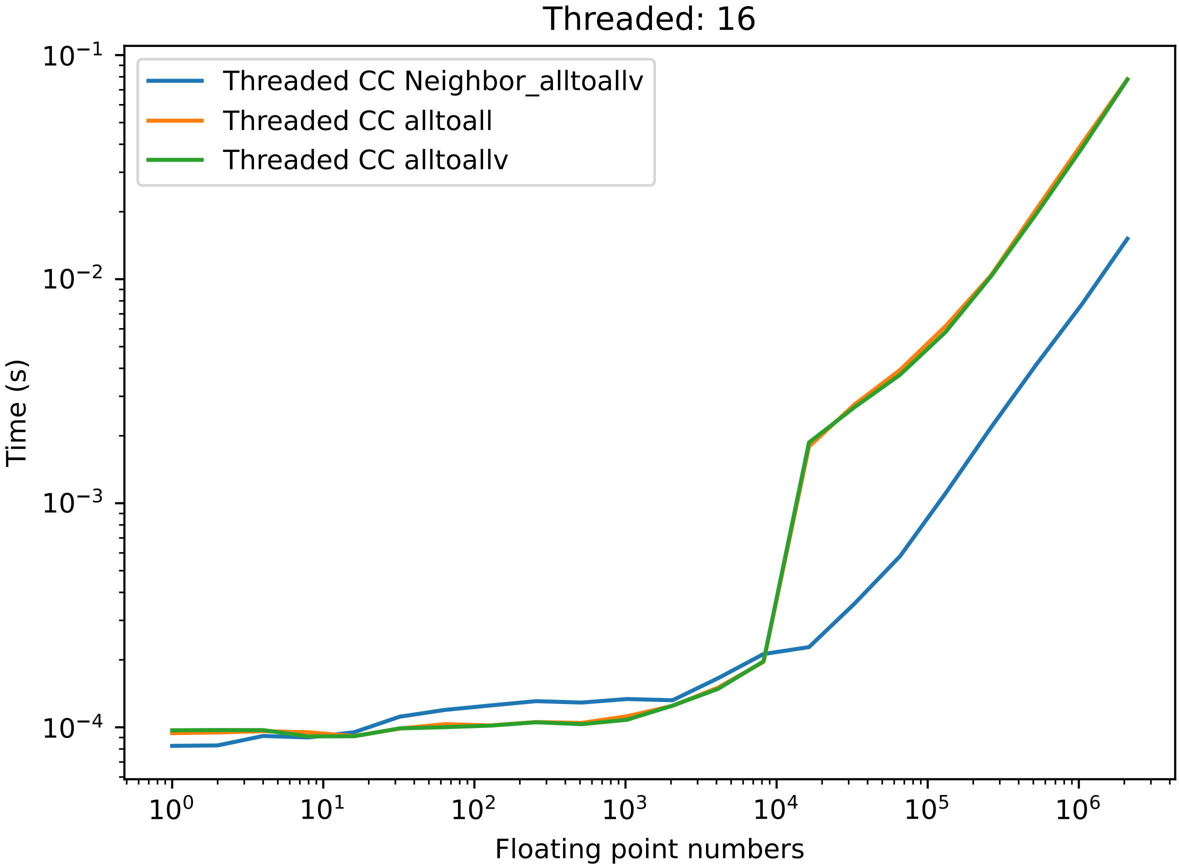

Copy-to-CPU
MPI_Neighbor_alltoallv CC
MPIX_Neighbor_alltoallv CC
MPIX_Neighbor_alltoallv_init CC
CC Neighbor_alltoallv
MPI_Alltoall CC
MPIX_Alltoall CC
MPI_Alltoallv CC
MPIX_Alltoallv CC
Time (s)
10^{-2}
10^{-3}
10^{-4}
10^0
10^1
10^2
10^3
10^4
10^5
10^6
Floating point numbers

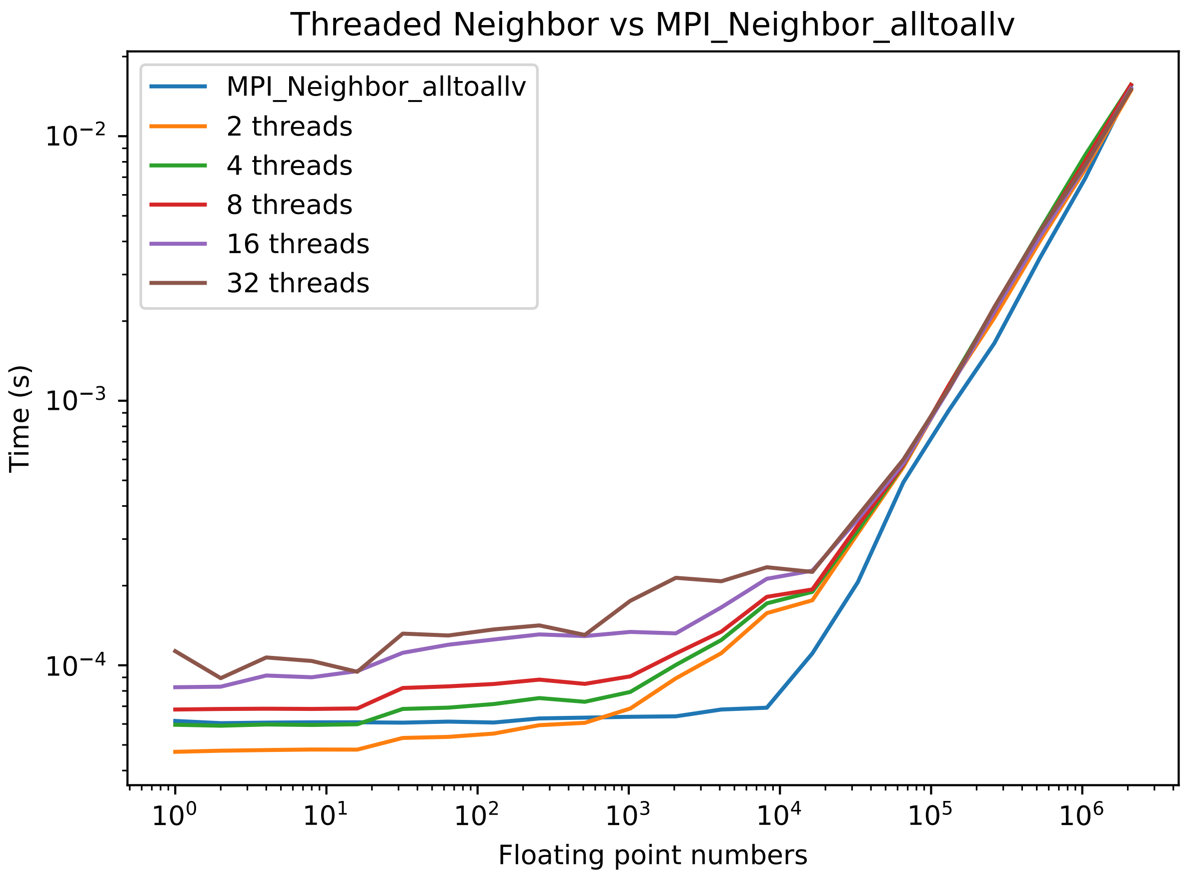

Threaded: 32
Threaded CC Neighbor_alltoallv
Threaded CC alltoall
Threaded CC alltoallv
Time (s)
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{0}
10^{1}
10^{2}
10^{3}
10^{4}
10^{5}
10^{6}
Floating point numbers

