Abstract

Real time systems that are logically programmed for scientific applications involve frequent job arrivals, thus requires a parallel architecture, so that maximum applications can be executed simultaneously resulting in less waiting time and maximum resource utilization. This must be achieved by workload partitioning & characterization, directs towards the development of Multiprocessor machines, a way to achieve parallel effects. Today, multiprocessor systems cover H/W replications that may replicates complete central processing units asynchronously or multiple executional units synchronously controlled by a different/common clock respectively. This research deals with the multiprocessor scheduling implemented via simulated time sharing environment containing logically programmed virtual processors and batch lists, each batch having its associated arrival time along with number of jobs where each job contains parameters such as Batch_id, Job_id and CPU Burst_time(defined as no. of cycles required) etc. The idea behind this theory is to distribute a number of simultaneously occurring jobs to virtual processor list corresponding to a scheduling algorithm. Synchronous architectures involve SIMD based model with data parallel aspects of computations, whereas Control parallel asynchronous MIMD machines are the future trends leading towards Instruction level parallel
processors involving VLIW (very large instruction word) and superscalar machines.

References

- Aryabrata, B. Shelby, F. 2009 An Optimal Scheme for multiprocessor task scheduling-A machine learning approach. University of Georgia USA.

Index Terms

Computer Science
Information Sciences

Keywords
Simulated Time-Sharing Environment  Job Distribution  Load Balancing  Workload Partitioning