# Introduction

This report aims to serve as an analysis and documentation for the process of parallelisation of the maxwell source code provided by the assignment. Three versions of parallelisation are needed for this assignment, respectively a On-node parallelisation with the help of OpenMP, The Message Passing Interface (MPI), CUDA.

# Parallelisation Approach

## On node parallelisation – OpenMP

## Approach taken for the parallelisation of MPI

## Approach taken for the parallelisation of the CUDA model

# Validation

The validation process used to verify the correctness of your applications.

The validity of each programming model was done by comparing the log files of each programming model against the original file, which also had a timer added to it with the help of the time.h library;

The most important values that were compared where those of the variables called: E magnitude and B magnitude from each 100 steps until the end of the execution.

# Experimental Setup

A summary of the systems used for performance evaluation and an account of the process of collecting results.

# Performance Evaluation

Appropriate data demonstrating the performance and scaling behaviour of your applications.

# Comparative Analysis – Conclusion for it

A comparative analysis of your three applications. And the conclusion.