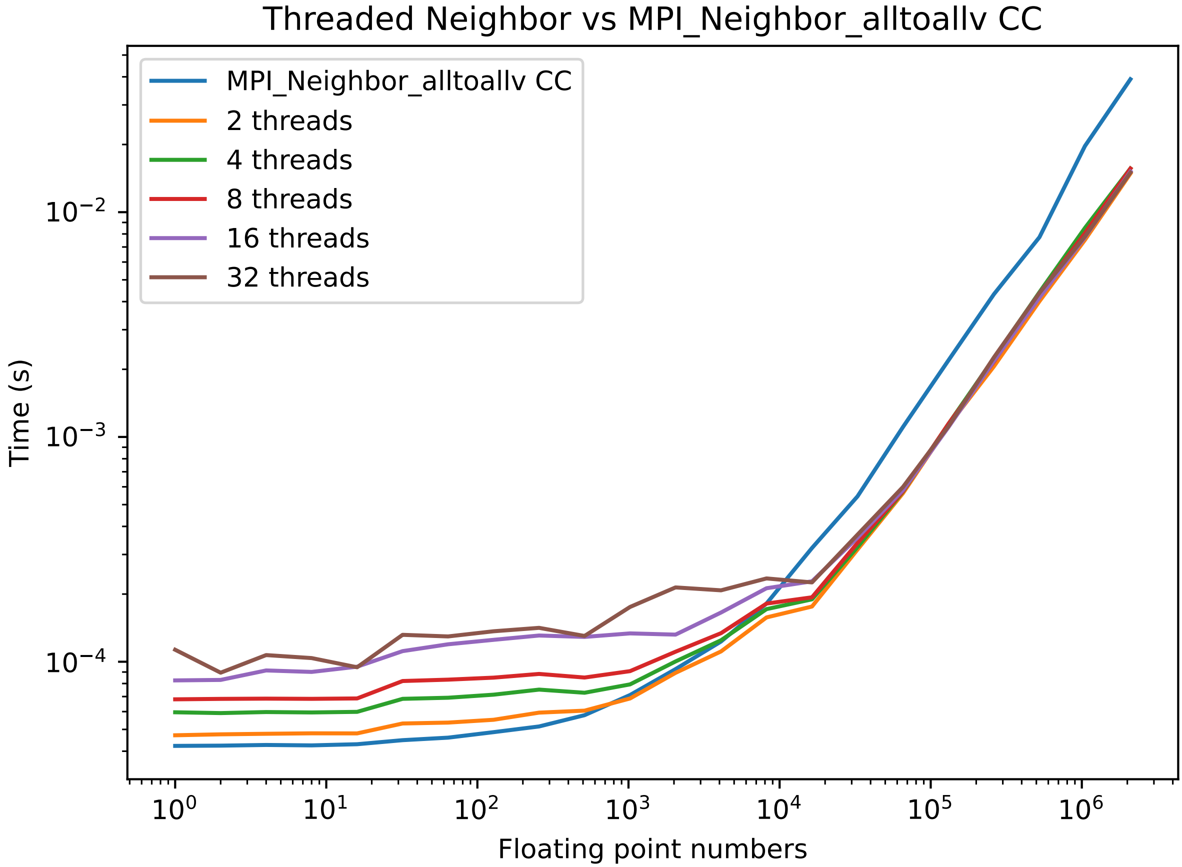

Threaded: 2
Threaded CC Neighbor_alltoallv
Threaded CC alltoall
Threaded CC alltoallv
Time (s)
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{0}
10^{1}
10^{2}
10^{3}
10^{4}
10^{5}
10^{6}
Floating point numbers

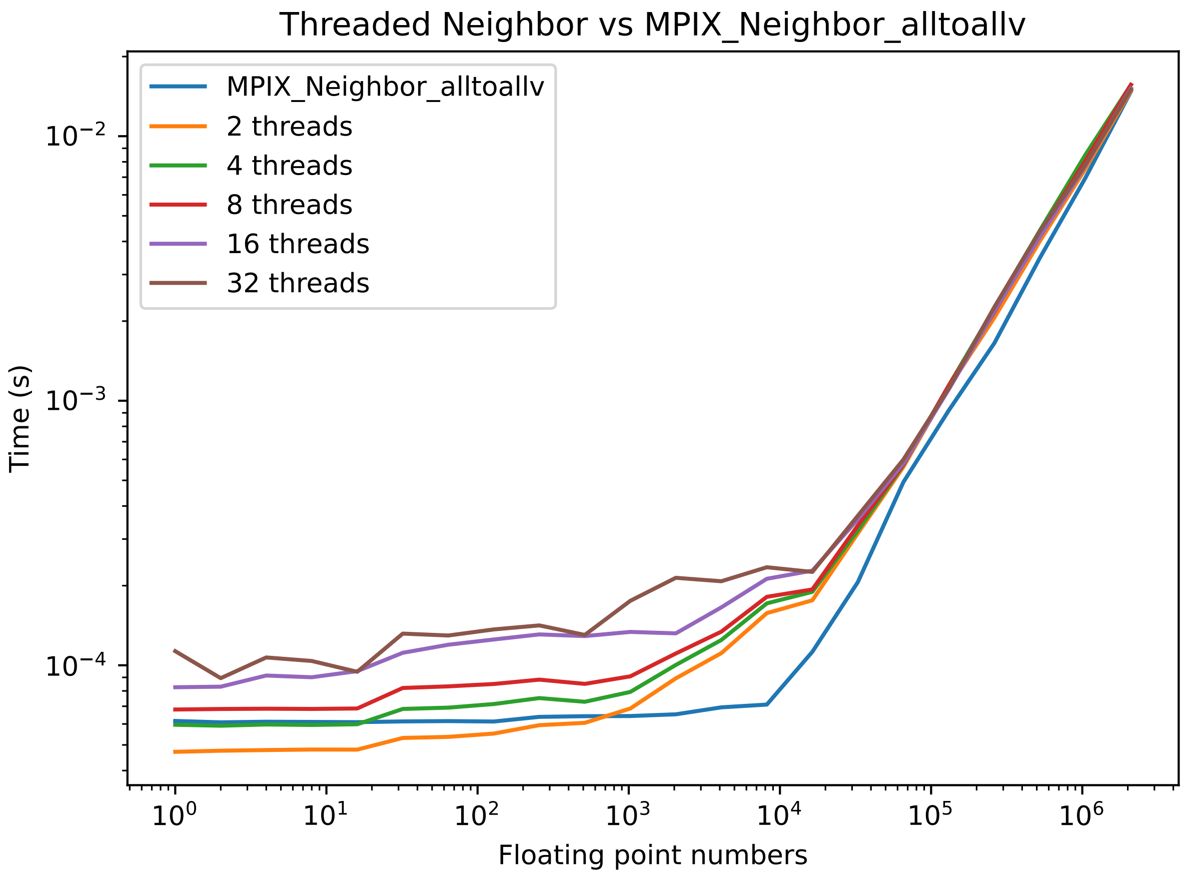

Threaded: 4
Threaded CC Neighbor_alltoallv
Threaded CC alltoall
Threaded CC alltoallv
Time (s)
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{0}
10^{1}
10^{2}
10^{3}
10^{4}
10^{5}
10^{6}
Floating point numbers

