

```
1 //-----
2 // MPI_Reduce
3 //-----
4 #if (defined __linux__) || (defined _AIX)
5     #include <sys/types.h>
6     #include <sys/stat.h>
7     #include <unistd.h>
8 #elif (defined _WIN32) || (defined _WIN64)
9     #include <conio.h>
10    #include <direct.h>
11 #endif
12
13 #include <mpi.h>
14 #include <stdlib.h>
15 #include <stdio.h>
16 #include <iostream>
17 using namespace std;
18 //-----
19 int main(int argc, char* argv[])
20 {
21     int rank, size, result = 0;
22
23     MPI_Init(&argc, &argv);
24     MPI_Comm_size(MPI_COMM_WORLD, &size);
25     MPI_Comm_rank(MPI_COMM_WORLD, &rank);
26     if (rank == 0) {
27         printf("\nThere are %d processors.\n", size);
28         fflush(stdout);
29     }
30
31     MPI_Reduce(&rank, &result, 1, MPI_INT, MPI_SUM, 0, MPI_COMM_WORLD);
32
33     if (rank == 0)
34         printf("\nThe summ of all ranks is %d.\n", result);
35
36     MPI_Finalize();
37
38     return 0;
39 }
```