HPC-Academy-Project

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2.1

I only test Broadcast as scatter and all-gather can be achieved in a similar manner.

Code:( only part of it)

if(myrank==0)

gettimeofday(&tv1, NULL);

MPI\_Bcast(mat,N\*N,MPI\_INT,0,MPI\_COMM\_WORLD);

MPI\_Barrier(MPI\_COMM\_WORLD);

if(myrank==0){

gettimeofday(&tv2, NULL);

printf("Bcast API time = %ld usecs\n",

(tv2.tv\_sec-tv1.tv\_sec)\*1000000+tv2.tv\_usec-tv1.tv\_usec);

}

MPI\_Barrier(MPI\_COMM\_WORLD);

if(myrank==0)

gettimeofday(&tv1, NULL);

if(myrank==0){

for(i=1;i<P;i++){

// MPI\_Send(mat,N\*N,MPI\_INT,i,1,MPI\_COMM\_WORLD);

MPI\_Isend(mat,N\*N,MPI\_INT,i,1,MPI\_COMM\_WORLD,&sreq);

MPI\_Wait(&sreq,&status);

}

}

else{

// MPI\_Recv(mat,N\*N,MPI\_INT,0,1,MPI\_COMM\_WORLD,&status);

MPI\_Irecv(mat,N\*N,MPI\_INT,0,1,MPI\_COMM\_WORLD,&rreq);

MPI\_Wait(&rreq,&status);

}

MPI\_Barrier(MPI\_COMM\_WORLD);

if(myrank==0){

gettimeofday(&tv2, NULL);

printf("Bcast:Isend+Irecv time = %ld usecs\n",

(tv2.tv\_sec-tv1.tv\_sec)\*1000000+tv2.tv\_usec-tv1.tv\_usec);

}

Result:

Number of processor 12, input Size is 1024; number of process is 12

Bcast API time = 988837 usecs

Bcast:Isend+Irecv time = 12338 usecs

[pdccmc1:27539] 11 more processes have sent help message help-mpi-btl-openib.txt / reg mem limit low

[pdccmc1:27539] Set MCA parameter "orte\_base\_help\_aggregate" to 0 to see all help / error messages

Conclusion:

Using API will slow down performance.

2.2.

Omit

2.3.