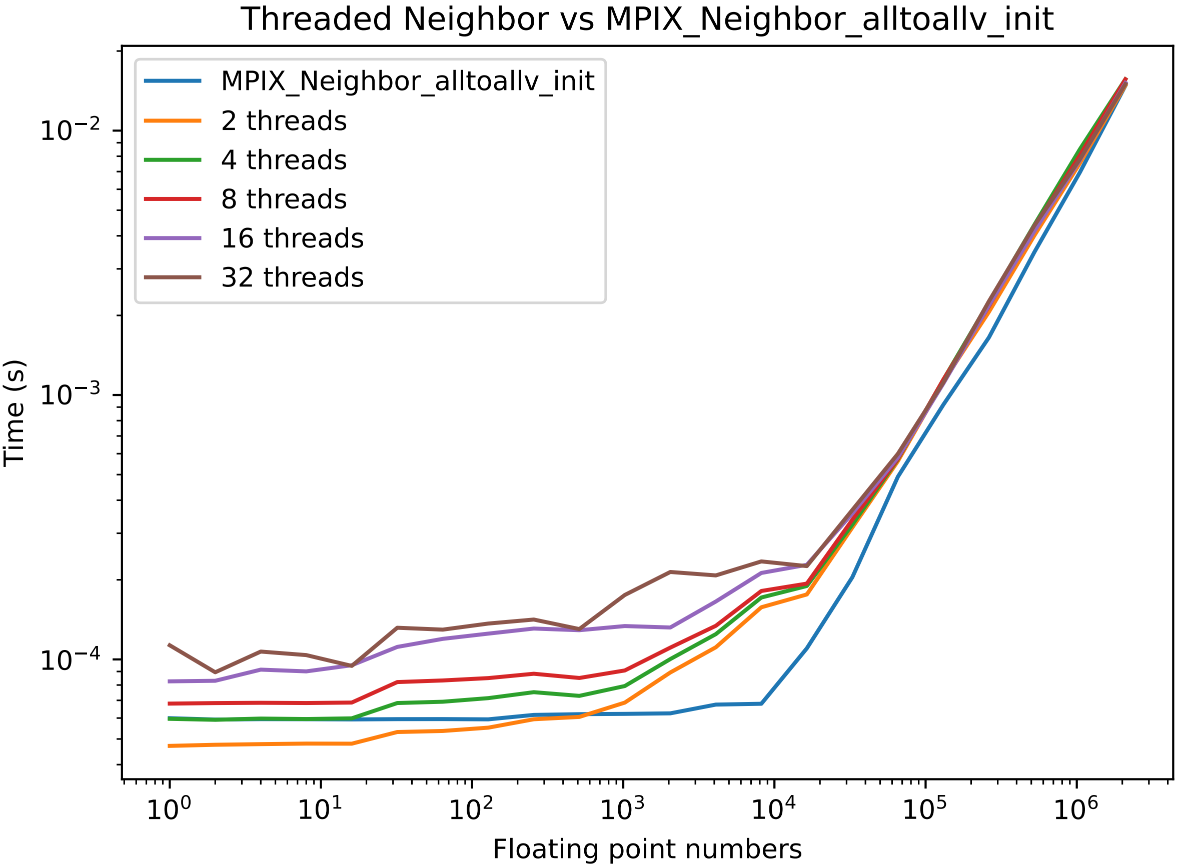

Threaded: 8
Threaded CC Neighbor_alltoallv
Threaded CC alltoall
Threaded CC alltoallv
Time (s)
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{0}
10^{1}
10^{2}
10^{3}
10^{4}
10^{5}
10^{6}
Floating point numbers

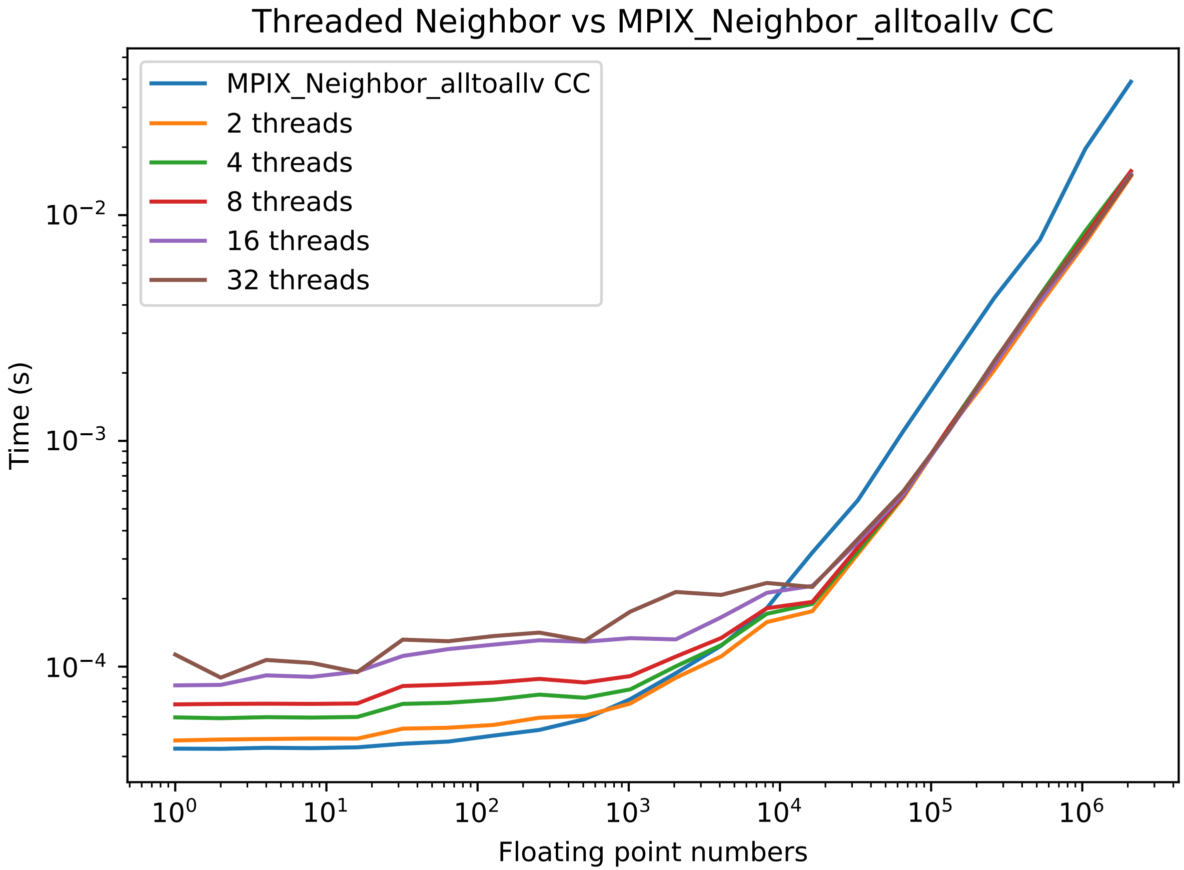

Threaded: 16
Threaded CC Neighbor_alltoallv
Threaded CC alltoall
Threaded CC alltoallv
Time (s)
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{0}
10^{1}
10^{2}
10^{3}
10^{4}
10^{5}
10^{6}
Floating point numbers

