HPC MPI - Hands on

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Abstract

This analysis aims to implement an algorithm that computes the approximation of π in a parallel fashion making use of the MPI interface. Moreover, a comparison with the openMP implementation discusses in the previous exercises can be found.

1 Results

The algorithm was run for 1, 2, 4, 8, 16, 20, 30 and 40 processes. The running time was measured and plotted in figure **??**. It is clear how the processes need more overhead to be launched and coordinated than openMP. However, as the number of processes increases, the MPI behaviour gets closer to the openMP one, this is probably due to the fact that the overhead associated with the processes is mainly given by setting the environment and remains constant with the number of processes. This means that the ration overhead/processes decreases and the running time tends to the openMP one.

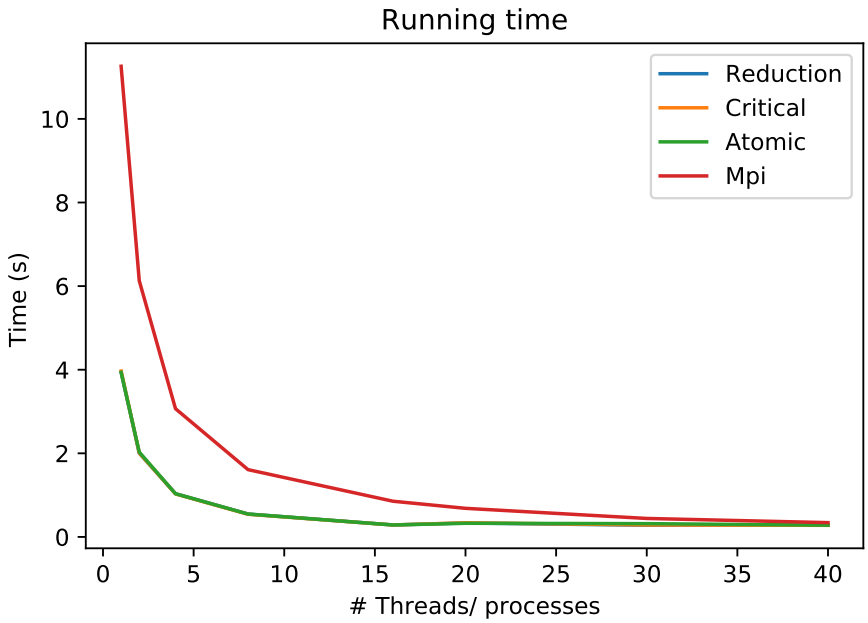

Figure 1: Comparison between the MPI and OpenMP implementations.