Methods of Programming Systems with Distributed Memory with MPI

1. Familiarize with MPI API (Message Message Passing Interface)

MPI documentation can be found online http://www.mpi-forum.org/docs/docs.html .

2. Compile and test the MPI sample program

MPI sample program is available on page
https://cw.fel.cvut.cz/b181/courses/b4m35pap/tutorials/06/start.
Run the program on one processor (your computer) and then on several processors (and surrounding computers).

3. Time required for communication

Write a program using MPI that detects the broadcast time of communication between the four processes running on one processor (your computer) and then four processors (your computer + three surrounding computers). Run the benchmark multiple times and average the results and determine variance/standard deviation.

4. Write a program for calculating the sum

$$S = \sum_{i=1}^{10^{10}} i^2$$

Calculate with *n* processors, with *n* choosing from 1 to 6. Present execution time dependency on number of process the processors in a graph.