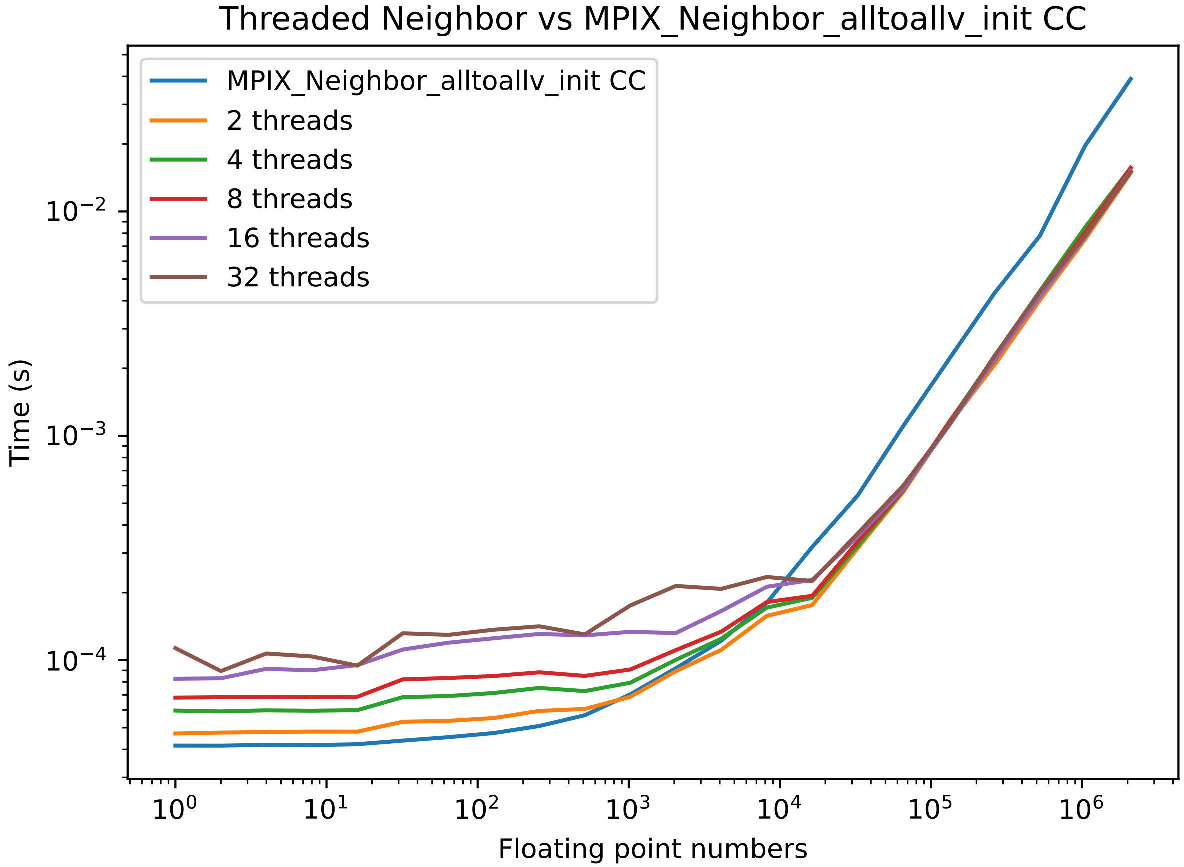

Threaded Neighbor vs MPI_Neighbor_alltoallv
MPI_Neighbor_alltoallv
2 threads
4 threads
8 threads
16 threads
32 threads
Time (s)
10^{-2}
10^{-3}
10^{-4}
Floating point numbers
10^{0}
10^{1}
10^{2}
10^{3}
10^{4}
10^{5}
10^{6}

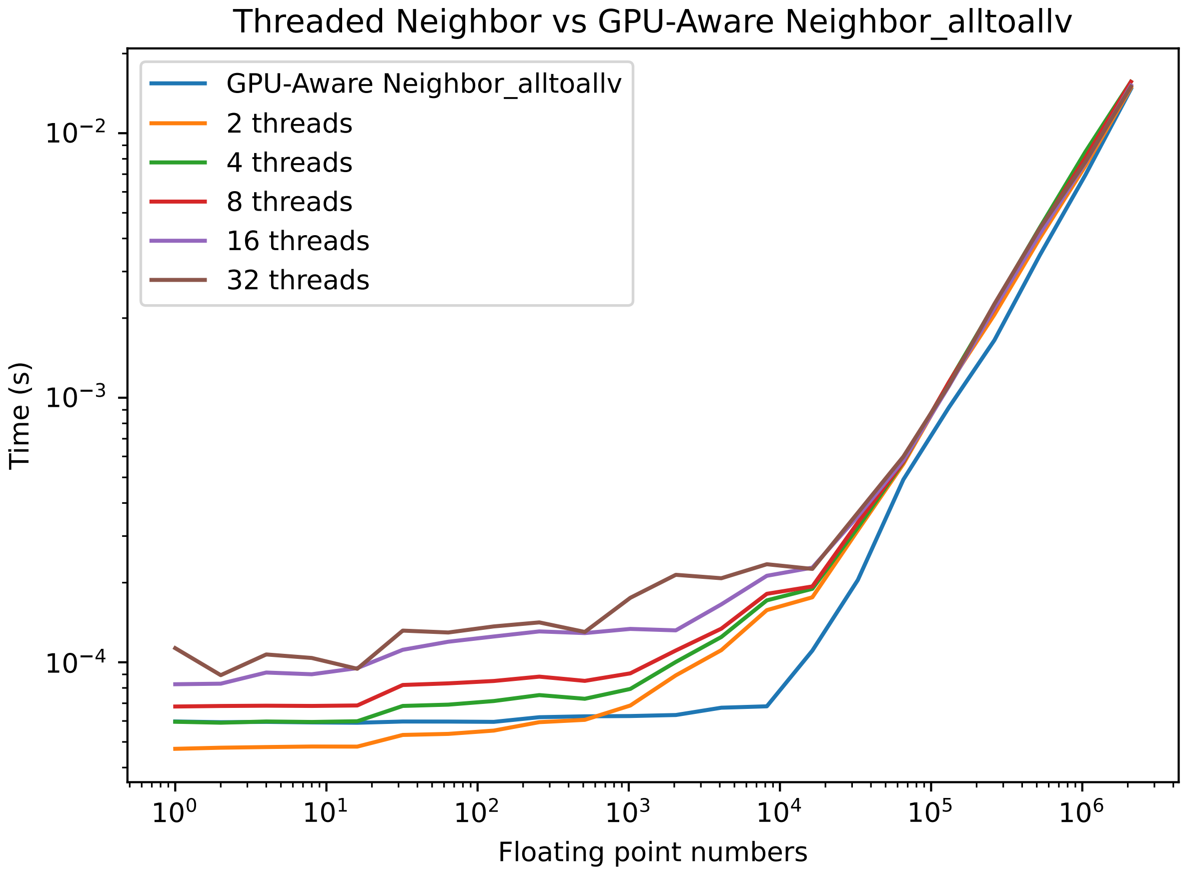

Threaded Neighbor vs MPI_Neighbor_alltoallv CC
MPI_Neighbor_alltoallv CC
2 threads
4 threads
8 threads
16 threads
32 threads
Time (s)
10^{-2}
10^{-3}
10^{-4}
10^{0}
10^{1}
10^{2}
10^{3}
10^{4}
10^{5}
10^{6}
Floating point numbers

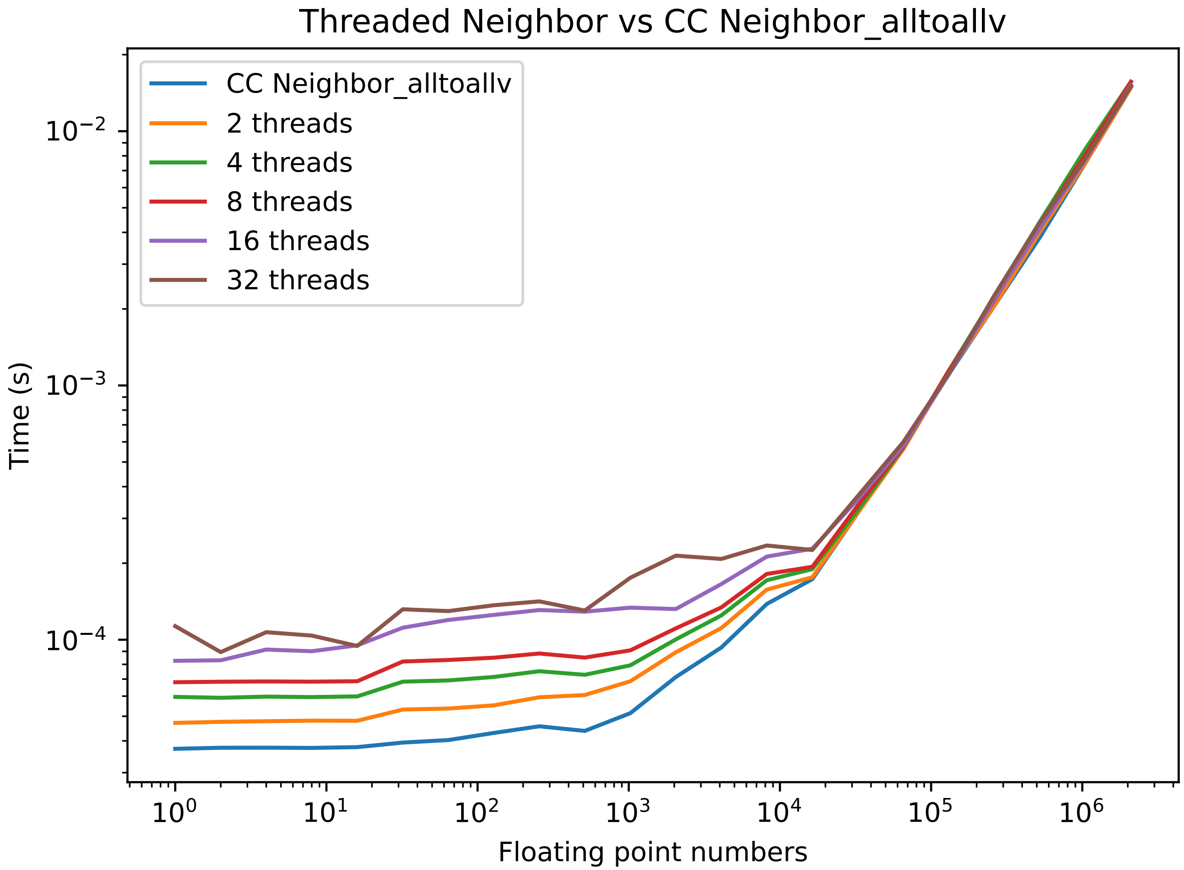

Threaded Neighbor vs MPIX_Neighbor_alltoallv
MPIX_Neighbor_alltoallv
2 threads
4 threads
8 threads
16 threads
32 threads
Time (s)
10^{-2}
10^{-3}
10^{-4}
10^{0}
10^{1}
10^{2}
10^{3}
10^{4}
10^{5}
10^{6}
Floating point numbers

