LAB2

1.

Speed up for matrix size 1024

3.08

3.1

2.79

1.759

1.497

Speed up

Number of nodes

Efficiency for matrix size 1024

0.748

0.4399

0.3498

0.1925

0.097

Efficiency

Number of nodes

Speed up and Efficiency for matrix size 1024

Speed Up for matrix size 512

Efficiency for matrix size 512
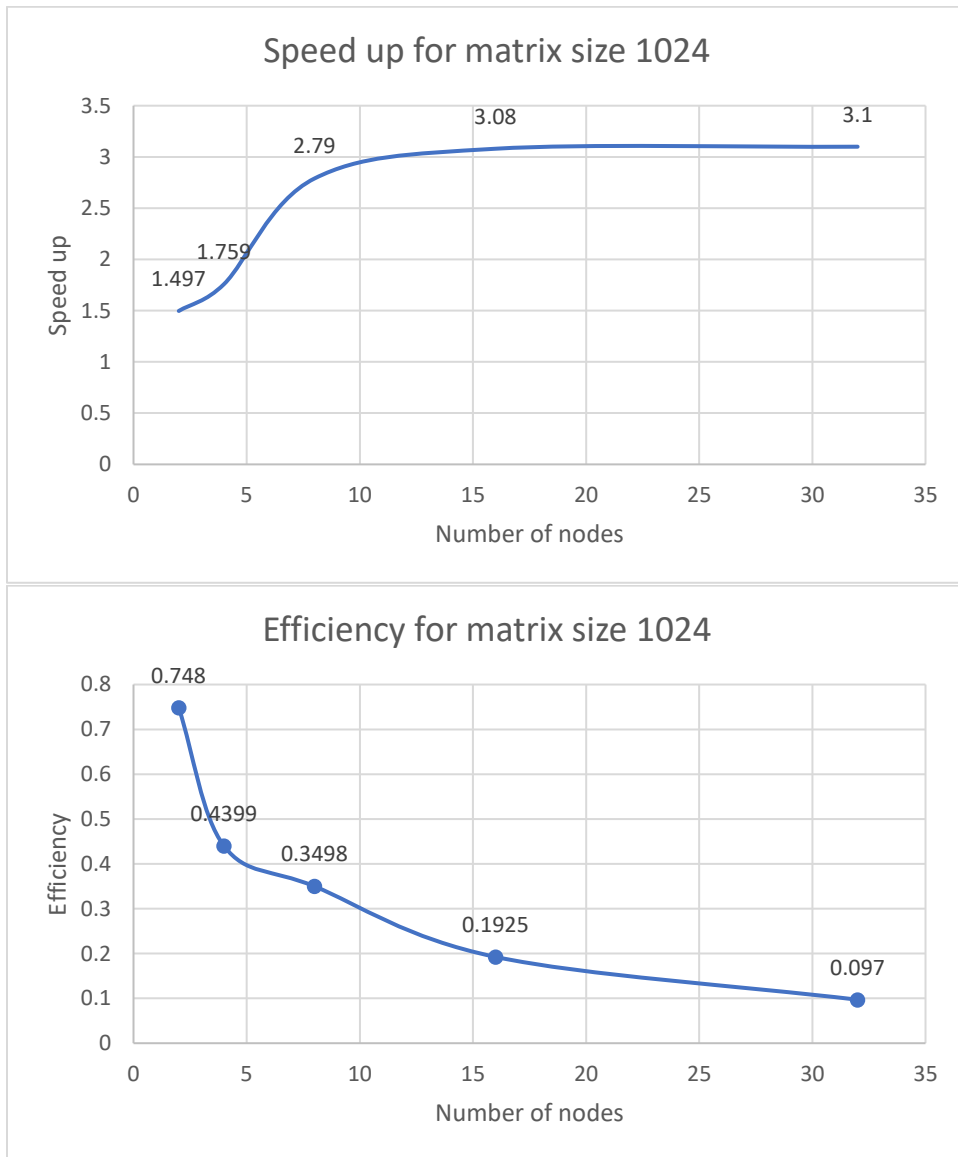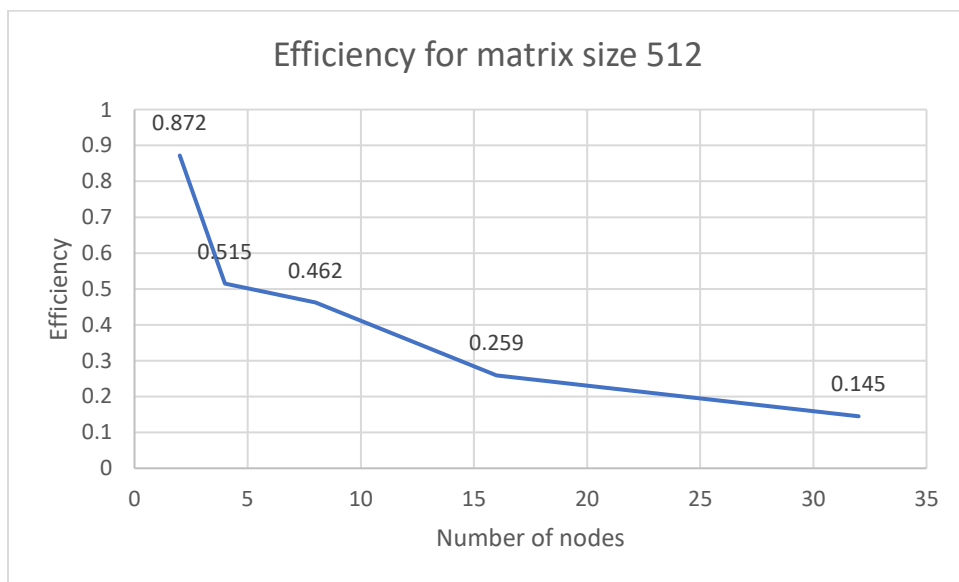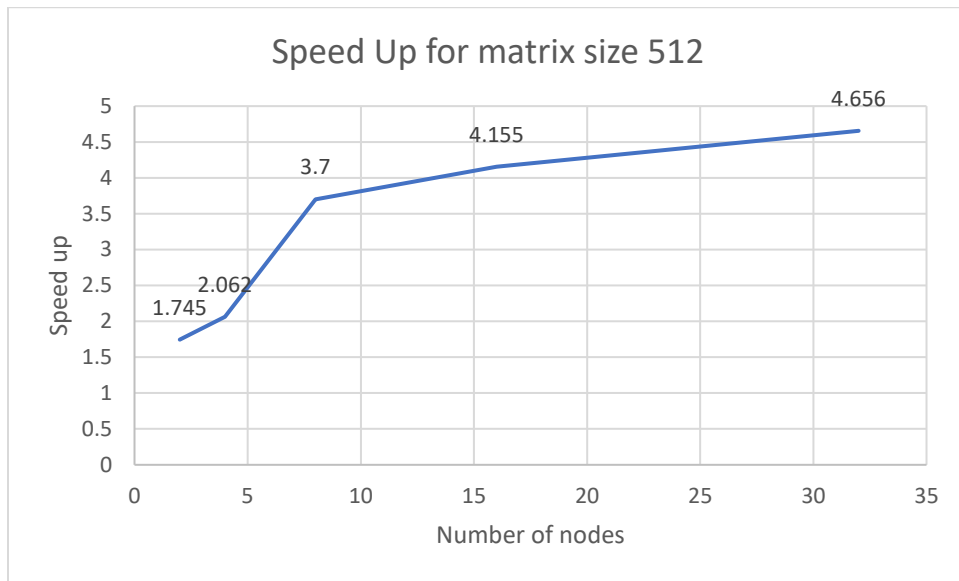

