German Priority Programme 1648

Software for Exascale Computing

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 trinational 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 ***new!***
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 ***new!***
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 ***new!***
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 ***new!***
RWTH Aachen +++ MDLS Saclay +++ U Tsukuba +++ RIKEN

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