Abstract

Chain multiplication of matrices is widely used for scientific computing. It becomes more challenging when there is large number of floating point dense matrices. Because, floating point operations take more time than integer operations. It would be interesting to lower the time of such chain operations. Now-a-days every multicore processor system has built in parallel computational power. This power can only be utilized when compatible parallel algorithms were used. So, in this work, a shared memory based parallel algorithms has been proposed to compute the multiplication of a long sequence of dense matrices. The algorithms have been tested with long sequence of matrices as input. The approach has been with 2×108 flops. The input matrix sequence length was typically varied from 2 to 30. Maximum number of processors used was eight (Eight core processor). Different parameters like speedup, efficiency etc. were also noted. It was concluded that the parallel algorithms could achieve approximately 90% efficiency at best case. The algorithms also showed improved scalability.

References


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