

Код

#include <stdio.h>

#include <iostream>

#include "mpi.h"

using namespace std;

int main(int argc, char\* argv[])

{

int ProcNum, ProcRank, RecvRank;

int M = 10;

//int message = 7;

//int getmessage;

double t1, t2, dt;

MPI\_Status Status;

MPI\_Init(&argc, &argv);

MPI\_Comm\_size(MPI\_COMM\_WORLD, &ProcNum);

MPI\_Comm\_rank(MPI\_COMM\_WORLD, &ProcRank);

int getmessage;

int message;

if (ProcRank == 0) {

getmessage = 7;

t1 = MPI\_Wtime();

}

for (int j = 0; j < M; j++)

{

MPI\_Bcast(&getmessage, 1, MPI\_INT, 0, MPI\_COMM\_WORLD);

MPI\_Reduce(&getmessage, &message, 1, MPI\_INT, MPI\_MAX, 0, MPI\_COMM\_WORLD);

if (ProcRank == 0)

getmessage = message;

//cout << getmessage << " " << message << endl;

}

if (ProcRank == 0) {

t2 = MPI\_Wtime();

dt = t2 - t1;

cout << "time - " << dt;

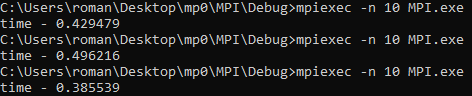
}

MPI\_Finalize();

return 0;

}

Вывод



Подсчет времени

Для различного количества повторов(при 10 процессах)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 2 | 20 | 50 | 100 | 200 | 1000 | 3000 |
| 0.0018449 | 0.004288 | 0.0136725 | 0.0199798 | 0.331998 | 2.66958 | 12.1389 |

Время для первой лабораторной

Для различного количества повторов(при 10 процессах)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 2 | 20 | 50 | 100 | 200 | 1000 | 3000 |
| 0.0018881 | 0.0027459 | 0.006965 | 0.0219673 | 0.0426847 | 0.990216 | 7.81026 |