

1057-68-246

Ahmed H. Sameh* (sameh@cs.purdue.edu), Department of Computer Science, Purdue University, 305 N. University Street, West Lafayette, IN 47907, and **Murat Manguoglu** and **Faisal Saied**. *A Scalable Parallel Sparse Linear System Solver*.

The SPIKE family of parallel banded linear system solvers have proved to be more scalable than other publicly available banded solvers for a variety of parallel architectures. In this paper, we present a generalization of the SPIKE schemes for handling general sparse linear systems. We show that our resulting parallel hybrid sparse solver is more scalable than current parallel direct solvers, and more robust than approximate LU-factorization-based preconditioned Krylov subspace methods. (Received January 24, 2010)