Homework 5

Due on Feb. 20 2013
PDGEMM

• Implement a parallel version of the matrix matrix multiplication using MPI (use well-known algorithms: SUMMA or PUMMA).
• Suppose the NxN matrices are distributed in cyclic(k)/cyclic(k) way on the PxQ processor grid. k is a user supplied argument. All matrices have the same distribution.
• On each node the data is stored in memory in LAPACK format.
What to turn in

• Source code and a Makefile
  – Make sure the code works as expected (check it with bi/tri-diagonal matrices as an example)

• For the local computation you can use the BLAS flavor available to you (MKL, ATLAS ...)

• A pdf describing your findings. Extra credits for:
  – Show the impact of the blocking factor on the performance
  – Try different communication patterns
  – Compare with PBLAS version of GEMM