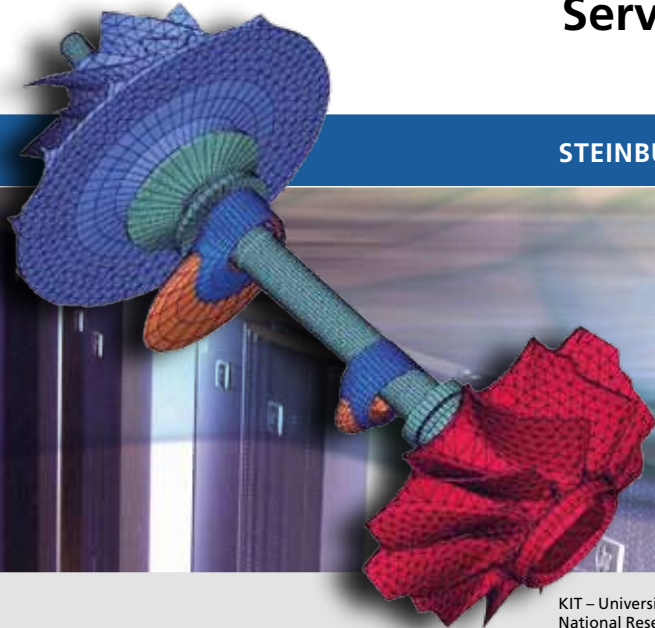


# Science for Services – Services for Science

STEINBUCH CENTRE FOR COMPUTING (SCC)



## SCC – one of the largest scientific computing centres in Europe

The Steinbuch Centre for Computing (SCC) is the Information Technology Centre of the Karlsruhe Institute of Technology (KIT). With about 200 employees, an excellent IT infrastructure and numerous national and international research projects it ranks among the largest scientific computing centres in Europe.

### Science for services – services for science

The activities of SCC comprise the classical and specific tasks of a modern IT service centre in science as well as own research and developments aiming particularly at a permanent and innovative optimisation of the IT services. Both fields are established under one roof in order to achieve a maximum efficiency and quality.

### Competences

- Provisioning and development of secure, reliable, ubiquitously available, process-integrated, customer-oriented services
- Promotion of research, teaching, study, further education and administration (about 8,000 employees, 20,000 students) by
  - excellent IT services as well as competent support of research, development and innovation projects
  - involvement in teaching and in support of study as well as in education and further education
  - furtherance of the staff members

### Leading role in HPC, grids and clouds

SCC is a major centre for modelling, simulation and optimisation. It operates powerful supercomputers, amongst others the High Performance Computer of the State of Baden-Württemberg being available to academic and industrial users from all over Germany for computationally intensive projects.

In order to bundle the competences in scientific computing, SCC has established special simulation laboratories as a novel interface between users and operators. Typically they are oriented to the KIT Centres Energy, NanoMicro, Elementary Particle and Astroparticle Physics as well as Climate and Environment.

SCC is also location of the Grid Computing Centre Karlsruhe (GridKa) – one of eleven tier-1 centres worldwide – being responsible for the storage and analysis of a significant part of data from the Large Hadron Collider (LHC) experiments at CERN.

Beyond that SCC plays an important role in the field of cloud computing. Together with HP, Intel and Yahoo! it is involved in the worldwide testbed OpenCirrus™.

### Research and development

The main focus of research and development at SCC lies on high performance computing (HPC) & data intensive computing (DIC), scientific computing and simulation, grid and cloud computing, large-scale data management & analysis. Other fields are IT management & web engineering, service-oriented architectures (SOA), distributed systems, cluster computing, innovative network technologies, IT security and virtualisation.



**SCC**  
Steinbuch Centre  
for Computing

## Selected projects

### Worldwide LHC Computing Grid (WLCG)

The Large Hadron Collider (LHC) experiments at the European research centre CERN produce about 16 Petabytes data volume per year. The mission of the WLCG project is to develop, build and maintain a computing infrastructure for storage and analysis of the LHC data. SCC contributes to WLCG with the German tier-1 centre GridKa and the Global Grid User Support (GGUS).

<http://lcg.web.cern.ch/LCG/>

### European Grid Initiative (EGI)

The national Grid Initiative of Germany (NGI-DE) operates and maintains the German grid infrastructure as part of the European Grid Initiative (EGI). NGI-DE is based on the D-Grid projects funded by the Federal Ministry of Education and Research (BMBF) and on the infrastructure built and operated as part of the EGEE (Enabling Grids for E-sciencE) project. SCC is leading the German federation and provides the Grid Operations and Support Centre (GOSC) which coordinates grid operations in NGI-DE and makes available the uplink to European grid operations at EGI. SCC also runs the Global Grid User Support (GGUS), one of the central services offered by EGI.

<http://www.egi.eu/>

<http://www.ngi-de.eu/>

<http://www.ggus.eu/>

### bwGRiD

<http://www.bw-grid.de/>

### Helmholtz-Alliance "Physics at the Terascale"

<http://www.terascale.de/>

### EU Fusion FOR Iter Applications (EUFORIA)

<http://www.euforia-project.eu/EUFORIA/>

### Karlsruhe Integrated Information Management (KIM)

<http://kim.cio.kit.edu/>

Further information on SCC projects at <http://www.scc.kit.edu/projects/>.

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A large, abstract graphic on the right side of the page. It consists of several 3D rectangular blocks of varying colors (blue, green, yellow, red, purple) and orientations, some appearing to be stacked or overlapping. The blocks are set against a background of a white grid pattern that recedes into the distance. The text from the 'Services' section is overlaid on the lower part of the graphic, following the perspective of the blocks.

high performance computing  
data intensive computing  
scientific computing  
simulation  
education and training  
visualisation and virtual reality  
distributed computing environment  
large scale data services  
grid computing and grid services  
cloud computing  
user support and consulting  
KIT-wide integrated IT service management  
scientific applications and software  
high speed networking  
multimedia communication