Silicon Mobility

Internship Description

SoC verification on FPGA board

(SM-STC001 / 2023)

What we offer

Company	**SILICON MOBILITY SAS** *(immatriculée 815 085 659 000 28 RCS Grasse)* Siege social : Les Aqueducs – Bât 2 – 535, route des Lucioles – 06560 Valbonne Sophia-Antipolis The Automotive industry is living a revolution. Electrification, autonomous driving, diverse mobility, connectivity are trends that are drastically changing the industry's rules. Among all decisive topics revolutionizing cars in the next future, Silicon Mobility is committed to s the rapid advent of electric and hybrid cars. Silicon Mobility is a technology leader for cleaner, safer and smarter mobility. The company designs, develops and sells flexible, real-time, safe and open semiconductor solutions for the automotive industry used to increase energy efficiency and reduce pollutant emissions while keeping passengers safe. We are looking for a good candidate to join our R&D team working in Sophia-Antipolis on the Côte d'Azur. Please contact us: **internship2023@silicon-mobility.com**
Offer ref.	SM-STC001-2023
Subject – Offer title	SoC verification on FPGA board
Duration	6 months – between February/March/April and September 2023
Work hours	35 hours a week at Silicon Mobility office
Education	Last year of Master (BAC+5 or equivalent)

Content / mission	As part of its product roadmap, Silicon-Mobility is developing its new generation of FPCU System-on-Chip. This innovative architectural component is based on a multi-core architecture combined with a patented real-time subsystem including an embedded programmable logic structure.
	
	The proposed internship addresses a specific need of the SoC development team: the verification of the SOC on an FPGA prototype. The prototyping of the SOC on FPGA will allow the design team to verify various functionalities (or IP) quickly and deeply.
	
	The following activities will be carried out during the internship:
	• Set up a flow to be able to run a test or a complete regression on a remote FPGA.
	• Participate in the definition of various tests to be run on the FPGA prototype such as:
	  ○ Performance tests: allowing for improving the architecture of the SOC itself.
	  ○ Robustness tests: allowing to quickly find corner cases bugs.
	  ○ Debug-oriented tests: allowing testing part that is difficult to verify in simulation only.
	  ○ Application porting: Porting a real system application on the FPGA prototype helps to improve the architecture and to find bugs early in the SOC conception.
	• Develop tests. Essentially in C language plus a few modules in Verilog.
	• Debug tests on the FPGA board and under the logic simulator.
	• Establishing the traceability matrix of test requirements.

Profile required	For this internship, we are looking for a student in the field of embedded systems. A strong general culture in the development of embedded systems on digital chips is required.

Expected skills / knowledge	Good foundation in embedded software development will be appreciated. Knowledge of the C language. A knowledge of the VHDL or Verilog language is a plus. The qualities of autonomy, rigor and ability to work as a team are important. A good level of English is required.
	• Requirement analysis, development of a test plan • Embedded software development in C. • Digital module development in Verilog. • Use of simulation and digital debug tools (QuestaSim or equivalent) • Use of configuration management tools (SVN) • Knowledge development on Systems on Chip (SoC)
Remuneration	1400€/month + Tickets Restaurant