Abstract

Sorting is a well-interrogating issue in computer science. Many authors have invented numerous sorting algorithms on CPU (Central Processing Unit). In today's life, sorting on the CPU is not so efficient. To get the efficient sorting parallelization should be done. There are many ways of parallelization of sorting but at the present time GPU (Graphics Processing Unit) computing is the most preferable way to parallelize the sorting algorithms. Many authors have implemented the some sorting algorithms using GPU computing with CUDA. This paper mentioned the roadmap of research direction of a GPU based sorting algorithms and the various research aspects to work on GPU based sorting algorithms. These research directions
include the various sorting algorithms which are parallel (Merge, Quick, Bitonic, Odd-Even, Count, Radix etc.) sort algorithms using GPU computing with CUDA (Compute Unified Device Architecture). In this paper, we have tested and compared the parallel and sequential (Merge, Quick, Count and Odd-Even sort) using dataset. The testing of parallel algorithms is done using GPU computing with CUDA. The speedup is also measured of various parallel sorting algorithms. The results have depicted that, the count sort is the most efficient sort due to based on the key value. Future research will refine the performance of sorting algorithms in GPU architecture.

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**Index Terms**

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**Keywords**

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