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, which is particularly urgent against the background that we have entered the era of ubiquitous massive parallelism. SPPEXA started in 2013 and is implemented in two three-year funding phases, with 13 project consortia and more than 40 institutions involved. Thus, SPPEXA has joined the other national initiatives to pave the road towards exascale computing.

EXA-DUNE - Flexible PDE Solvers, Numerical Methods, and Applications
TU Dortmund +++ TU Kaiserslautern +++ Fraunhofer ITWM +++ U Heidelberg +++ U Münster

DASH - Hierarchical Arrays for Efficient and Productive Data-Intensive Exascale Computing
CEODE China +++ HLRS Stuttgart +++ KIT Karlsruhe +++ LMU Munich +++ TU Dresden

TERRA-NEO - Integrated Co-Design of an Exa-Scale Earth Mantle Modeling Framework
FAU Erlangen-Nürnberg +++ LMU Munich +++ TU München

EXASTEEL - Bridging Scales for Multiphase Steels
FAU Erlangen-Nürnberg +++ TU Bergakademie Freiberg +++ U Cologne +++ U Duisburg-Essen

GROMEX - Unified Long-Range Electrostatics and Dynamic Protonation for Realistic Biomolecular Simulations on the Exascale
JSC Jülich +++ MPI BPC Göttingen +++ Stockholm U

ExaStencils - Advanced Stencil-Code Engineering
FAU Erlangen-Nürnberg +++ U Passau +++ U Wuppertal

ExaFSA - Exascale Simulation of Fluid-Structure-Acoustics Interactions
Delft UT +++ TU Darmstadt +++ U Siegen +++ U Stuttgart

EXAHD - An Exa-Scalable Two-Level Sparse Grid Approach for Higher-Dimensional Problems in Plasma Physics and Beyond
ANU Canberra +++ IPP Garching +++ TU München +++ U Bonn +++ U Stuttgart

EXAMAG - Exascale Simulations of the Evolution of the Universe Including Magnetic Fields
U Heidelberg +++ U Würzburg

FFMK - A Fast and Fault Tolerant Microkernel-Based System for Exascale Computing
Hebrew U Jerusalem +++ ZIB Berlin +++ TU Dresden

ESSEX - Equipping Sparse Solvers for Exascale
FAU Erlangen-Nürnberg +++ German Aerospace Center +++ U Greifswald +++ U Wuppertal

EXASOLVERS - Extreme Scale Solvers for Coupled Problems
HLRS Stuttgart +++ MPI MIS Leipzig +++ RWTH Aachen +++ USI Lugano +++ U Frankfurt +++ U Trier

CATWALK - A Quick Development Path for Performance Models
ETH Zürich +++ GRS Aachen +++ JSC Jülich +++ TU Darmstadt +++ U Frankfurt

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DFG Deutsche Forschungsgemeinschaft