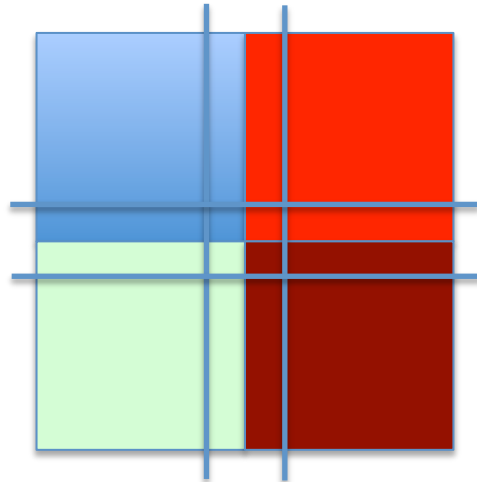


Homework 4

Due on Feb. 29 2012

Ghost Regions

- A $N \times N$ C-matrix distributed among $P \times Q$ processors in a block,block fashion
- Define the respective ghost regions as MPI Datatypes
- Use these datatype to exchange the ghost regions between neighbors



Matrix Transpose

- The goal is to transpose a $N \times N$ C-matrix stored over $P \times Q$ processors in a block,block way in the most eccentric way. Build the required datatypes and write the MPI application.

PDGEMM

- Implement a parallel version of the matrix matrix multiplication using MPI (use well-known algorithms: SUMMA or PUMMA).
- Suppose the $N \times N$ matrix is distributed in $\text{cyclic}(k)/\text{cyclic}(k)$ way on the $P \times Q$ processor grid. k is a user supplied argument.
- On each node the data is stored in memory in LAPACK format.

