

SIT315 – Programming Paradigms

TaskM3.T1P: MPI, OpenMP and OpenCL Matrix Multiplication

Greg McIntyre

218356779

1. Modify your matrix multiplication program to use MPI to distribute work on nodes.

<https://github.com/gregorymcintyre/ProgrammingParadigms/blob/master/M3.T1P%20-%20MPI%20Matrix%20Multiplication/MPI.cpp>

SCREENSHOTS OF OPERATION CAN BE FOUND AT
<https://github.com/gregorymcintyre/ProgrammingParadigms/tree/master/M3.T1P%20-%20MPI%20Matrix%20Multiplication/Screenshots>

2. Evaluate the performance of your program vs sequential and multi-threaded solution.

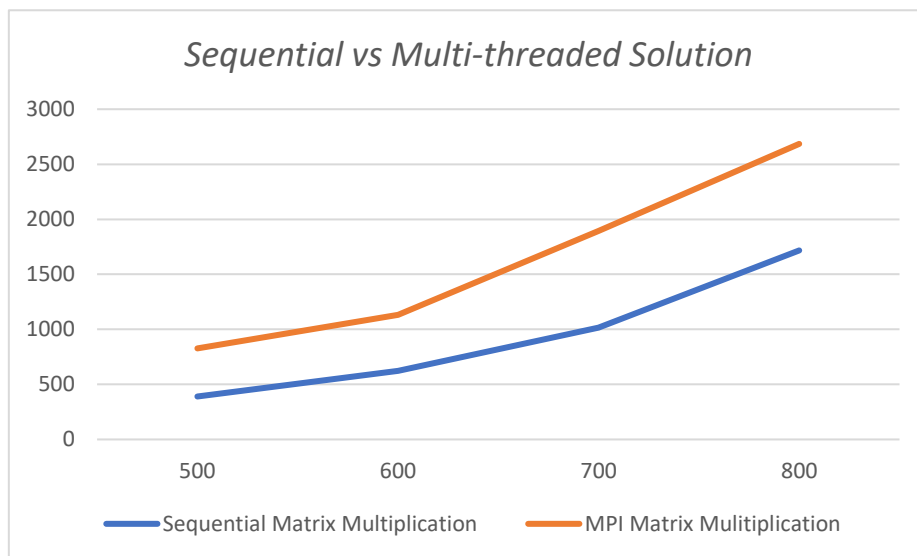


Figure 1: Sequential and Multi-threaded solution comparison

3. Modify your code to use OpenMP on the slave nodes.

<https://github.com/gregorymcintyre/ProgrammingParadigms/blob/master/M3.T1P%20-%20MPI%20Matrix%20Multiplication/openmpMPI.cpp>

SCREENSHOTS OF OPERATION CAN BE FOUND AT
<https://github.com/gregorymcintyre/ProgrammingParadigms/tree/master/M3.T1P%20-%20MPI%20Matrix%20Multiplication/Screenshots>

4. Evaluate the performance of your program vs the other two.

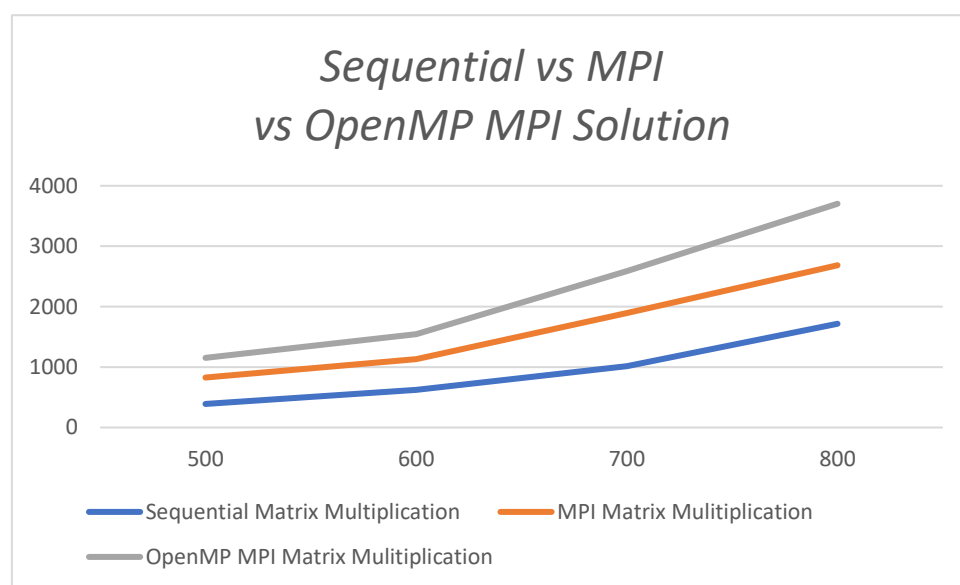


Figure 2: sequential and multi-threaded solution vs OpenMP comparison

5. Modify your code to use OpenCL.

<https://github.com/gregorymcintyre/ProgrammingParadigms/blob/master/M3.T1P%20-%20MPI%20Matrix%20Multiplication/openclMPI.cpp>

SCREENSHOTS OF OPERATION CAN BE FOUND AT

<https://github.com/gregorymcintyre/ProgrammingParadigms/tree/master/M3.T1P%20-%20MPI%20Matrix%20Multiplication/Screenshots>

6. Evaluate the performance of your programs.

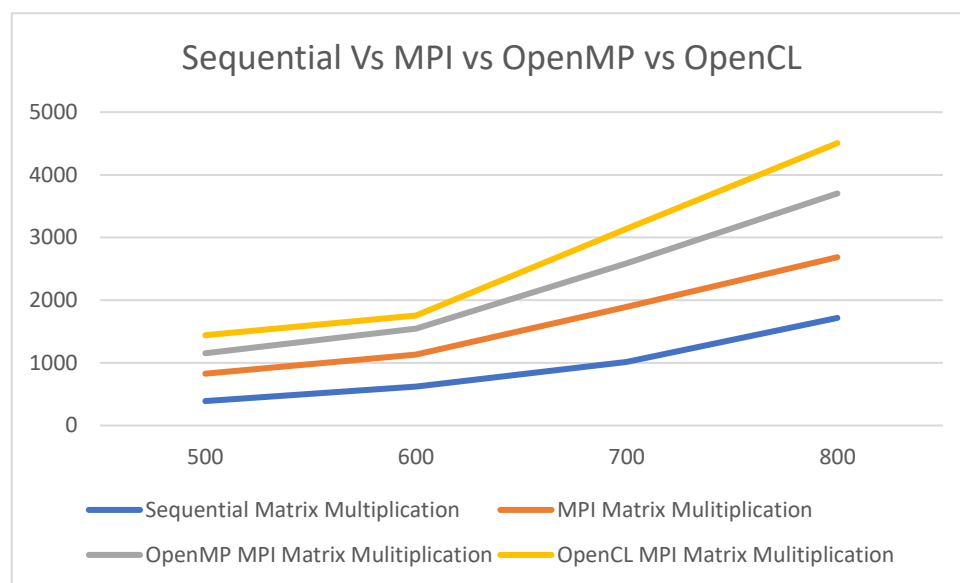


Figure 3: Sequential Vs MPI vs OpenMP vs OpenCL

7. Document your results and present your findings

This Document.

8. Submit your task as detailed on the submission details section above to OnTrack.

Submitted
