## NAME

**MPI_Comm_f2c, MPI_Comm_c2f, MPI_File_f2c, MPI_File_c2f, MPI_Info_f2c, MPI_Info_c2f, MPI_Op_f2c, MPI_Op_c2f, MPI_Request_f2c, MPI_Request_c2f, MPI_Type_f2c, MPI_Type_c2f, MPI_Win_f2c, MPI_Win_c2f** − Translates a C handle into a Fortran handle, or vice versa.

## SYNTAX

### C Syntax

#include <mpi.h>
MPI_Comm MPI_Comm_f2c(MPI_Fint *comm*)
MPI_Fint MPI_Comm_c2f(MPI_Comm *comm*)

MPI_File MPI_File_f2c(MPI_Fint *file*)
MPI_Fint MPI_File_c2f(MPI_File *file*)

MPI_Group MPI_Group_f2c(MPI Fint *group*)
MPI_Fint MPI_Group_c2f(MPI Group *group*)

MPI_Info MPI_Info_f2c(MPI_Fint *info*)
MPI_Fint MPI_Info_c2f(MPI_Info *info*)

MPI_Op MPI_Op_f2c(MPI_Fint *op*)
MPI_Fint MPI_Op_c2f(MPI_Op *op*)

MPI_Request MPI_Request_f2c(MPI_Fint *request*)
MPI_Fint MPI_Request_c2f(MPI_Request *request*)

MPI_Datatype MPI_Type_f2c(MPI_Fint *datatype*)
MPI_Fint MPI_Type_c2f(MPI_Datatype *datatype*)

MPI_Win MPI_Win_f2c(MPI_Fint *win*)
MPI_Fint MPI_Win_c2f(MPI_Win *win*)

## DESCRIPTION

Handles are passed between Fortran and C or C++ by using an explicit C wrapper to convert Fortran handles to C handles. There is no direct access to C or C++ handles in Fortran. Handles are passed between C and C++ using overloaded C++ operators called from C++ code. There is no direct access to C++ objects from C. The type definition *MPI_Fint* is provided in C/C++ for an integer of the size that matches a Fortran *INTEGER*; usually, *MPI_Fint* will be equivalent to *int*. The handle translation functions are provided in C to convert from a Fortran handle (which is an integer) to a C handle, and vice versa.

For example, if *comm* is a valid Fortran handle to a communicator, then MPI_Comm_f2c returns a valid C handle to that same communicator; if *comm* = MPI_COMM_NULL (Fortran value), then MPI_Comm_f2c returns a null C handle; if *comm* is an invalid Fortran handle, then MPI_Comm_f2c returns an invalid C handle.

## NOTE

This function does not return an error value. Consequently, the result of calling it before MPI_Init or after MPI_Finalize is undefined.

