

German Priority Programme 1648 Software for Exascale Computing



computational algorithms
system software
application software
data management and exploration
programming
software tools

About SPPEXA The Priority Programme *Software for Exascale Computing (SPPEXA)* of the German Research Foundation (DFG) addresses fundamental research on the various aspects of HPC software.

SPPEXA runs 2013-2019, and it is implemented in two three-year phases, consisting of 13 (phase 1) and 16 (phase 2) project consortia and more than 50 institutions involved. With SPPEXA's second-phase projects funded by DFG as well as the French National Research Agency (ANR) and the Japan Science and Technology Agency (JST), SPPEXA strives for bi- and trilateral research to pave the road towards exascale computing.

EXAMAG - Exascale Simulations of the Magnetic Universe

U Heidelberg +++ U Würzburg +++ U Tokyo +++
U Strasbourg

Smart-DASH - Smart Data Structures and Algorithms with Support for Hierarchical Locality

LMU München +++ U Stuttgart +++ HLRS Stuttgart +++
TU Dresden +++ KIT Karlsruhe

EXASTEEL - From Micro to Macro Properties

U Köln +++ TU Bergakademie Freiberg +++ U Essen +++
TU Dresden +++ U Lugano +++ FAU Erlangen-Nürnberg

Terra-Neo - Integrated Co-Design of an Exascale Earth Mantle Modeling Framework

LMU München +++ FAU Erlangen-Nürnberg +++
TU München

AIMES - Advanced Computation and I/O Methods for Earth-System Simulations

U Hamburg +++ U Versailles +++ RIKEN +++ Tokyo Tech

ExaStencils - Advanced Stencil-Code Engineering

U Passau +++ FAU Erlangen-Nürnberg +++ U Kassel +++
U Tokyo

EXAHD - An Exa-Scalable Two-Level Sparse Grid Approach for Higher-Dimensional Problems in Plasma Physics

U Stuttgart +++ TU München +++ U Bonn +++
ANU Canberra +++ MPG Garching +++ UC Los Angeles

GROMEX - Unified Long-Range Electrostatics and Dynamic Protonation for Realistic Biomolecular Simulations on the Exascale

MPI BPC Göttingen +++ JSC Jülich +++ Stockholm U

EXA-DUNE - Flexible PDE Solvers, Numerical Methods, and Applications

U Heidelberg +++ U Münster +++ U Stuttgart +++
TU Kaiserslautern +++ TU Clausthal +++ TU Dortmund

CATWALK - A Quick Development Path for Performance Models

ETH Zürich +++ RWTH Aachen +++ JSC Jülich +++
TU Darmstadt +++ GU Frankfurt

ESSEX - Equipping Sparse Solvers for Exascale

FAU Erlangen-Nürnberg +++ DLR Köln +++ U Greifswald +++
U Wuppertal +++ U Tsukuba +++ U Tokyo

ExaSolvers - Extreme Scale Solvers for Coupled Problems

RWTH Aachen +++ Tokyo U of Science +++ U Lugano +++
HLRS Stuttgart +++ U Trier +++ GU Frankfurt +++ Toyo U

ADA-FS - Advanced Data Placement via Ad-hoc File Systems at Extreme Scales

TU Dresden +++ JGU Mainz +++ KIT

ExaFSA - Exascale Simulation of Fluid-Structure-Acoustics Interactions

U Stuttgart +++ TU Delft +++ U Siegen +++
TU Darmstadt +++ Tohoku U

ExaDG - High-Order Discontinuous Galerkin for the Exa-Scale

U Heidelberg +++ TU München

FFMK - A Fast and Fault Tolerant Microkernel-Based System for Exascale Computing

TU Dresden +++ ZIB Berlin +++ Hebrew U Jerusalem

MYX - MUST Correctness Checking for YML and XMP Programs

RWTH Aachen +++ MDLS Saclay +++ U Tsukuba +++ RIKEN

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