

Increasing Level of Abstraction

Application Codes

Higher-Level Libraries

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PETSc

TS (Time Steppers)							
Euler	Backward Euler	RK	BDF	SSP	ARKIMEX	Rosenbrock-W	...

DM (Domain Management)		
Distributed Array	Plex (Unstructured)	...

SNES (Nonlinear Solvers)							
Newton Line Search	Newton Trust Region	FAS	NGMRES	NASM	ASPIN	...	

TAO (Optimization)		
Newton	Levenberg-Marquardt	...

KSP (Krylov Subspace Methods)											
GMRES	Richardson	CG	CGS	Bi-CGStab	TFQMR	MINRES	GCR	Chebyshev	Pipelined CG	...	

PC (Preconditioners)											
Additive Schwarz	Block Jacobi	Jacobi	ICC	ILU	LU	SOR	MG	AMG	BDDC	Shell	...

Mat (Operators)											
Compressed Sparse Row	Block CSR	Symmetric Block CSR	Dense	CUSPARSE	ViennaCL	FFT	Shell	...			

Vec (Vectors)					
Standard	CUDA	ViennaCL	...		

IS (Index Sets)		
General	Block	Stride

BLAS/LAPACK

MPI

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