Parallel sorting

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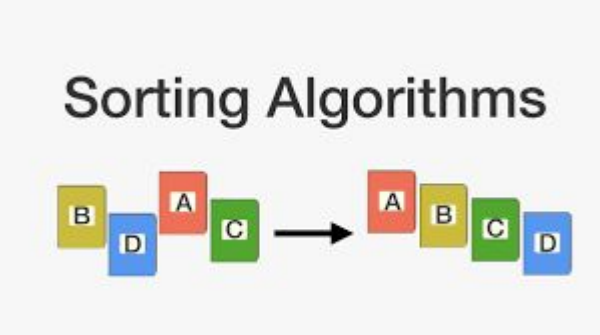
Sorting problem

Sorting is a fundamental building block for many computer programs, for which efficient algorithms have been developed for many parallel architectures. Some algorithms are based on sorting procedures as the basis of their own efficiency, others use mathematical apparatus very close to sorting. It is important to have efficient sorting routines on every software platform, and there is an ongoing need to research sorting methods on new architectures.



Expected results

We assume that with the use of parallelization, execution time will be several times faster.

In the best case, when using n threads, we will get an acceleration of n times

Why problem is important?

Sorting operations are widely used in databases. The construction of spatial data structures in graphical applications and geographic information systems also relies on sorting. Sorting is used in the implementation of sparse matrix multiplication algorithms and parallel programming frameworks such as MapReduce.

How does our project relate to distributed systems course book?

Our project is related to the book because there are several chapters are devoted to the topic of OpenMP. It talks about this library, the methods underlying parallelization in OpenMP. The book also mentions how to compile and run OpenMP programs and some examples like Pi calculation, Mandelbrot calculation and etc.

Which technologies do we use?

We plan to use the C + OpenMP programming language

Thank you for your attention