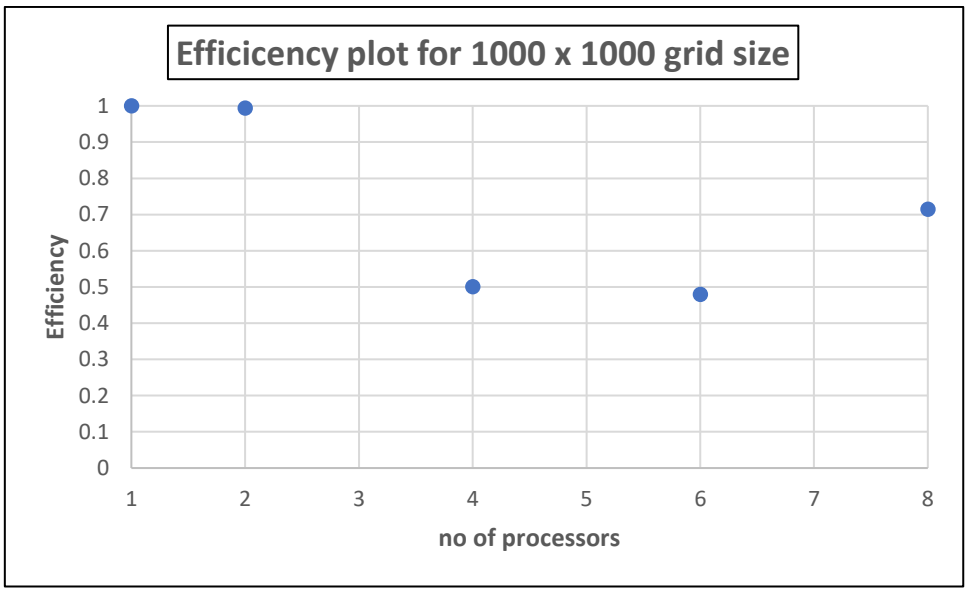
Performance Analysis

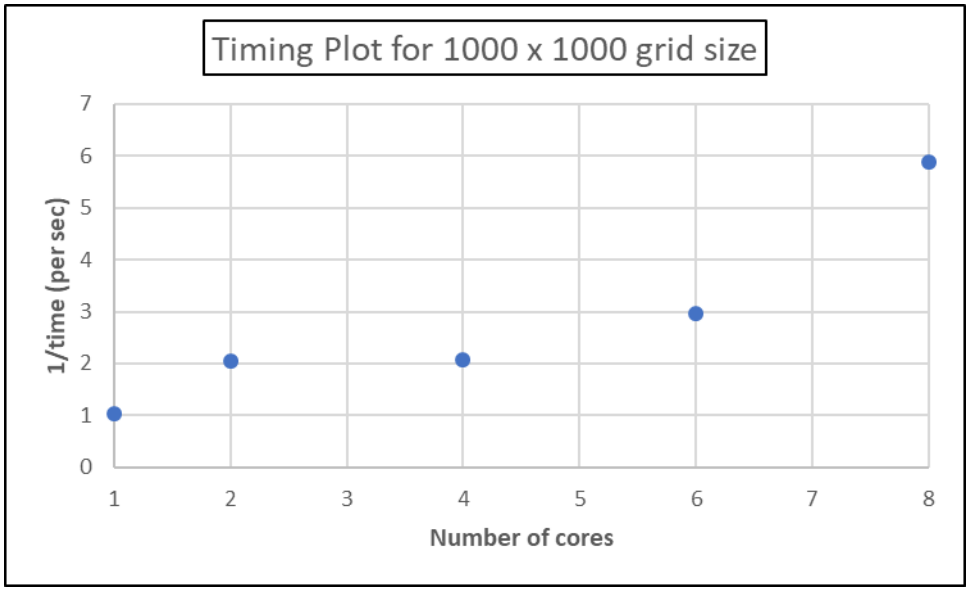
A parallel game of life code was written, using peer-peer communication amongst processors. Several functions were created to make the code compact and easy to understand. Performance analysis was done by timing the code for different grid sizes, with **100** iterations. This was done using the imperial college HPC cx1. The grid sizes were increased from 1000 to 10,000. The efficiency of the parallelisation for 1000 x 1000 grid size was done using the formula below;

