

## [274\\_24\\_CS\\_HAM\\_RE1](#)

### **Recruitment App Link**

<https://webapps.bsc.es/recruitment/job/3233>

### **Website Node ID**

63361

### **Job Reference**

274\_24\_CS\_HAM\_RE1

### **Position**

Research Engineer - HPC memory systems (RE1)

### **Closing Date**

Tuesday, 16 July, 2024

**Reference:** 274\_24\_CS\_HAM\_RE1

**Job title:** Research Engineer - HPC memory systems (RE1)

### **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.

### **Context And Mission**

The Memory Systems group in the Computer Science Department at the Barcelona Supercomputing Center is offering a full-time research engineer position for a project that explores advanced memory systems for AI applications.

The performance of AI models is typically limited by the memory wall. In this project, we aim to (re)move this wall by designing memory systems tailored to the requirements of AI models. We will explore systems based on HBM, DDR, GDDR devices, and Compute Express Link (CXL) memory expanders. Additionally, we will consider near-data processing architectures that offload part of the CPU/GPU processing to the memory system.

The project is conducted in close collaboration with a major memory manufacturer. Most of the development will take place on high-end hardware products and industrial prototypes.

We strongly encourage applications from candidates interested in joining a research team with over a decade of experience in industrial projects with major hardware companies from the US, China, and Korea.

### **Key Duties**

- Profiling and performance modeling of HPC applications running on high-end servers with advanced memory systems: HBM, DDR4/5, CXL memory expanders.
- Exploration of Processing in Memory for HPC and AI applications.
- Prototyping of industrial products and tools.
- Close interaction and reporting to industrial partners.
- Benchmarking and performance analysis of high-end hardware products and industrial prototypes.

### **Requirements**

- Education
  - BSc, MSc or PhD in Computer Science
- Essential Knowledge and Professional Experience
  - Good knowledge of computer architecture
  - Experience with Unix/Linux environments
  - Experience with profiling tools: Hardware counters, PAPI interface
  - Programming languages (C/C++, Python)
- Additional Knowledge and Professional Experience
  - Understanding of memory systems and memory technologies (e.g. DRAM, HBM) is a plus
  - Experience with hardware/system simulators is a plus
  - Fluency in English is essential

- Competences
  - Good written and verbal communication skills
  - Ability to take initiative

## Conditions

- The position will be located at BSC within the Computer Sciences 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: Q2-Q3 2024

## 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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