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# Parallel Computing Paradigm

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**Tumbanath Samantara**

Department of Mathematics,  
Centurion University of Technology and Management,  
Bhubaneswar, Odisha, India  
Email: tumbanath.samantara@cutm.ac.in

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**Abstract:** The computation of very large and complicated problem can be achieved with minimum time by optimal use of computing components and recourses. This can be done by identifying the independent tasks and processing them concurrently and assembling the results at appropriate place before giving final output. This whole process is termed as parallel computing. This can be done in different ways like sharing the single memory by different processor, distributing the task to different systems and introducing graphics processors for solving numerical aproblems etc. By adopting parallel computing concept, large scale scientific problems like forecasting of atmospheric condition, modeling of Computational Fluid Dynamics problems and other real-life problems can be solved in reasonable very short time.

**Keywords:** Parallel Computing, Shared memory system, Distributed systems, multiprocessors

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## 1. Introduction

The term “Parallel Computing” stands for performing the various computational works at the same time. It refers to the formula of breaking down a large problem into smaller independent problems and working on it all by simultaneously. In twenty first century, all computers are working with parallelism. That parallel computation may arise and come to an end independently of each problem. Informally parallel computing is the existence of parallel work done of more than one work inside a computer and reaching on a common goal. Nowadays parallelism is found on all levels of modern computers. It is clear that the concept parallel computing is not a new concept. The concept has been concluded over 150 years ago by Menabrea in the year 1842. But since 1885, the machine have been used commercially for the purpose of academic and research work. Now it is commonly known as the parallel processing is used to solve the large scale of scientific problems in various field of research like “Computational Fluid