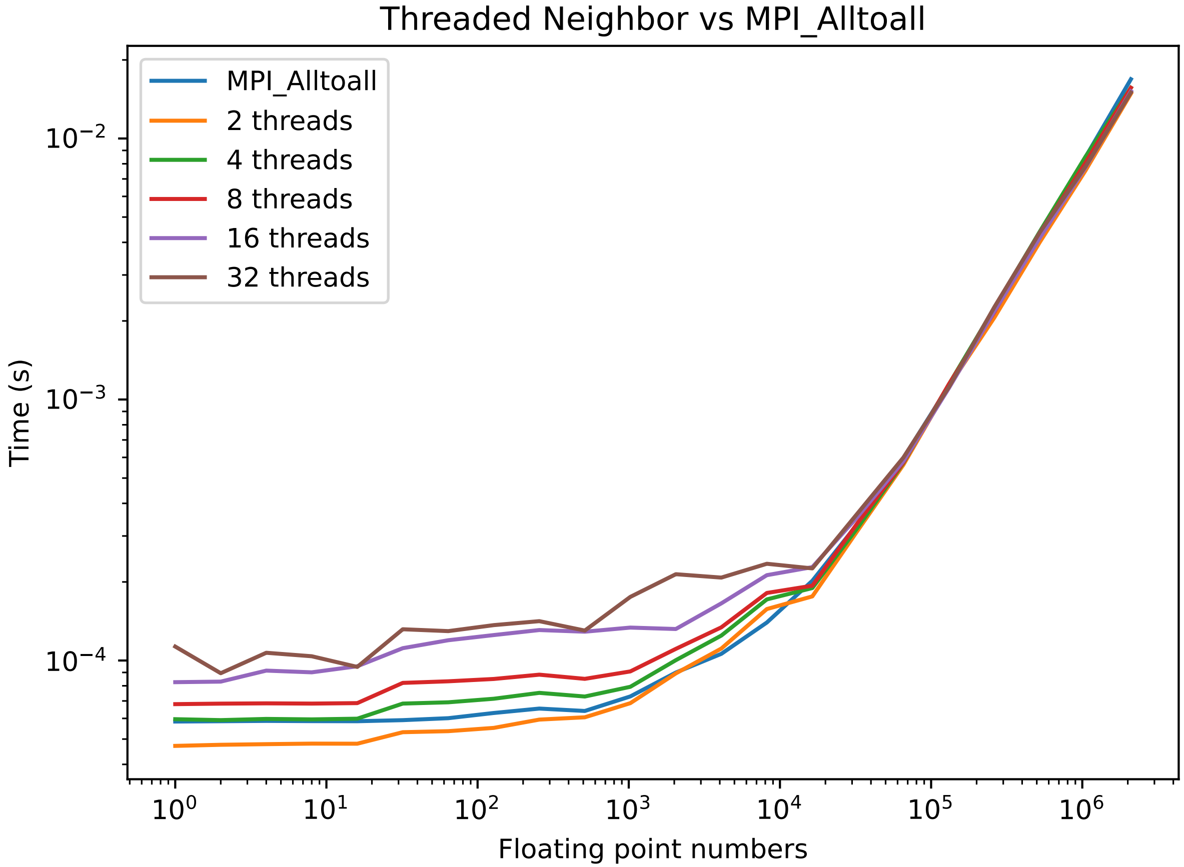

Threaded Neighbor vs MPIX_Neighbor_alltoallv_init
MPIX_Neighbor_alltoallv_init
2 threads
4 threads
8 threads
16 threads
32 threads
Time (s)
10^{-2}
10^{-3}
10^{-4}
10^{0}
10^{1}
10^{2}
10^{3}
10^{4}
10^{5}
10^{6}
Floating point numbers

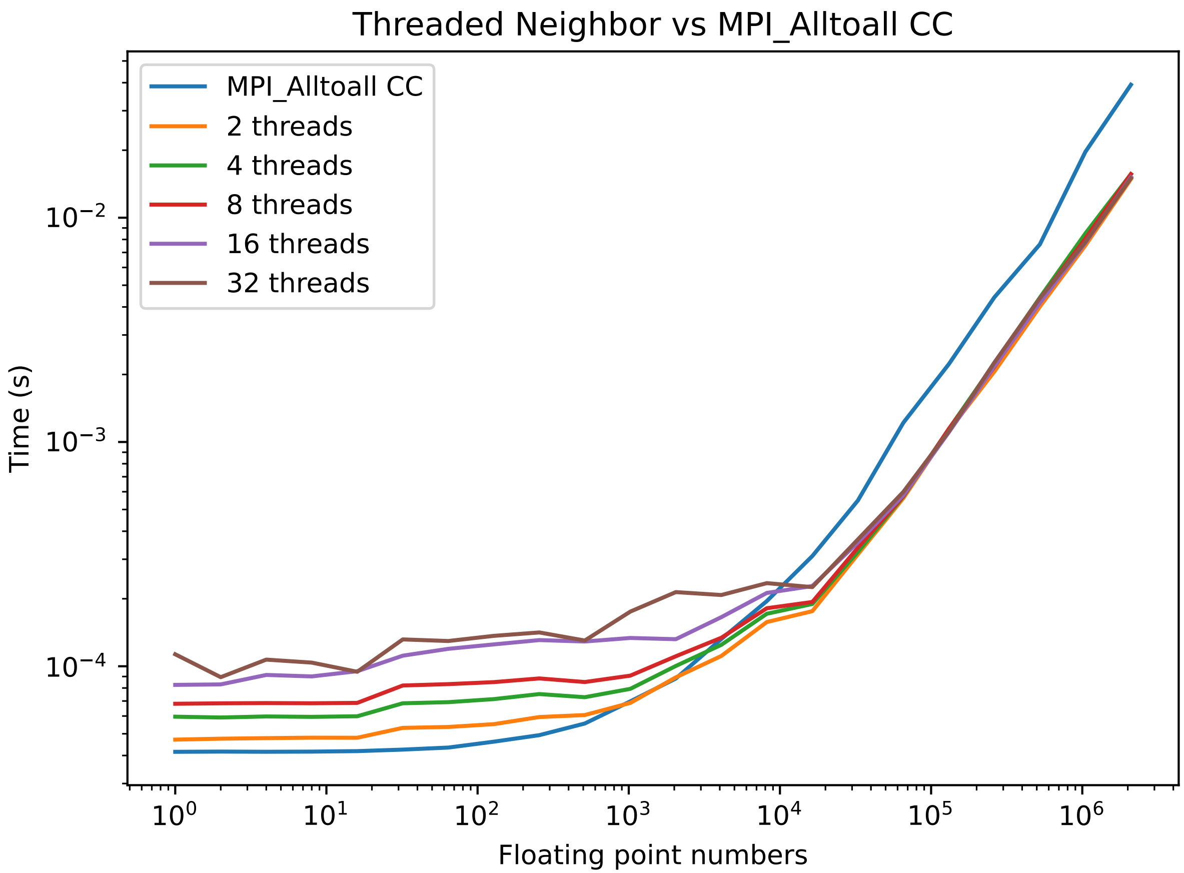

Threaded Neighbor vs MPIX_Neighbor_alltoallv CC
MPIX_Neighbor_alltoallv CC
2 threads
4 threads
8 threads
16 threads
32 threads
Time (s)
10^{-2}
10^{-3}
10^{-4}
10^{0}
10^{1}
10^{2}
10^{3}
10^{4}
10^{5}
10^{6}
Floating point numbers

