THE OPTIMAL COST FROM COMPUTATIONAL MODELS BY COMPARING TWO PARALLEAL SEARCHING PROCEDURES

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ABSTRACT

Parallel searching also called parallel query processing is an increasingly attractive option for improving the performance of database system. Parallel query processing has been widely used in data intensive applications where data of relevance to users are stored at multiple locations. The objective of parallel query processing is to translate a high-level execution plan into an efficient low-level execution plan and allocate processors to each operation in such a way that the overall query execution time is minimized. Different hardware architectures have been investigated regarding parallelism, i.e. multiprocessor computer (shared everything, symmetric multiprocessing, SMP). And then, searching is one of the most fundamental operations in the fields of computing. It is used in any application where we need to find out whether an element belongs to a list or, more generally, retrieve from file information associated with that element. The most basic form of searching problems is stated as follows: Given a sequence $S=(s_1,s_2,s_3,\ldots s_n)$ of integers and an integer x, it is required to determine whether $x= s_k$ for some s_n in S. This paper proposes a parallel implementation of search algorithms on SIMD computers to be efficiently executed. In these parallel searching, the desired data is queried in the random sequence. Objectives of this paper are two-fold; the first demonstrates the SM SEARCH (S, x, k) algorithm in shared memory SIMD computers and MESH SEARCH (S, x, answer) in mesh-connected SIMD computers. The second is to analyze these two procedures in CREW and EREW computational models respectively and compares the running time of these models to get the optimal cost. The querying on data of computer universities will be played in a key role to provide the implementation of two parallel searching methods**.** An example query for staff database is used throughout the paper to show the benefits of the system**.** This experimental results prove that parallel implementation of MESH SEARCH on a mesh-connected SIMD computer achieves significant speedup and performance over SM SIMD computer. If the distributed system uses all of the resources to run tasks from only one program, it is called parallel processing. If the single computer can solve a problem in ten seconds, ten computers solve the same problem in one second. Parallel computer is a computer with many processing units, or processors. Given a problem to be solved, it is broken into a number of sub-problems. All of these sub-problems are now solved simultaneously, each on a different processor. The results are then combined to produce an answer to the original problem. Distributed and parallel processors are computer systems consisting of multiple processing units connected via some interconnection network plus the software

needed to manage the processing units work together. Parallel computing requires algorithms, as well as operating systems in order to actually perform a computation on the parallel hardware. Moreover, parallel processing offers two advantages. First, it can reduce running time. Second, parallel systems often provide significantly more physical memory. Focus on the second advantage is more often associated with distributed-memory parallelism; however consider a shared-memory parallel architecture in this system, focus on using parallelization to reduce search time rather than to increase available memory. So, this paper intends to provide for concurrent and synchronization among multiple threads with the shortest time possible.