# SIT315 – Programming Paradigms

TaskM3.T1P: MPI, OpenMP and OpenCL Matrix Multiplication

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### 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>

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### 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*

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### 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