

## [61\\_24\\_OP\\_US](#)

### Job Reference

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### Position

High-Performance Computing (HPC) Application Performance Engineer

### Fecha de cierre

Domingo, 15 Diciembre, 2024

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**Job title:** High-Performance Computing (HPC) Application Performance Engineer

### 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, was a founding and hosting member of the former European HPC infrastructure PRACE (Partnership for Advanced Computing in Europe), and is now hosting entity for EuroHPC JU, the Joint Undertaking that leads large-scale investments and HPC provision in Europe. 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 1000 staff from 60 countries.

Look at the BSC experience:

[BSC-CNS YouTube Channel](#)

[Let's stay connected with BSC Folks!](#)

We are particularly interested for this role in the strengths and lived experiences of women and underrepresented groups to help us avoid perpetuating biases and oversights in science and IT research. In instances of equal merit, the incorporation of the under-represented sex will be favoured.

We promote Equity, Diversity and Inclusion, fostering an environment where each and every one of us is appreciated for who we are, regardless of our differences.

If you consider that you do not meet all the requirements, we encourage you to continue applying for the job offer. We value diversity of experiences and skills, and you could bring unique perspectives to our team.

## Context And Mission

Are you passionate about technology, Linux systems, and high-performance computing? Do you want to be part of a leading supercomputing center in Europe? Look no further! The Barcelona Supercomputing Center - Centro Nacional de Supercomputación (BSC-CNS) is seeking a talented individual to join our Operations Department as a High-Performance Computing User Support specialist.

Supercomputers are indispensable tools for solving the most challenging and complex scientific and technological problems through simulations. This position will be integrated into the operations department within the User Support team. The team will work on applications support for the most relevant projects asking for BSC resources, including performance optimization support, code porting, improvement of the scalability and performance of selected European scientific applications and tools towards Exascale and GPU computing optimization.

BSC now hosts one of the largest supercomputers in Europe as part of the EUROHPC Joint Undertaking. MareNostrum 5, a pre-exascale machine, delivers a sustained performance of over 205 PFlops. Its general-purpose partition is one of the largest in the world, with more than 700,000 cores available. Additionally, the accelerated partition features one of the biggest scientific clusters utilizing NVIDIA's new H100 GPU technology, with over 4,400 GPUs. The HPC support team plays a direct role in optimizing the usage of this powerful system.

## Key Duties

- Optimize and adapt scientific application codes to new pre-exascale 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.
- Generate performance analysis and benchmarks for selected applications and report the results to the application developers.
- Collaborate with other functional groups at the European and International levels on technical matters related to supporting scientific application work.?
- Help the HPC users to run their codes in an efficient way and support the research teams to adapt their codes to new machines.

## Requirements

- Education
  - Bachelor in Computer Science or related discipline
- Essential Knowledge and Professional Experience
  - At least 1 year of experience in a similar position working with HPC codes
  - Experience using performance analysis tools, and parallel debuggers.
  - Experience supporting and collaborating with external partners.
  - Previous expertise in working with parallel programming models (MPI, OpenMP, ...)
  - Good understanding of Linux environment and Shell scripting.
- Additional Knowledge and Professional Experience
  - Experience analyzing and testing different high-performance computing architectures.
  - Good level on English
  - Some knowledge in GPU programming (OpenCL, OpenACC, CUDA or HIP programming)

- Competences
  - Excellent communication and interpersonal skills to be able to work within a team to complete tasks on schedule.
  - Analytical problem-solving ability.

## **Conditions**

- The position will be located at BSC within the Operations Department
- We offer a full-time contract (37.5h/week), a good working environment, a highly stimulating environment with state-of-the-art infrastructure, flexible working hours, extensive training plan, restaurant tickets, private health insurance, support to the relocation procedures
- Duration: Open-ended contract due to technical and scientific activities linked to the project and budget duration
- Holidays: 23 paid vacation days plus 24th and 31st of December per our collective agreement
- Salary: we offer a competitive salary commensurate with the qualifications and experience of the candidate and according to the cost of living in Barcelona
- Starting date: asap

## **Applications procedure and process**

All applications must be made through BSC website and contain:

- A full CV in English including contact details
- A Cover Letter with a statement of interest in English, including two contacts for further references - Applications without this document will not be considered

In accordance with the OTM-R principles, a gender-balanced recruitment panel is formed for every vacancy at the beginning of the process. After reviewing the content of the applications, the panel will start the interviews, with at least one technical and one administrative interview. A profile questionnaire as well as a technical exercise may be required during the process.

The panel will make a final decision and all candidates who had contacts with them will receive a feedback with details on the acceptance or rejection of their profile.

At BSC we are seeking continuous improvement in our recruitment processes, for any suggestions or feedback/complaints about our Recruitment Processes, please contact recruitment [at] bsc [dot] es.

For more information follow [this link](#)

## **Deadline**

The vacancy will remain open until a suitable candidate has been hired. Applications will be regularly reviewed and potential candidates will be contacted.

## **OTM-R principles for selection processes**

BSC-CNS is committed to the principles of the Code of Conduct for the Recruitment of Researchers of the European Commission and the Open, Transparent and Merit-based Recruitment principles (OTM-R). This is applied for any potential candidate in all our processes, for example by creating gender-balanced recruitment panels and recognizing career breaks etc.

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.

For more information follow [this link](#)

Barcelona Supercomputing Center - Centro Nacional de Supercomputación

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