

# Looking for new challenges in supercomputing Join our interdisciplinary team at ZIB!

03.11.2022

The Zuse Institute Berlin (ZIB) is an interdisciplinary research institute for applied mathematics and data-intensive high-performance computing. Its research focuses on modeling, simulation, machine learning and optimization with scientific cooperation partners from academia and industry.

The Supercomputing Department of the ZIB is offering at the earliest time possible (subject to funding approval), and limited for three years, a

## **Research Position / Research Software Engineer (m/f/d)**

**Reference WA 58/22**

**100% - Pay Grade TV-L Berlin, E 13**

The Supercomputing department performs research and development work on heterogeneous compute and storage architectures in context of high-performance computing (HPC) and data analytics (HPDA). Within the project “NAAICE - network-attached accelerators for energy-efficient heterogeneous computing” funded by the Federal Ministry of Education and Research, the potential of stand-alone, network-attached FPGA accelerators is investigated to enable energy-efficient of HPC applications. The successful applicant will contribute to the implementation of system software and selected functionality in a demonstrator application based on final design decisions to be made in the first phase of the project.

**The offered position provides the opportunity for graduates to do a doctorate within the research project in collaboration with Berlin universities.**

### **Your Responsibilities:**

- Contribution to the implementation of the system middleware for network-attached accelerators including communication primitives based on remote memory access;
- Integration of network-attached accelerators (FPGA) into user workflows and provider resource management;
- Implementation of kernel offloading for selected functionality in the demonstrator software POET;
- Extension and modification of the Slurm resource management system to integrate energy measurement data in the job accounting.

### **Candidates need to provide:**

- a university degree (M.Sc. or diploma) in computer science or a related field;
- basic knowledge of programming FPGAs, desirable experiences in software development on FPGAs and knowledge in OpenCL/SYCL, C++ (experiences in HLS, VHDL/Verilog is a plus);
- interest in offloading techniques over fabric and remote FPGA management;
- good practice of software development on Linux, knowledge of Linux system administration (e.g., system monitoring) desirable;
- desirable is a basic knowledge in the use of or programming experiences with the Slurm resource management system and/or communication software (MPI, libfabric);
- desirable experience with performance analysis tools on Linux and software development tools (e.g., version control, build tools);
- good communication skills in German and English;
- the ability to work in a team with a strong focus on self-reliance, pro-activity, and creativity.

**We offer** a family-friendly working environment through flexible working and meeting times, excellent equipment and a challenging professional environment.

### **Additionally, we offer**

- access to next-generation HPC infrastructure;
- comprehensive training in a competent and cooperative team;
- an additional pension scheme (VBL);
- 30 days annual leave, flexible working hours (flexitime);
- a salary in accordance with TV-L (Collective Agreement for the Public Service of the Federal States); taking into account the relevant professional experience;
- an end-of-year bonus;
- discounted BVG (public transport) ticket as part of the capital city allowance;
- and the use of canteens and sports programs of the Freie Universität Berlin (FUB) at reduced rates.

Female applicants are highly encouraged to apply. Since women are underrepresented in information technology, the ZIB is trying to increase the proportion of women in this research area.

Applicants with disabilities will be preferred as long as equally qualified.

Please send your application, quoting the reference code **WA 58/22**, including a cover letter containing a statement of your working experiences, your CV with a list of publications and academic transcripts, by **01.01.2023** (date of receipt) as **one PDF file** to [jobs@zib.de](mailto:jobs@zib.de).

Our private policy statement regarding application data is available at [www.zib.de/impressum](http://www.zib.de/impressum).

For further information on the area of responsibility, please contact Dr. Thomas Steinke ([steinke@zib.de](mailto:steinke@zib.de)).

For further job offers please visit our website at [www.zib.de/jobads](http://www.zib.de/jobads).