

Message Passing Interface

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Prerequisites for MPI programming

- Linux installed
- GCC installed
- MPI installed

MPICH

- MPICH
 - www.mpich.org
 - Widely used in PC
- Open MPI
 - <http://www.open-mpi.org>

hello.c

Search “Hello World MPI” in Google

```
#include <stdio.h>
```

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

```
main(int argc, char **argv)
```

```
{
```

```
    int node;
```

```
    MPI_Init(&argc,&argv);
```

```
    MPI_Comm_rank(MPI_COMM_WORLD, &node);
```

```
    printf("Hello World from Node %d\n",node);
```

```
    MPI_Finalize();
```

```
}
```

Correct Result

Hello World from Node 0

Hello World from Node 1

Hello World from Node 2

Hello World from Node 3

Wrong Result

Hello World from Node 0

Hello World from Node 0

Hello World from Node 0

Hello World from Node 0

Assignments

- Install MPI (MPICH or Open MPI) on your own PC
- Compile hello.c code using mpicc.
- Run the code using 1, 2, 3, 4 CPU cores using mpirun (or mpiexec).
- Prepare Presentation on
 - How you installed MPI.
 - How you compiled and run the “Hello World MPI” using mpicc
 - How you ran the code using mpirun (or mpiexec)
 - Investigate the MPI functions used in hello.c