

# Problem Set 3 - MPI JULIA SET

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Ping Test:

Intra-node avg (5 runs): 1.03 microseconds

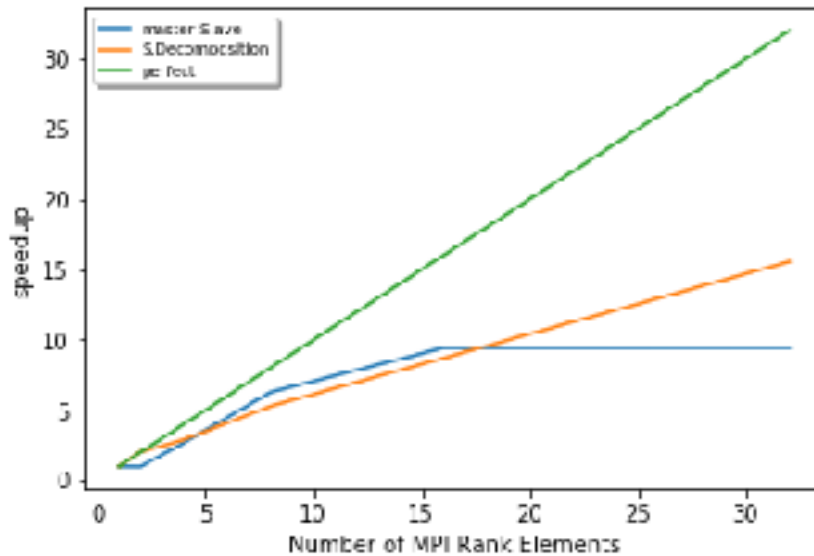
Inter-node avg (5 runs): 3.0347 microseconds

Bandwidth test:

Internode bandwidth			
1KB (size)	120353 kb/sec	120 mb/sec	0.12 gb/sec
1MB (size)	3429240 kb/sec	3428 mb/sec	3.43 gb/sec
1GBm (size)	35878871 kb/sec	3587 mb/sec	3.58 gb/sec

Intranode bandwidth			
1KB (size)	277768 kb/sec	227 mb/sec	0.27 gb/sec
1MB (size)	3381276 kb/sec	3381 mb/sec	3.38 gb/sec
1GBm (size)	3883915 kb/sec	3883 mb/sec	3.88 gb/sec

\*\*\*Code located in zip file - see readme for exact file names



## Strong Scaling Study:

### *Summary:*

My results showed a drop-off in speedup when approaching 15-20 cores. The master slave implementation had no speedup (slight increase) in time when testing on 2 nodes, which makes sense as 1 node is doing all the work + 1 master is adding overhead. I experienced an odd result for the 32 rank test on master slave where I got variable times but an average of the similar time for the static decomposition. I am not sure if this is due to my implementation but tried various scripts and versions; still received a suboptimal result when scaling to 32 ranks. The static decomposition scales well with a slow % drop off as more cores are added. (Note all tests did include printing the matrix, which the different implementations I had for printing m-slave vs static may have an impact on the times recorded.)

*Summary:*

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