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Performance P_{ver} for Manycore Architecture by I.Yamazaki, S. Rajamanickam, & N. Ellingw_{SAND2020-8496C}



- important kernel in many applications, but challenging to parallelize
 - Sparsity structure may limit the parallel scalability
- each process uses sparse direct solve
 - SIERRA-Structural Dynamics (SIERRA-SD): distributed domain-decomposition based linear solver uses a **local** direct solver and applies SpTRSV $\sim 10^4$ times for each factorization
- study two algorithmic variants
 - **Supernode block** based level-set scheduling to exploits hierarchical parallelism
 - all the leaf-supernodes in parallel
 - threaded kernels on each block column
 - **Partitioned inverse** transform SpTRSV into a sequence of SpMV
- Kokkos & Kokkos-kernels
 - Portable to different manycore architectures
 - Some more details in the paper

