

1 MPI Latency and Bandwidth

1.1 Lantency

Mode	Avg Roundtime(us)
Intra-node	0.56
Inter-node	2.61

1.2 Bandwidth

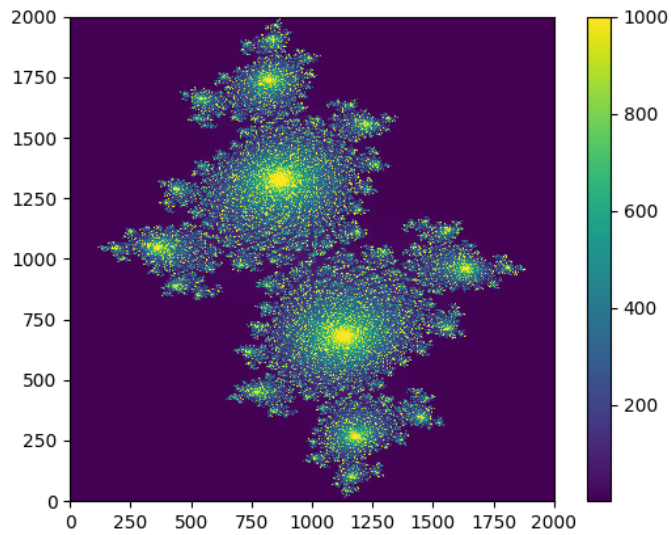
Mode	Unit	Bandwidth(GB/s)
Intra	KB	0.23
Intra	MB	8.27
Intra	GB	4.35
Inter	KB	0.007
Inter	MB	0.69
Inter	GB	2.86

For intra-nodes mode, there is a peek speed between MB and GB.

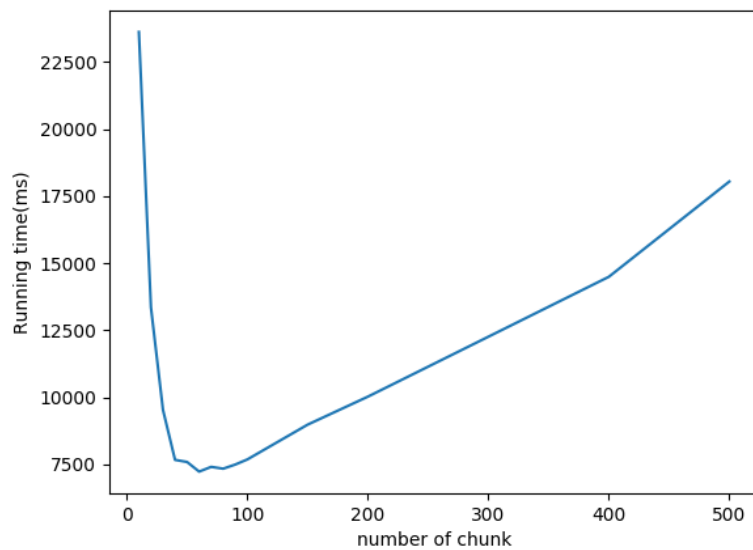
For inter-nodes mode, transmission speed increases when data size increases.

2 Julia Set

2.1 Serial

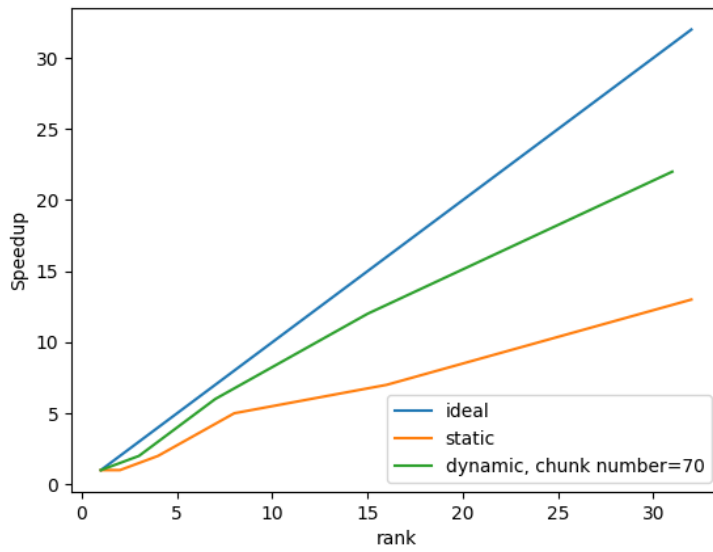


2.2 MPI Dynamic Load Balancing



As shown in plot, we choose chunk number = 70 as parameter in following performance analysis.

2.3 Performance Analysis



Dynamic scheduler does much better than it does in Pset 1 because in this problem, the load of every sub problem is imbalanced, dynamic decomposition can really make use of unoccupied processors.