Assignment 6 – MPI Basics

Q1. Hello World.

Answer: The generated output is in files run.sh.o65022, run.sh.o65023, run.sh.o65024.

Q2. Numerical Integration. - Do you observe speedup higher than can be achieved on a single machine?

Answer: Yes, the observed speedup is much higher than that can be achieved on a single machine. The highest speedup achieved is Num Nodes=4 Cores per node=8. The achieved speedup is **"32"** when the value of N = 10000000 and Intensity = 1000.

Q3. Matrix Vector Multiplication. - Do you observe that the code ran on matrices than can not fit in the memory of a single node? Do you observe performance at scale?

Answer: Yes, from the time table generated for 2 iterations we can see that for single node, matrices with very high values of N have no values generated i.e. "N/A" in table. Yes, we can also see that the performance increases as we increase the number of nodes. When number nodes are increased to 5 we can see maximum speedup of "**24**" for N=72000.