

## Memory Optimization to Build a Schur Complement

One promising algorithm for solving linear system is the hybrid method based on domain decomposition and Schur complement (used by HIPS and MAPHYS for instance).

In this method, a direct solver is used as a subroutine on each subdomain matrix; unfortunately, these calls are subject to serious memory overhead. With our improvements, the direct solver PASTIX can easily scale in terms of performances with several nodes composed of multicore chips and forthcoming GPU accelerators, and the memory peak due to Schur complement computation can be reduce by 10% to 30%.

**Keywords:** Sparse linear algebra, Schur complement, Hybrid solver, High performance computing.

## References

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