Comparative Analysis of Floyd Warshall and Dijkstra's Algorithm using Opencl

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Authors:
Asad Mohammad, Vikram Garg

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Abstract

Shortest path algorithms finds applications in large real world domains. All pair shortest path (APSP) and single source shortest path (SSSP) both have their special applications domains. All though every SSSP can be applied for all vertices to calculate APSP. But APSP cant. In this paper heterogeneous implementation of Floyd warshalls algorithm and Dijkstra's algorithm is compared on dense graphs have positive edge weights ranging from 1 to 10. It is found that Dijkstra's algorithm is better than Floyd warshall algorithm in sequential implementation. But as there is less parallelism identified in dijkstra algorithm as compared to parallel to parallel FW gives less execution time as compared to Dijkstra's.

References

3. Aydin Buluc, John R. Gilbert and Ceren Budak, "Solving Path Problems on the GPU".


Index Terms

Computer Science

Algorithms

Keywords

Floyd Warshall (FW), Dijkstra algorithm, SSSP, APSP, OpenCL.