Preconditioned Jacobi SVD Algorithm outperforms PDGESVD

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Recently, we have introduced a new preconditioner for the one–sided block–Jacobi SVD algorithm. In the serial case it outperformed the simple driver routine `DGESVD` from LAPACK. In this contribution we compare performance of its parallelization with the performance of `PDGESVD`, ScaLAPACK's counterpart of `DGESVD`. Our Jacobi based routine remains faster also in the parallel case, especially for well-conditioned matrices.

Keywords: parallel computation, singular value decomposition, one-sided block-Jacobi algorithm, preconditioning, Gram matrix.