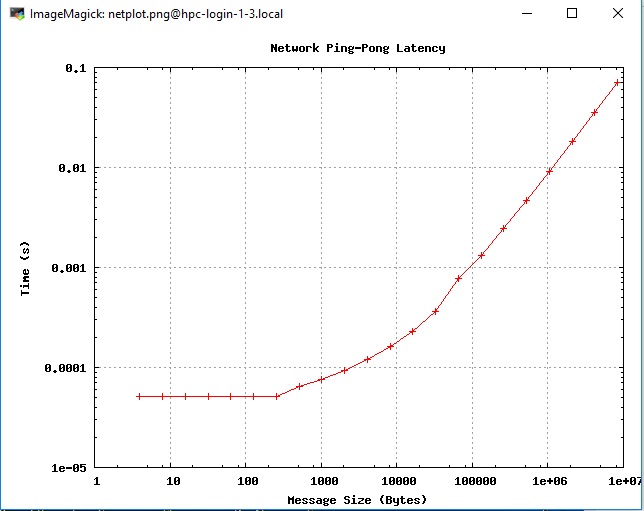
Jack Melcher

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EECS 117

HW1 Part1

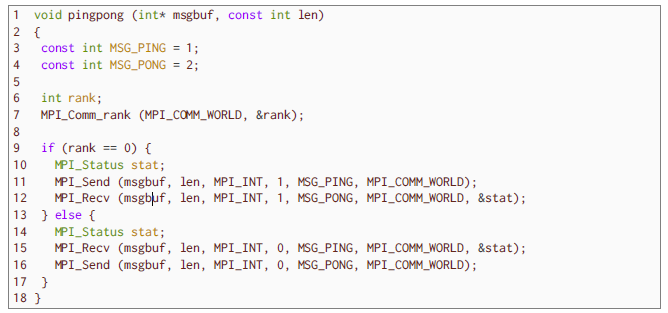


1. Minimum time to send a message of any size is approximately 5e-05 seconds.

2. The slope of the line when message size is large is approximately 1e-08 [s/Bytes]. The slope represents that the time to send a message is proportional to the size of a message.

3.

4. Explanation of pingpong function



Line 1:

The function definition of pingpong. It has two arguments. The int\* msgbuf is a pointer hat references an array that is used as the message buffer. The const int len specifies the length/size of the message buffer array.

Line 3 and 4:

MSG\_PING = 1 and MSG\_PONG = 2 are tags used during sending and receiving messages

Line 5 and 6:

int rank will be used to store the rank of the node which is determined by MPI\_Comm\_rank(MPI\_COMM\_WORLD, &rank)

Line 9 through 17:

If the rank of the node is 0, the node will send a message using MPI\_SEND to node of rank 1 using message tag MSG\_PING within the group of MPI\_COMM\_WORLD. Once the message is successfully sent, the node will wait to receive a message using MPI\_RECEIVE from node of rank 1 with message tag MSG\_PONG within the group of MPI\_COMM\_WORLD.

If the rank of the node is 1, the node will wait to receive a message using MPI\_RECEIVE from node of rank 0 with message tag MSG\_PING within the group of MPI\_COMM\_WORLD. Once the message is successfully received, the node will send a message using MPI\_SEND to node of rank 0 using message tag MSG\_PONG within the group of MPI\_COMM\_WORLD.

MPI\_Status stat is used when receiving to report status of the communication.