112_OP_HLST

Job Reference

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Position

High Level Support Team (6 vacancies)

Data de tancament

Diumenge, 31 Desembre, 2017

About BSC

The Barcelona Supercomputing Center - Centro Nacional de Supercomputación (BSC-CNS) is the leading supercomputing center in Spain. It houses MareNostrum, one of the most powerful supercomputers in Europe, and is a hosting member of the PRACE European distributed supercomputing infrastructure. The mission of BSC is to research, develop and manage information technologies in order to facilitate scientific progress. BSC combines HPC service provision and R&D into both computer and computational science (life, earth and engineering sciences) under one roof, and currently has over 500 staff from 44 countries.

Look at the BSC experience:

BSC-CNS YouTube Channel

BSC-CNS Corporate Video

Let's stay connected with BSC Folks!

Context and Mission

Supercomputers are indispensable tools for solving the most challenging and complex scientific and technological problems through simulations. The Partnership for Advanced Computing in Europe, PRACE, is a unique persistent pan-European Research Infrastructure for High Performance Computing (HPC) and forms the top level of the European HPC ecosystem.
In order for the European scientific communities to fully benefit from the performance of leadership-class Tier-0 systems provided by the PRACE 2 Hosting Members, it is mandatory to provide them support through high-level teams in terms of code enabling and optimization of scientific applications. The following vacancy will be part of the BSC High Level Support Team providing 2nd and 3rd level support to the full PRACE tier-0 community. The team will be composed of 6 people and will comprise different HPC expertise providing specific skills in different domain science. The HLST will work on transverse actions including extreme scalability of select European scientific applications and tools towards Exascale, Data Analytics and Machine learning as well as code refactoring.

**Key Duties**

- Optimize and adapt scientific application codes to PRACE architectures
- Improve the performance of existing parallel codes, improving the serial efficiency and the scalability, changing if necessary the code or helping the developers with their required modifications
- Choose and adapt algorithms and/or mathematical library routines to improve applications to specific computer architectures (accelerators, new programming models, etc)
- Provide consultancy to scientists on new computer architectures and programing models
- Generate performance analysis and benchmarks for selected applications and report the results to the applications developers
- Support to researchers within their work field: Engineering, Chemistry, Biology, Mathematics, etc
- Address scientific user issues resulted of use PRACE Tier-0 systems
- Collaborate with other functional groups within PRACE on technical matters related to supporting scientific application work

This is not a full definition of the role but covers the main aspects and drivers for success

**Education**

- Bachelor in Computer Sciences, Telecommunications, Physics or related discipline

**Knowledge and Professional Experience**

- PhD in computer science or in any other scientific field but directly related to HPC, or Engineering degree with at least 4 years of experience in a similar position
- Excellent verbal and written English communication skills
- Experience porting and optimizing applications on UNIX-based systems Proficiency in Fortran, C, MPI, OpenMP, and parallel methods
- Proficiency with the use of performance analysis tools, compiler analysis tools, and debuggers
- Experience in managing big and collaborative projects and experience with git and SVN
- Experience supporting and collaborating with external partners
- A thorough understanding of high performance computing architectures

**Competences**

- Excellent interpersonal skills to be able to work within a team to complete tasks on schedule
- Analytical problem solving ability
- Ability to work effectively in a fast-paced, high volume, deadline-driven environment
- Team work
- Planning and organizing (Structured mindset)
- Proactive Cooperation (Desire to learn and improve)
- Service Attitude
- Flexibility

**We are looking for candidates to fill the 6 vacancies, working as team the positions will be more related with the different departments of our Center:**

- 3 in the Operations Department
- 1 in Computer Sciences Department
- 1 in CASE Department
- 1 in Earth Sciences Department

**Depending on the specific role in the HLST some of the following knowledge will be desirable**

Coding, programming and vectorization:

- Desirable experience in accelerators programming (NVIDIA CUDA, OpenACC, OpenCL, …)
- Desirable experience in new programming models
- Desirable experience in new architectures (KNL, Power, ARM) and vectorization (AVX, Altivec, SVE)
- Desirable experience in accelerators programming (NVIDIA CUDA, OpenACC, OpenCL, …)

Earth science models and data management:

- Previous experience in Earth System Models will be highly valued
- Experience in porting legacy applications from Fortran to GPUs
- Knowledge of climate data formats (GRIB, NetCDF)

**Conditions**

- The position will be located at BSC within the Operations Department
- We offer a full-time contract, a good working environment, a highly stimulating environment with state-of-the-art infrastructure, flexible hours, extensive training plan, tickets restaurant and a private health insurance
- Some travelling must be expected
- Duration of the contract: 3 years (extendable)
- Starting date: During last quarter 2017 and/or January 2018

**Applications Procedure**

All applications must include:

- A motivation letter, including two contacts for further references and the priority of the vacancies interested in (Operations, Computer Science, CASE or Earth Sciences)
A full CV including contact details

**Deadline**

The vacancies will remain open until suitable candidates have been hired. Applications will be regularly reviewed and potential candidates will be contacted, but the interviewing process will be concentrated during September/October 2017.

**Diversity and Equal Opportunity Employment**

BSC-CNS is an equal opportunity employer committed to diversity and inclusion. We are pleased to consider all qualified applicants for employment without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age, disability or any other basis protected by applicable state or local law.

Barcelona Supercomputing Center - Centro Nacional de Supercomputación

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