GAC: Grupo de Arquitectura de Computadores
Universidade da Coruña (UDC)

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Mission

Computer Architecture, High Performance Computing, Heterogeneous Computing, parallel programming, fault tolerance, graphical computing and visualization, cloud computing, big data, reconfigurable computing

Vision

Enable High Performance Computing in a variety of platforms and application fields, engineering, computational biology, and machine learning

Group Profile
Recent / Ongoing Results

Research

- **Computer Architecture**
  - Processor architecture
  - Memory hierarchy
  - Reconfigurable computing
- **Parallel Computing**
  - Parallel programming
 - Heterogeneous computing
  - Fault tolerance

- **TIN2016-75845-P, TIN2013-42148-P** : Nuevos Desafíos en Computación de Altas Prestaciones: desde Arquitecturas hasta Aplicaciones
- 168 papers in international journals and conferences in the last 5 years
- 113 program committees of international conferences (PPoPP, PACT, ICS, IPDPS, ICPP, CCGrid, CLUSTER,…)

Training/Teaching

- **Digital Design**
- **Computer Architecture**
- **HW/SW Co-design**
- **Parallel Programming**

- **Grado en Ingeniería Informática (Computer Engineering)**
- **Grado en Ingeniería de Datos (Data Science and Engineering)**
- **Master on High Performance Computing**
- **Master on Bioinformatics**
- **Publications on teaching**
  - Simula3MS, a MIPS simulator (JENUI 2010)
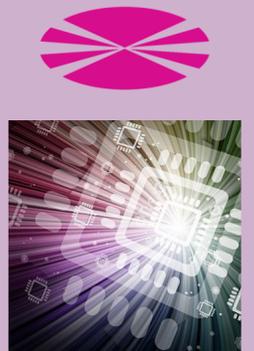
Innovation

- **A successful spin-off**
- **Knowledge transfer in GIS**
- **Several contracts with private companies**

- **TORUS:** HPC and Big Data
- **GIS.** Contracts with the Galician Government
- **Intel HARP2**
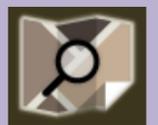
Group positioning & Perspectives in front of Open-Hw & RISC-V

R+D+i+T

- New opportunities to propose new functional units and coprocessors
- An open platform to research on advanced memory architectures
- The possibility of updating parts of our teaching currently based on MIPS architecture
- Increasing technology transfer to industry in the field of embedded systems
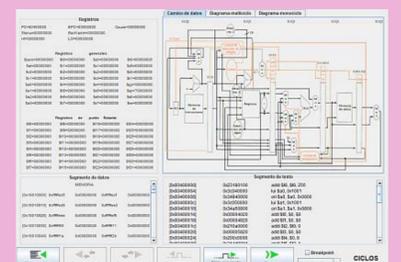
Global Remarks

"In just two decades the number of computer architectures has dropped dramatically, reducing the opportunities to contribute to the development of new components and paradigms"

"RISC-V may be the new platform the community need to propose new arithmetic units, coprocessors, accelerators, memory architectures, and programming techniques"