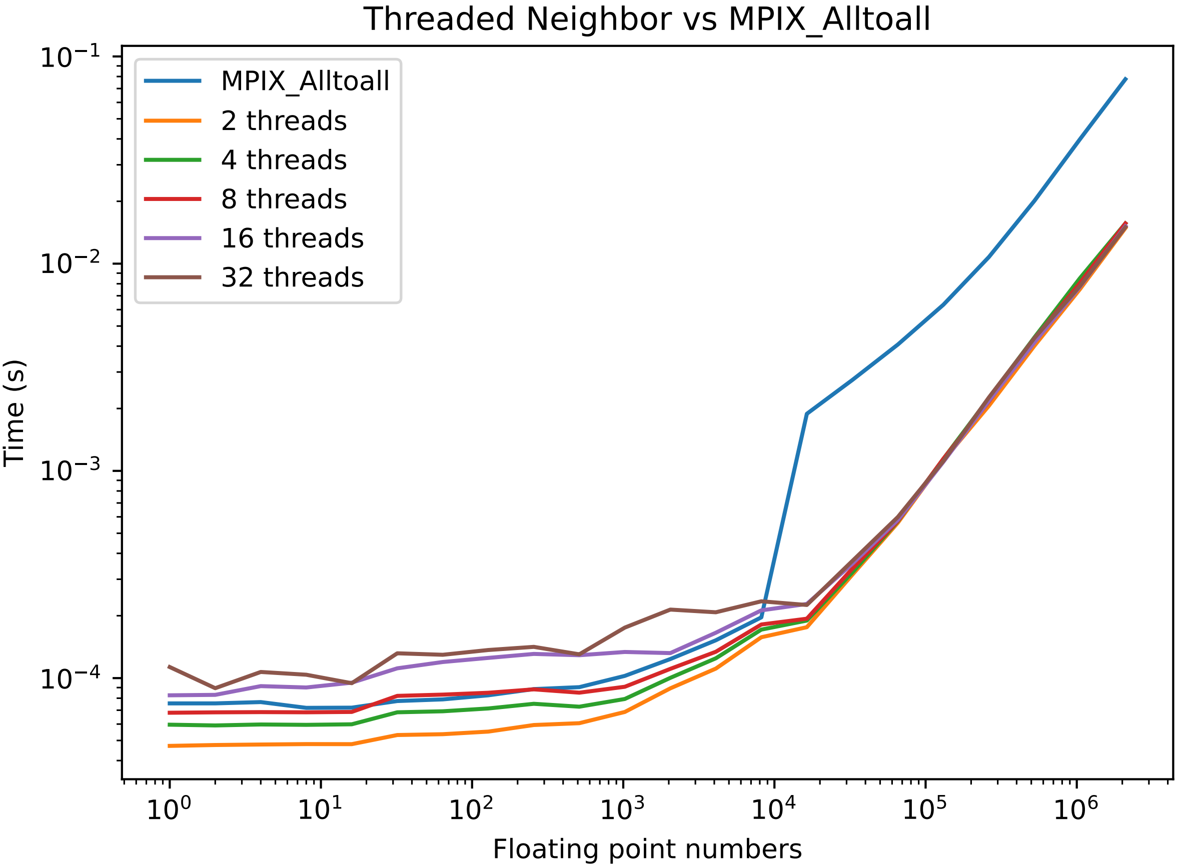

Threaded Neighbor vs MPIX_Neighbor_alltoallv_init CC
MPIX_Neighbor_alltoallv_init CC
2 threads
4 threads
8 threads
16 threads
32 threads
Time (s)
10^{-2}
10^{-3}
10^{-4}
10^{0}
10^{1}
10^{2}
10^{3}
10^{4}
10^{5}
10^{6}
Floating point numbers

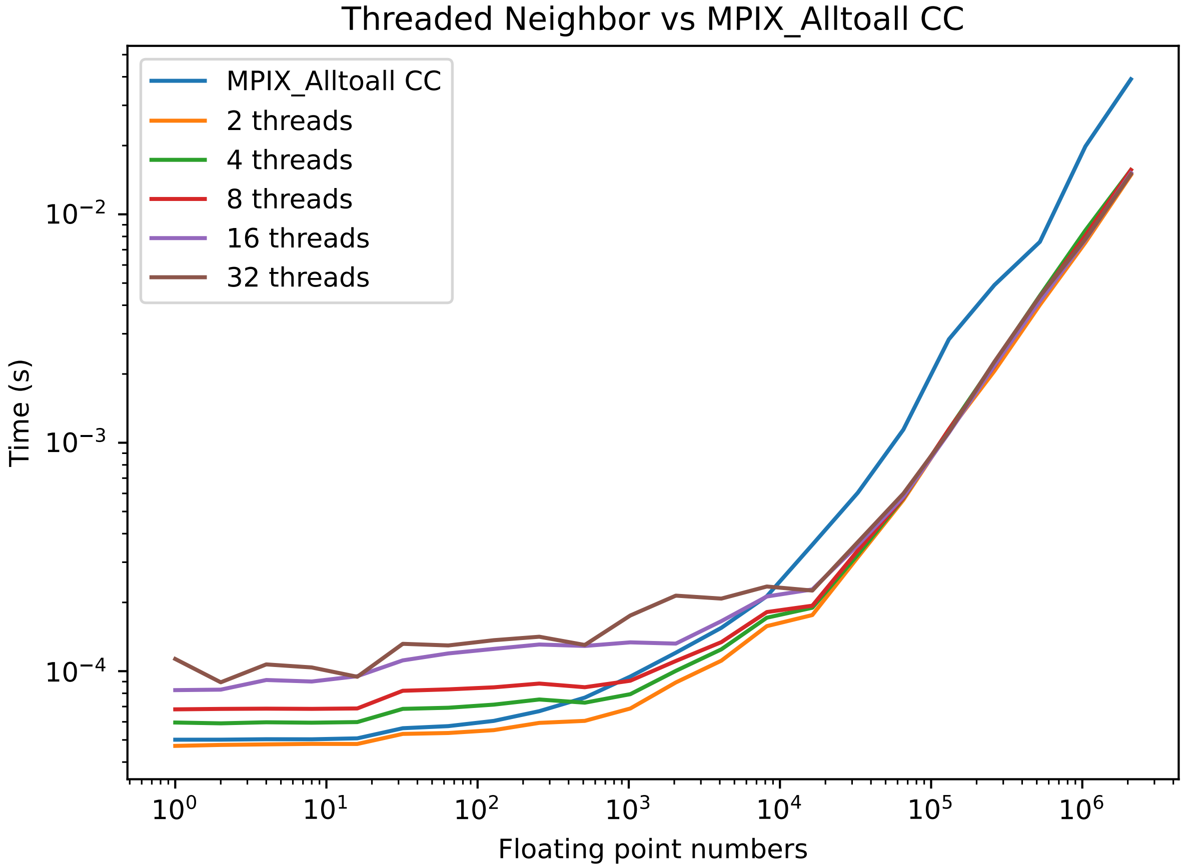

Threaded Neighbor vs GPU-Aware Neighbor_alltoallv
GPU-Aware Neighbor_alltoallv
2 threads
4 threads
8 threads
16 threads
32 threads
Time (s)
10^{-2}
10^{-3}
10^{-4}
Floating point numbers
10^{0}
10^{1}
10^{2}
10^{3}
10^{4}
10^{5}
10^{6}

