

ExaNLA Survey Response Report

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Submission Details

Library Name: Ginkgo
Version: 1.10.0
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Organization: TU Munich

Selected NLA Operations

1. Linear System Solvers
2. Matrix-Matrix Multiplication (GEMM)

1. Codes Information

Basic information about your application/simulation codes.

Library Name:
Ginkgo

Current Version:
1.10.0

Contact Information:
Not specified

Name:
Hartwig Anzt

Email:
hartwig.anzt@tum.de

Organization:
TU Munich

Application Domain:
Not specified

What is the primary application domain of your codes?:
Other: Numerical Linear Algebra Library

Materials Science:
Not specified

What are the main functionalities of your code?:
Not specified

If you selected "Other", please specify::
Not specified

Climate/Weather Modeling:
Not specified

What are the main functionalities of your code?:
Not specified

If you selected "Other", please specify:
Not specified

Fluid Dynamics:
Not specified

What are the main functionalities of your code?:
Not specified

If you selected "Other", please specify:
Not specified

Other Domain Functions:
Not specified

What are the main functionalities of your code?:
Sparse Linear System Solvers, Batched Functionality

Use Case Information:
Not specified

Does your codes have multiple distinct use cases?:
Yes, multiple distinct use cases

Which use case are you describing in this submission?:
CFD, Finite Volume, Electrostatics, Power Grid Problems, ...

Library Description:
Ginkgo is a high-performance numerical linear algebra library for many-core systems, with a focus on solution of sparse linear systems. It is implemented using modern C++ (you will need an at least C++17 compliant compiler to build it), with GPU kernels implemented for NVIDIA, AMD and Intel GPUs.

2. Linear System Solvers

Linear System Solvers:
Yes

Matrix Properties:
Not specified

Matrix Structure:
Not specified

Matrix Properties:
Not specified

Matrix Distribution:
Not specified

Matrix Storage Format:
Not specified

Matrix Size:
Not specified

Performance Requirements:
Not specified

Accuracy Requirements:
Not specified

Working Precision:
Not specified

Scaling Requirements:
Not specified

Parallelization Requirements:
Not specified

Workload Characteristics:

Not specified

Computation Pattern: capability or capacity:

Not specified

Library Usage:

Not specified

Dense Solver Libraries:

Not specified

Sparse Solver Libraries:

Not specified

Benchmarking Requirements:

Not specified

Benchmark Input Types:

Not specified

Can You Provide Data or Mini-apps?:

Not specified

Scaling Requirements:

Not specified

3. Matrix-Matrix Multiplication (GEMM)

Matrix-Matrix Multiplication (GEMM):

Yes

Matrix Properties:

Not specified

Matrix Structure:

Matrix Distribution:

Not specified

Matrix Storage Format:

Not specified

Which types of matrix multiplications do you perform?:

Not specified

Typical Dimensions:

Not specified

Matrix Size Range:

Not specified

Typical Matrix Shapes:

Not specified

Batch Size:

Not specified

Distributed-Memory NLA Library Usage:

Not specified

General Distributed Memory Libraries (CPU/GPU):

Not specified

Special/Advanced Implementations:

Not specified

Are there any NLA libraries you are interested in using (but have not yet adopted)?:

Not specified

Future Requirements:

Not specified

Desired Features:

Not specified

Benchmarking Requirements:

Not specified

Benchmark Input Types:

Not specified

Can You Provide Data or Mini-apps?:

Not specified

Scaling Requirements:

Not specified

Working Precision:

Not specified