Thursday, 24 January 2019

# Information file for HW 4

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## Parallel Processing

- The blocking communication programs for the 1st question are labelled as hw4-rect for rectangular method of approximation and hw4-sim for the Simpson rule implementation.
  - The non-blocking communication programs for the same are labelled as hw4-rect-nb and hw4-sim-nb respectively.
  - All the results obtained for execution time and accuracy were obtained by running the non-blocking variants of the two implementations on Stampede2.
- There are two serial versions of the program labelled rect-serial and simp-serial which were used to calculate the non-parallel ( P = 1) execution times for the respective implementations.
  - These programs are not written using MPI libraries to nullify any communication overhead caused by sending and receiving values to and from the 0th processor to itself. They are to be compiled using gcc compiler. ( Tested locally (version 9.2) and on Stampede2 )
  - The serial times are not mentioned in the results but were used to calculate scalability of the various configurations of the program.
- The other two programs named hw4-bcst and hw4-sr were used to calculate broadcast and send receive times for question 2 of the homework 4.
  - The array size is to be passed as a command line argument as a single integer value.

    mpirun -np <no.of processors> <output file> <array size>
  - The program will display the array from each processor upon execution.