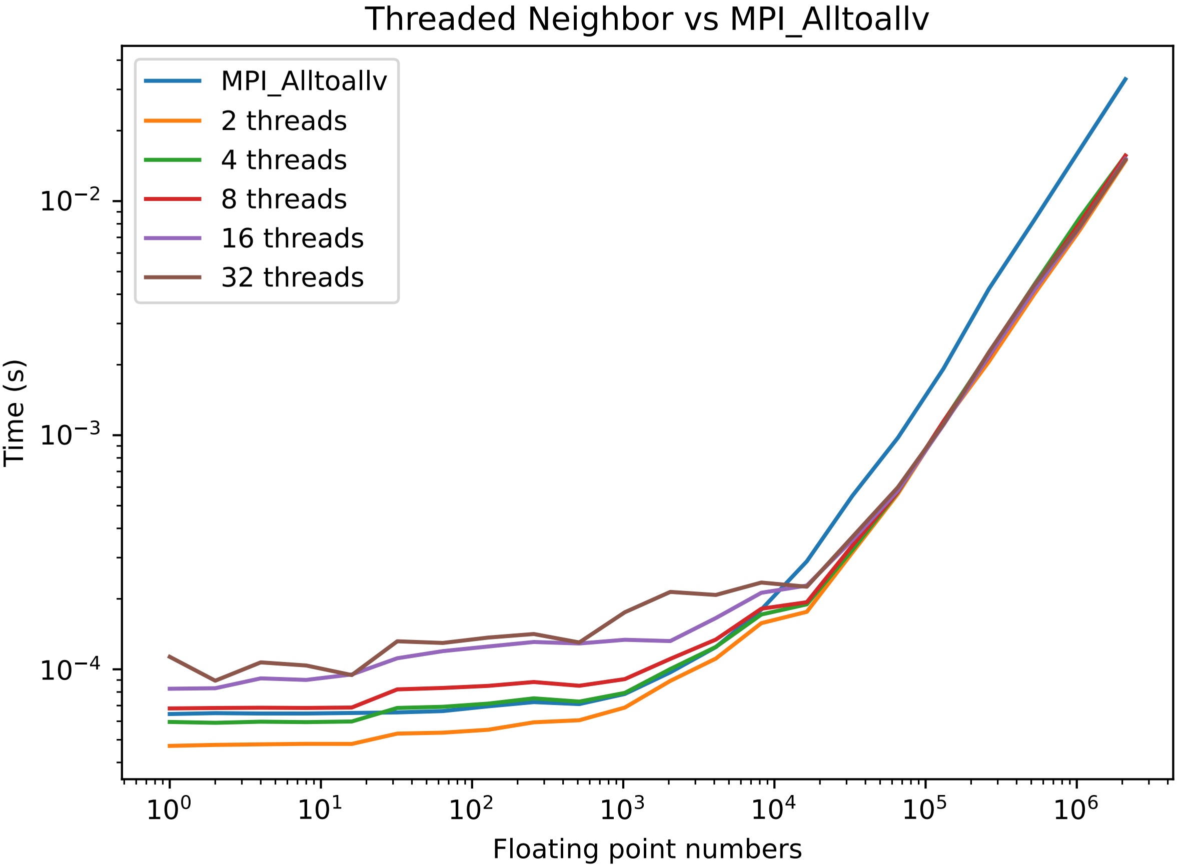

Threaded Neighbor vs CC Neighbor_alltoallv
CC Neighbor_alltoallv
2 threads
4 threads
8 threads
16 threads
32 threads
Time (s)
10^{-2}
10^{-3}
10^{-4}
Floating point numbers
10^{0}
10^{1}
10^{2}
10^{3}
10^{4}
10^{5}
10^{6}

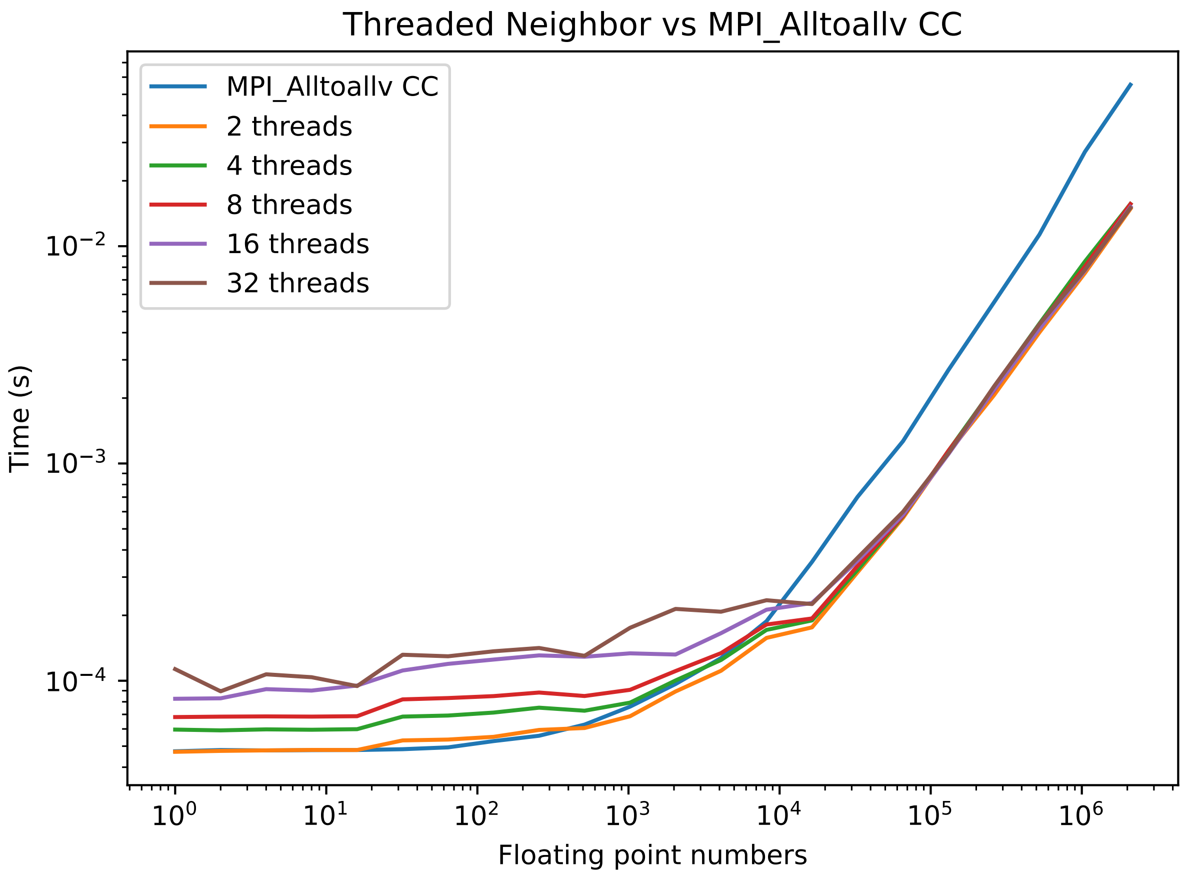

Threaded Neighbor vs MPI_Alltoall
MPI_Alltoall
2 threads
4 threads
8 threads
16 threads
32 threads
Time (s)
10^{-2}
10^{-3}
10^{-4}
Floating point numbers
10^{0}
10^{1}
10^{2}
10^{3}
10^{4}
10^{5}
10^{6}

