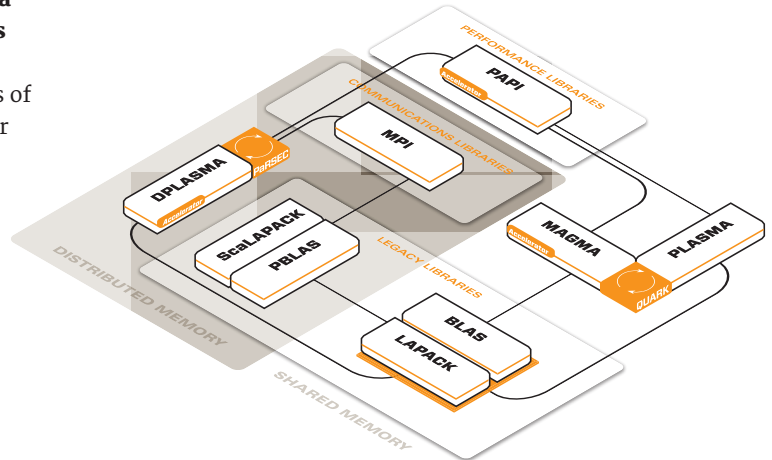


DPLASMA

DPLASMA (Distributed Parallel Linear Algebra Software for Multicore Architectures) is the leading implementation of a dense linear algebra package for distributed heterogeneous systems. It is designed to deliver sustained performance for distributed systems where each node features multiple sockets of multicore processors, and if available, accelerators like GPUs or Intel Xeon Phi. DPLASMA achieves this objective through the state of the art PaRSEC runtime, porting the Parallel Linear Algebra Software for Multicore Architectures (PLASMA) algorithms to the distributed memory realm.



USER DEFINED DATA PLACEMENT

In addition to traditional ScaLAPACK data distribution, DPLASMA provides interfaces for users to expose arbitrary tile distributions, and the algorithms transparently operate on local data, or introduce implicit communications to resolve dependencies, removing the burden of initial data re-shuffle, and providing to the user a novel approach to address load balance.

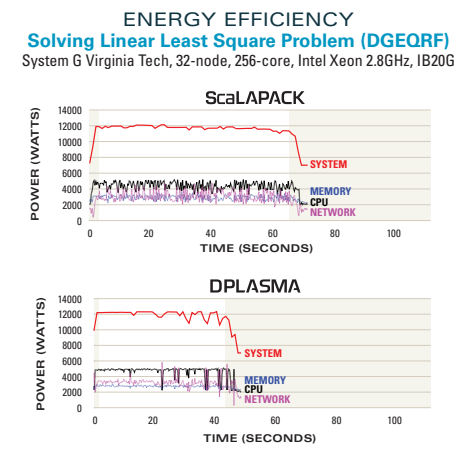
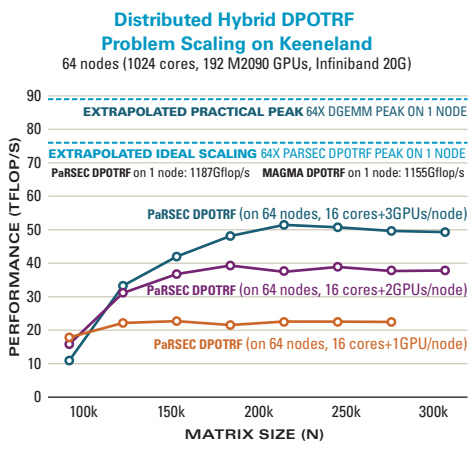
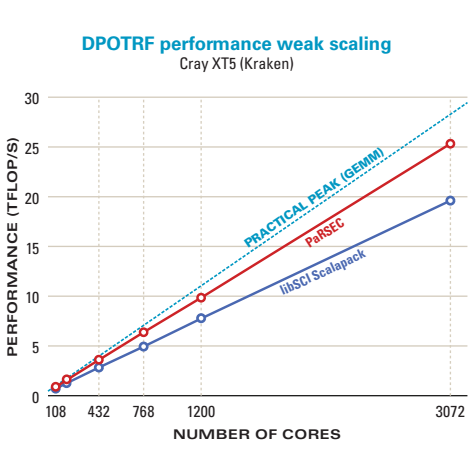
FUNCTIONALITY	COVERAGE
Linear Systems of Equations	Cholesky, LU (inc. pivoting, PP), LDL (prototype)
Least Squares	QR & LQ
Symmetric Eigenvalue Problem	Reduction to Band (prototype)
Level 3 Tile BLAS	GEMM, TRSM, TRMM, HEMM/SYMM, HERK/SYRK, HER2K/SYR2K

FEATURES

- Covering four precisions: double real, double complex, single real, single complex (D, Z, S, C)
- Providing ScaLAPACK-compatible interface for matrices in F77 column-major layout
- Supporting: Linux, Windows, Mac OS X, UN*X (depends on MPI, hwloc)

FUTURE PLANS

- Fine-grain Composition of Operations
- Two-sided Factorizations
- Distributed Sparse Solver
- More GPU kernels integration
- LU+RBT



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