Universität Konstanz
FB Mathematik & Statistik
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Parallele Numerik
Blatt 4

Problem 5: Performance analysis

Find out the meaning and defination of the terms *speedup*, *scalability*, and *parallel efficiency* which play a central role in parallel performance analysis.
(i) write a suitable parallel program.
(ii) use plots to explain these terms.
(iii) can you achieve efficiency close to 1?

Problem 6: Ping-Pong

All groups use MPI to write a Ping-Pong program in which two processes repeatedly pass a message of increasing size back and forth. Insert timing calls to measure the time taken for each message and investigate the time is varying with the size of the message.
(i) save the message size, the time consumption and message size per second.
(ii) make plots using these data, and explain the curves in terms of *start-up time* and *communication bandwidth*, etc.