A Fast and Efficient Parallel Sorting Algorithm on LARPBS

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ABSTRACT

A scalable fast parallel sorting algorithm on linear array with reconfiguarble pipeline optical bus system (LARPBS) is presented. The algorithm improves Y. Pan's fast parallel sorting algorithm on LARPBS which uses N processors to sort N elements in average O (N) time or optimally O $\log N$ time.)). We illustrate the algorithm can sort N elements in O($N\log N/p$) time in the best case and in O(N^2/p) in the worst case using p (p N) processors and hence show the algorithm is highly scalable. We also present a fast and efficient parallel sorting algorithm on LARPBS which uses N processors in O $\log\sqrt{N}$ time in the best case and O($\sqrt{N}$) time in the worst case.

Keywords: LARPBS model, scalable, sorting, parallel algorithm