

Riphah International University



MS MPI

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```
#include
<iostream>
#include
<mpi.h>
#include
<vector>

int main(int argc, char** argv) {
    MPI_Init(&argc, &argv);

    int world_size;
    MPI_Comm_size(MPI_COMM_WORLD,
                  &world_size);

    int my_rank;
    MPI_Comm_rank(MPI_COMM_WORLD,
                  &my_rank);

    char
    processor_name[MPI_MAX_PROCESSOR_NAME]; int
    name_len;
    MPI_Get_processor_name(processor_name,
                           &name_len);

    std::cout << "Process " << my_rank << " of " << world_size
           << " is running on machine: " << processor_name << std::endl;

    MPI_Finalize();

    return 0;
}
```

WindowsProject1.cpp

```

#include <iostream>
#include <mpi.h>

int main(int argc, char** argv) {
    // Initialize MPI
    MPI_Init(&argc, &argv);

    // Get the number of processes in MPI_COMM_WORLD
    int world_size;
    MPI_Comm_size(MPI_COMM_WORLD, &world_size);

    // Get the rank of this process in MPI_COMM_WORLD
    int my_rank;
    MPI_Comm_rank(MPI_COMM_WORLD, &my_rank);

    // Print out information about MPI_COMM_WORLD
    std::cout << "World Size: " << world_size << " Rank: " << my_rank;

    // Finalize MPI
    // This must always be called after all other MPI functions
    MPI_Finalize();

    return 0;
}

```

WindowsProject1 Property Pages

Configuration: Active(Debug) Platform: Active(x64) Configuration Manager...

General

- Executable Directories: \$(VC_ExecutePath_x64)\\$(CommonExecutablePath)
- Include Directories: \$(VC_IncludePath)\\$(WindowsSDK_IncludePath)
- External Include Directories: \$(VC_IncludePath)\\$(WindowsSDK_IncludePath);
- Reference Directories: \$(VC_ReferencesPath)
- Library Directories: \$(VC_LibraryPath_x64)\\$(WindowsSDK_LibraryPath_x64)
- Library WinRT Directories: \$(WindowsSDK_MetadataPath)
- Source Directories: \$(VC_SourcePath)
- Exclude Directories: \$(CommonExcludePath)\\$(VC_ExecutePath_x64)\\$(VC_Libr

Public Project Content

- Public Include Directories: No
- All Header Files are Public: No
- Public C++ Module Directories: No
- All Modules are Public: No

Include Directories
Path to use when searching for include files while building a VC++ project. Corresponds to environment variable INCLUDE.

OK Cancel Apply

Error List: 7 Errors 0 Warnings 0 Messages Build + IntelliSense

Solution Explorer: WindowsProject1 (1 of 1 project)

Properties: WindowsProject1 Project Properties

```
-4           Force using IPv4.
-6           Force using IPv6.

C:\Windows\system32>hostname
DESKTOP-9QQ2TE2

C:\Windows\system32>ping systemlab2-37

Pinging systemlab2-37.local [fe80::de95:ca5e:7e1d:4489%6] with 32 bytes of data:
Reply from fe80::de95:ca5e:7e1d:4489%6: time=1ms
Reply from fe80::de95:ca5e:7e1d:4489%6: time=1ms
Reply from fe80::de95:ca5e:7e1d:4489%6: time=1ms
Reply from fe80::de95:ca5e:7e1d:4489%6: time=1ms

Ping statistics for fe80::de95:ca5e:7e1d:4489%6:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 1ms, Average = 1ms

C:\Windows\system32>start smpd -d

C:\Windows\system32>
```

```
2  #include <mpi.h>
3  #include <vector>
4
5  int main(int argc, char** argv) {
6      MPI_Init(&argc, &argv);
7
8      int world_size;
9      MPI_Comm_size(MPI_COMM_WORLD, &world_size);
10
11     int my_rank;
12     MPI_Comm_rank(MPI_COMM_WORLD, &my_rank);
13
14     char processor_name[MPI_MAX_PROCESSOR_NAME];
15     int name_len;
16     MPI_Get_processor_name(processor_name, &name_len);
17
18     std::cout << "Process " << my_rank << " of " << world_size
19     << " is running on machine: " << processor_name << std::endl;
20
21     MPI_Finalize();
22
23     return 0;
24 }
```

100% | No issues found

Developer PowerShell

+ Developer PowerShell | ☰ ☱ ☲

```
Error (2) The system cannot find the file specified.
PS C:\Users\Administrator\source\repos\ms_mpi\x64\Debug> mpiexec -machinefile machines.txt -np 4 ms_mpi.exe
Process 1 of 4 is running on machine: systemlab2-18
Process 3 of 4 is running on machine: systemlab2-18
Process 0 of 4 is running on machine: systemlab2-20
Process 2 of 4 is running on machine: systemlab2-20
PS C:\Users\Administrator\source\repos\ms_mpi\x64\Debug>
```