Speed up and efficiency of matrix size 512

From the above plots we can conclude that as the number of nodes increase (here I have considered nodes 2, 4,8,16 and 32), we see that the time taken to execute the program decreased and the speed up has increased. Similarly, the efficiency has decreased.

We see that the speedup is not ideal because we have parallelized only a part of the code i.e; reading a file is serial.
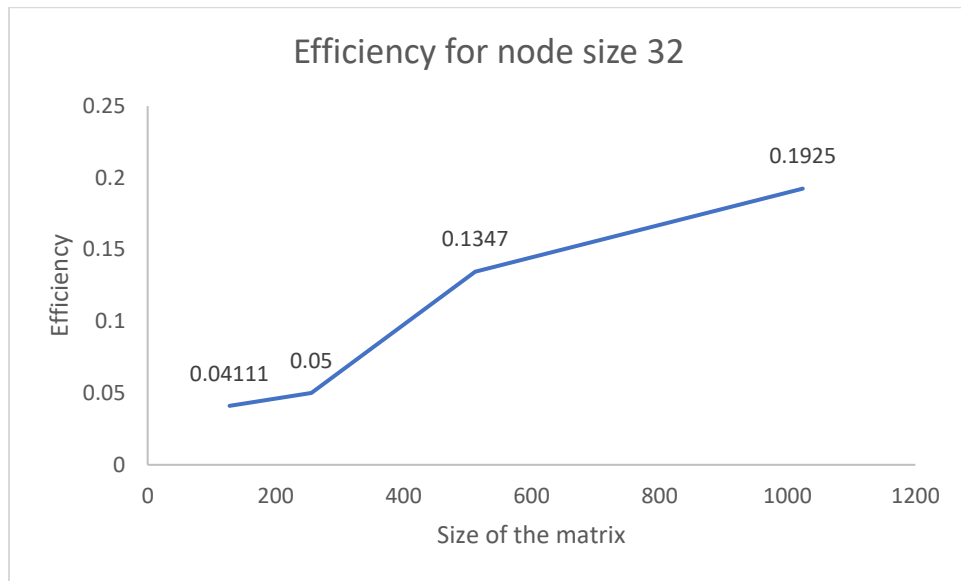
The speedup has increased because we are increasing the number of nodes and hence this decreases the time taken to compute the result.

Efficiency is the fraction of time for which the processor was fully utilized. As the number of nodes increases, the time for which each node is used decreases, therefore we see a downward trend.

2.

Akshya Srinivasa Raghavan
1001547268

Efficiency for node size 32
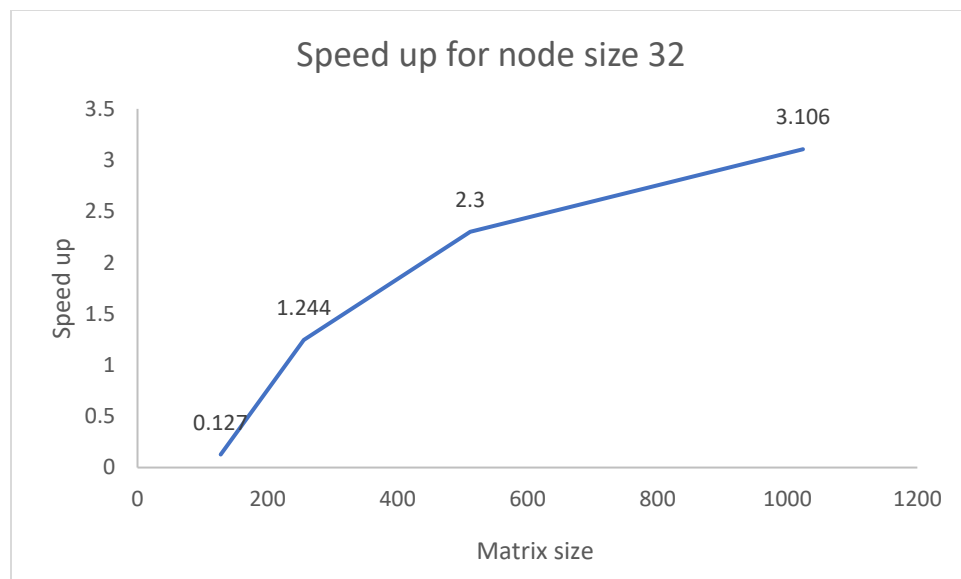
From the above plots we can see that both speed up and efficiency has increased with the increase in the size of the matrix.

Speed up sees an upward trend because as the matrix size increases, the time to compute the result will increase, this increases the speedup ratio. Therefore we see an upward trend here.

Efficiency sees an upward trend because as the matrix size increases, the time spent on computing on each node increases