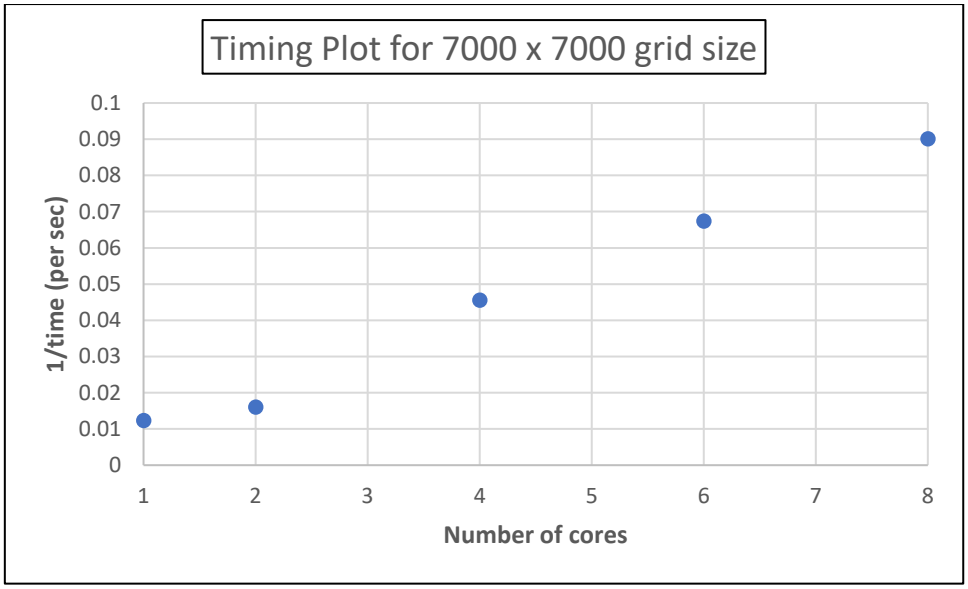
$$Efficiency = \frac{Time\ on\ 1\ CPU}{Time\ on\ "n"\ CPU\ \times n}$$

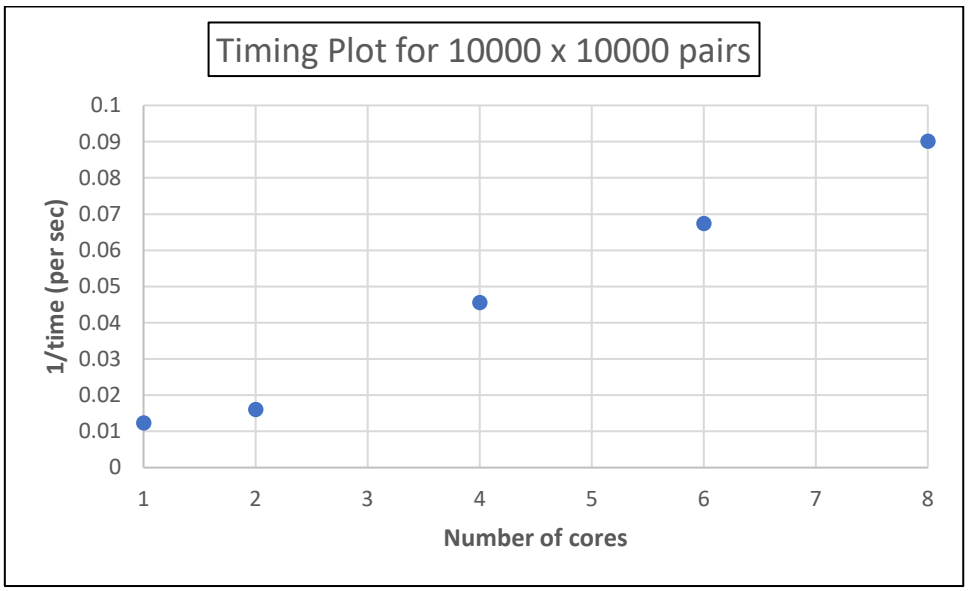
Below is the efficiency plot;



The plots of the inverse of time against number of cores were also generated to check the speedup of the simulation as number of processors is increased.







Conclusion: Overall, with the scenarios considered, the parallelisation led to speeding up of the simulation, as the speedup time increases with number of cores.