

What is the purpose of the `MPI_Sendrecv` routine in MPI? Describe each of its parameters in detail.

Write a MPI program for Blocking Non-Buffered and Blocking Buffered Send/Receive operations.

Provide an example of a deadlock scenario in an MPI program and explain how it can be resolved.

List various MPI routines and explain with example.

Write an MPI program to find the cube of numbers.

What is the purpose of the `MPI_Cart_create` function in MPI? Describe each of its parameters in detail.

Explain various collective communication operations with example.

What are the fundamental principles of parallel computing?

What is Parallel computing and how do they contrast with sequential computing?

How do static and dynamic load balancing strategies differ, and what are their respective effects on system performance?

Why is it important to design algorithms specifically for parallel execution, and how do such algorithms enhance computational performance?

What is decomposition in parallel computing, and how does it assist in breaking down large problems into smaller, manageable tasks. Also list various decomposition techniques?

What is the function of broadcast operations in parallel algorithms, and how are they different from point-to-point communication methods?

How do reduction operations influence the efficiency and scalability of parallel computing systems?

Explain Mutual Exclusion for Shared Variables in Threads?

Compare asynchronous and deferred thread cancellation. Provide scenarios where each type would be appropriate and the potential risks involved in their use.

Discuss advantages and limitations of OpenMP in detail.

Explain the purpose of Core Directives in OpenMP with example.