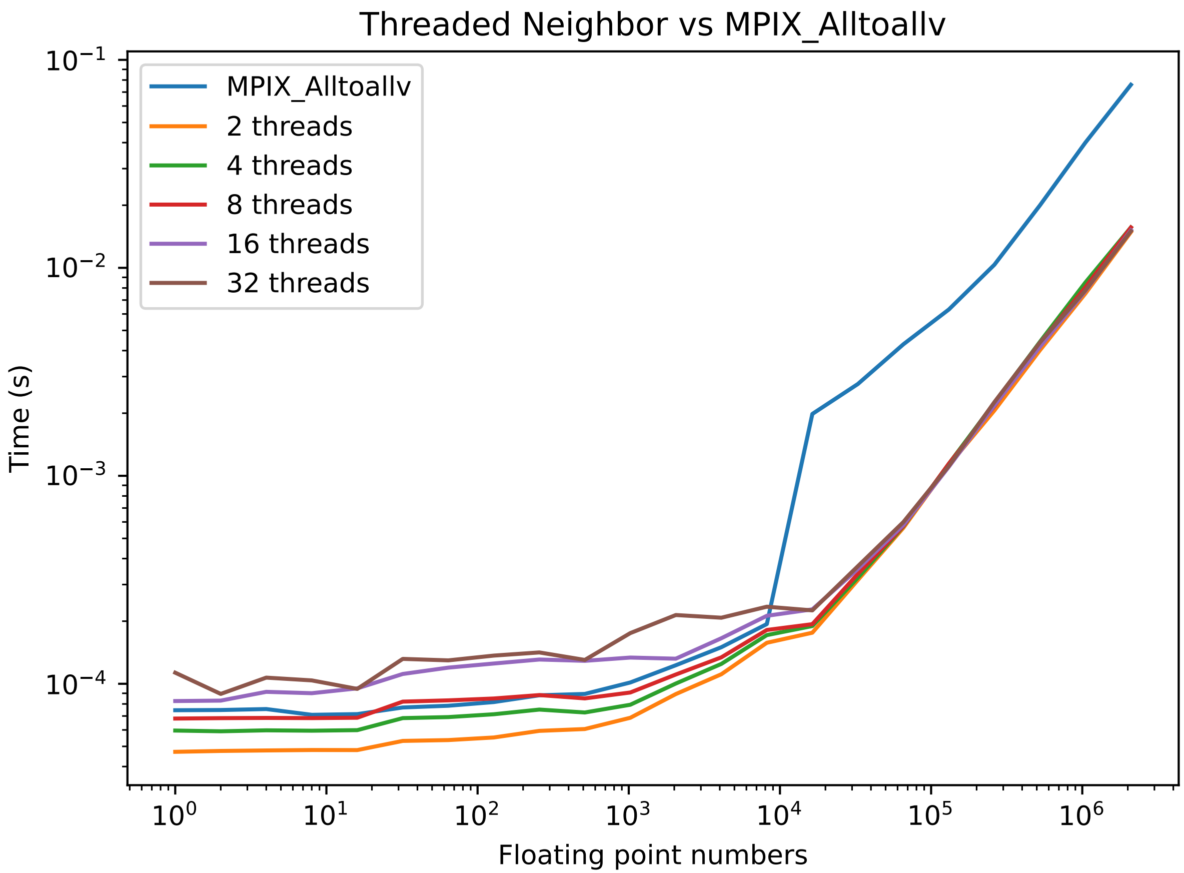

Threaded Neighbor vs MPI_Alltoall CC
MPI_Alltoall CC
2 threads
4 threads
8 threads
16 threads
32 threads
Time (s)
10^{-2}
10^{-3}
10^{-4}
10^{0}
10^{1}
10^{2}
10^{3}
10^{4}
10^{5}
10^{6}
Floating point numbers

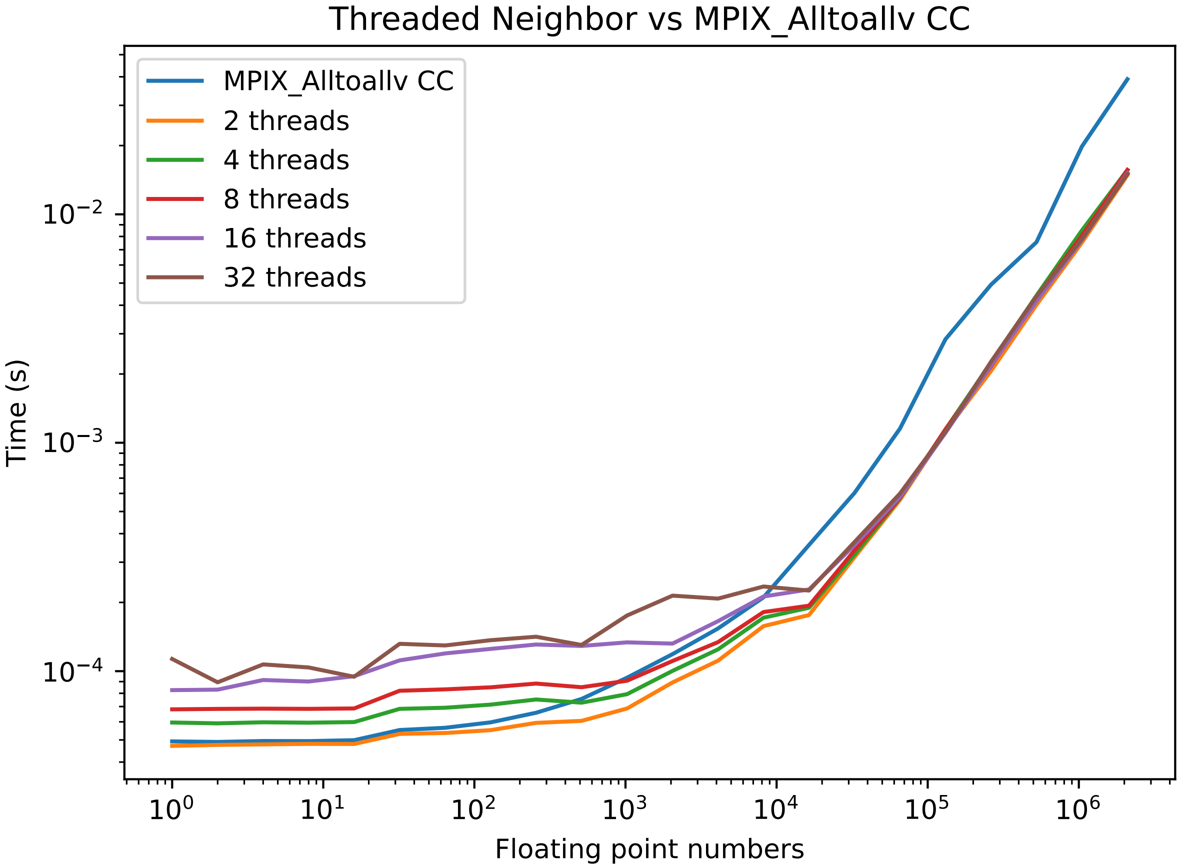

Threaded Neighbor vs MPIX_Alltoall
MPIX_Alltoall
2 threads
4 threads
8 threads
16 threads
32 threads
Time (s)
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{0}
10^{1}
10^{2}
10^{3}
10^{4}
10^{5}
10^{6}
Floating point numbers


Threaded Neighbor vs MPIX_Alltoall CC
MPIX_Alltoall CC
2 threads
4 threads
8 threads
16 threads
32 threads
Time (s)
10^{-2}
10^{-3}
10^{-4}
Floating point numbers
10^{0}
10^{1}
10^{2}
10^{3}
10^{4}
10^{5}
10^{6}


Threaded Neighbor vs MPI_Alltoallv
MPI_Alltoallv
2 threads
4 threads
8 threads
16 threads
32 threads
Time (s)
10^{-2}
10^{-3}
10^{-4}
10^{0}
10^{1}
10^{2}
10^{3}
10^{4}
10^{5}
10^{6}
Floating point numbers


Threaded Neighbor vs MPI_Alltoallv CC
MPI_Alltoallv CC
2 threads
4 threads
8 threads
16 threads
32 threads
Time (s)
10^{-2}
10^{-3}
10^{-4}
10^{0}
10^{1}
10^{2}
10^{3}
10^{4}
10^{5}
10^{6}
Floating point numbers


Threaded Neighbor vs MPIX_Alltoallv
MPIX_Alltoallv
2 threads
4 threads
8 threads
16 threads
32 threads
Time (s)
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{0}
10^{1}
10^{2}
10^{3}
10^{4}
10^{5}
10^{6}
Floating point numbers


Threaded Neighbor vs MPIX_Alltoallv CC
MPIX_Alltoallv CC
2 threads
4 threads
8 threads
16 threads
32 threads
Time (s)
10^{-2}
10^{-3}
10^{-4}
10^{0}
10^{1}
10^{2}
10^{3}
10^{4}
10^{5}
10^{6}
Floating point numbers