

Chapter 10 Topologies

`int MPI_Topo_test (MPI_Comm comm, int *status)`

status:

`MPI_UNDEFINED` holds for communicators where no topology has explicitly been specified.

`MPI_CART` holds for Cartesian topologies where processors act as if they are ordered in a multi-dimensional 'brick'.

`MPI_GRAPH` describes the graph topology that was defined in MPI 1.

`MPI_DIST_GRAPH` describes the distributed graph topology where each process only describes the edges in the process graph that touch itself.

1. Cartesian routines

`MPI_Cart_create`

`MPI_Cart_coords`

`MPI_Cart_rank`

`MPI_Cart_shift`

2. Distributed graph topology

The minimal description of a process graph contains for each process: degree, the number of neighbor process and the ranks of processes to communicate with.

`MPI_Dist_graph_create`

3. Graph topology

`MPI_Graph_create`

Chapter 11 Shared memory

MPI implementations have optimizations detect shared memory but is not exposed to programmer. Now MPI 3 added routines for programmers to do that

1. Recognizing shared memory

2. Shared memory for windows

Questions

1. What is the general graph topology interface? Is it the same as Cartesian topology interface?

2. Does shared memory only work for those processes exist on the same physical shared memory? What about those on different nodes?