

File name: CSUM-M-RH-PROP\_RAKON\_sw\_eng\_v1.0.0  
Author: SHAMBAYATI Shana



## JOB OFFER

**Title: Embedded Software Engineer**

### 1 UNIVERSITY SPACE CENTER OF MONTPELLIER

The University Space Center of Montpellier (CSUM) is the French leader in the development and operation of nanosatellites developed by students. It has acquired in-depth competences in the field of design, manufacturing, testing and operation of nanosatellites and their subsystems, as well as in the area of space project management and product assurance in the framework of university space projects. The CSUM has an AIT (Assembly Integration and Test) Facility, a CDF (Concurrent Design Facility) and both UHF and S-band Ground Stations. The CSUM develops its own 1U and 3U CubeSat nanosatellite platforms with the support of the Van Allen Foundation and both the French and the European space agencies.

### 2 JOB DESCRIPTION

The FPGA( Field- Programmable Gate Array) hold a special place in the large family of integrated circuits. They belong to the category of digital integrated circuits, their great advantage is that their logic is programmable and even reprogrammable.

We are looking for an engineer with a broad skillset to cover development and validation with an emphasis on FPGA and embedded software skills.

You will be joining CSUM's core team in Montpellier (France) and will be responsible to develop. The work will involve FPGA design, embeded Linux development, communications systems design, specifications and application development for microprocessors that will run on CSUM's family of satellites.

Development work will require using Linux on a day-to-day basis. Experience working with Linux kernel(Yocto), Xilinx FPGA, drivers, filesystems,



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software-defined radio and embedded platforms is a big plus.

You will be working in a very dynamic and innovative environment. We are constantly looking for new technologies and new ways of improving our projects.

At CSUM, we speak English, but if you speak French, that is a bonus!

**Main Tasks:**

- Design and implementation of telecommunication IP Cores for FPGAs
- Design and implementation of high reliability and robust software
- Responsible for planning and implementing agreed test strategies during development
- Conception and definition of test procedures, test plans and test strategies in alignment with design
- Creation and execution of tests on demand from analysis, requirements
- Provide design feedback according to testing results
- Provide support to the satellite operations team

**Skills, attitude and experience:**

- Experience with C (advanced) and/or Python programming language(intermediate)
- Experience with FPGA design(VHDL) and Xilinx Vivado
- Proficiency with GIT
- Experience in embedded software development required including involvement in various technical areas such as signal processing, real-time software, Linux kernel, Android framework (AOSP), mobile applications and system boot software
- Experience in software studies, architecture, development, validation (using debug tooling system)
- Excellent knowledge using an integrated development environment (IDE) and compilation technology

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#### **Bonus Skills:**

- Experience with implementing telecommunication modules in FPGAs ( modulators/demodulators, encoders/decoders)
- Experience with continuous integration and unit testing tools
- Experience with FreeRTOS
- Familiarity with CSP (Cubesat Space Protocol)
- Familiarity with CAN BUS protocol
- Familiarity with CCSDS communications protocols/frames (CLTU, CADU, etc)
- Experience working with Xilinx family of SoCs

**Location:** Montpellier - France

**Preferred starting date:** As soon as possible

**Duration:** 1 year (CDD)

**Supervisor, Function at CSUM:** Rafael Mendes Duarte – Technical Director

## **3 CONTACT**

Please upload your application at <https://csum.umontpellier.fr/en/job-offers-internship/>