MPI Prototypes

- `int MPI_Init( int *argc, char ***argv )`
- `int MPI_Finalize( void )`
- `int MPI_Comm_size( MPI_Comm comm, int *size )`
- `int MPI_Comm_rank( MPI_Comm comm, int *rank )`
- `double MPI_Wtime( void )`
- `int MPI_Send( const void *buf, int count, MPI_Datatype datatype, int dst, int tag, MPI_Comm comm )`
- `int MPI_Ssend( const void *buf, int count, MPI_Datatype datatype, int dst, int tag, MPI_Comm comm )`
- `int MPI_Isend( const void *buf, int count, MPI_Datatype datatype, int dst, int tag, MPI_Comm comm, MPI_Request *request )`
- `int MPI_Recv( void *buf, int count, MPI_Datatype datatype, int src, int tag, MPI_Comm comm, MPI_Status *status )`
- `int MPI_Irecv( void *buf, int count, MPI_Datatype datatype, int src, int tag, MPI_Comm comm, MPI_Request *request )`
- `int MPI_Sendrecv( const void *sendbuf, int sendcount, MPI_Datatype sendtype, int dst, int sendtag, void *recvbuf, int recvcount, MPI_Datatype recvtype, int src, int recvtag, MPI_Comm comm, MPI_Status *status )`
- `int MPI_Sendrecv_replace( void *buf, int count, MPI_Datatype datatype, int dst, int sendtag, int src, int recvtag, MPI_Comm comm, MPI_Status *status )`
- `int MPI_Test( MPI_Request *request, int *flag, MPI_Status *status )`
- `int MPI_Testany( int count, MPI_Request array_of_requests[], int *indx, int *flag, MPI_Status *status )`
- `int MPI_Testall( int count, MPI_Request array_of_requests[], int *flag, MPI_Status array_of_statuses[] )`
- `int MPI_Wait( MPI_Request *request, MPI_Status *status )`
- `int MPI_Waitany( int count, MPI_Request array_of_requests[], int *indx, MPI_Status *status )`
- `int MPI_Waitall( int count, MPI_Request array_of_requests[], MPI_Status array_of_statuses[] )`
- `int MPI_Barrier( MPI_Comm comm )`
- `int MPI_Bcast( void *buf, int count, MPI_Datatype datatype, int root, MPI_Comm comm )`

- int MPI_Reduce(const void *sendbuf, void *recvbuf, int count, MPI_Datatype datatype, MPI_Op op, int root, MPI_Comm comm)
- int MPI_Scatter(const void *sendbuf, int sendcnt, MPI_Datatype sendtype, void *recvbuf, int recvcnt, MPI_Datatype recvtype, int root, MPI_Comm comm)
- int MPI_Gather(const void *sendbuf, int sendcnt, MPI_Datatype sendtype, void *recvbuf, int recvcnt, MPI_Datatype recvtype, int root, MPI_Comm comm)
- int MPI_Allreduce(const void *sendbuf, void *recvbuf, int count, MPI_Datatype datatype, MPI_Op op, MPI_Comm comm)
- int MPI_Allgather(const void *sendbuf, int sendcount, MPI_Datatype sendtype, void *recvbuf, int recvcount, MPI_Datatype recvtype, MPI_Comm comm)
- int MPI_Reduce_scatter(const void *sendbuf, void *recvbuf, const int recvcounts[], MPI_Datatype datatype, MPI_Op op, MPI_Comm comm)
- int MPI_Alltoall(const void *sendbuf, int sendcount, MPI_Datatype sendtype, void *recvbuf, int recvcount, MPI_Datatype recvtype, MPI_Comm comm)
- int MPI_Scatterv(const void *sendbuf, const int *sendcounts, const int *displs, MPI_Datatype sendtype, void *recvbuf, int recvcount, MPI_Datatype recvtype, int root, MPI_Comm comm)
- int MPI_Gatherv(const void *sendbuf, int sendcount, MPI_Datatype sendtype, void *recvbuf, const int *recvcounts, const int *displs, MPI_Datatype recvtype, int root, MPI_Comm comm)
- int MPI_Allgatherv(const void *sendbuf, int sendcount, MPI_Datatype sendtype, void *recvbuf, const int *recvcounts, const int *displs, MPI_Datatype recvtype, MPI_Comm comm)
- int MPI_Alltoallv(const void *sendbuf, const int *sendcounts, const int *sdispls, MPI_Datatype sendtype, void *recvbuf, const int *recvcounts, const int *rdispls, MPI_Datatype recvtype, MPI_Comm comm)
- int MPI_Probe(int src, int tag, MPI_Comm comm, MPI_Status *status)
- int MPI_Type_commit(MPI_Datatype *datatype)
- int MPI_Type_free(MPI_Datatype *datatype)
- int MPI_Type_contiguous(int count, MPI_Datatype oldtype, MPI_Datatype *newtype)
- int MPI_Type_indexed(int count, const int *array_of_blocklengths, const int *array_of_displacements, MPI_Datatype oldtype, MPI_Datatype *newtype)
- int MPI_Type_vector(int count, int blocklength, int stride, MPI_Datatype oldtype, MPI_Datatype *newtype)
- int MPI_Type_create_struct(int count, const int array_of_blocklengths[], const MPI_Aint array_of_displacements[], const MPI_Datatype array_of_types[], MPI_Datatype *newtype)
- int MPI_Comm_split(MPI_Comm comm, int color, int key, MPI_Comm* newcomm)
- int MPI_Cart_create(MPI_Comm old_communicator, int ndims, const int dims[], const int periods[], int reorder, MPI_Comm *cart_communicator)
- int MPI_Cart_coords(MPI_Comm comm, int rank, int maxdims, int coords[])
- int MPI_Cart_shift(MPI_Comm comm, int direction, int disp, int *rank_source, int *rank_dest)

OpenMP library routines

- `void omp_set_num_threads( int num_threads );`
- `int omp_get_num_threads( void );`
- `int omp_get_thread_num( void );`
- `int omp_set_schedule( omp_sched_t kind, int chunk_size );`
  where kind is one of:
  - `omp_sched_static`
  - `omp_sched_dynamic`
  - `omp_sched_guided`
  - `omp_sched_auto`

- `void omp_set_nested( int nested );`
- `int omp_get_nested( void );`
- `void omp_set_max_active_levels( int max_levels );`
- `int omp_get_max_active_levels( void );`
- `int omp_get_level( void );`

- `double omp_get_wtime( void );`