Silicon Mobility

Internship Description

Control Algorithm for DCDC Converter Application

(SM-STC 009 / 2024)

© SILICON MOBILITY 2023

What we offer

Company	**SILICON MOBILITY SAS** *(registration number 815 085 659 000 RCS Grasse)* Head office : Les Aqueducs – Bât 2 – 535, route des Lucioles – 06560 Valbonne Sophia-Antipolis The Automotive industry is living a revolution. Electrification, autonomous driving, diverse mobility, and connectivity are trends that are changing the industry's rules. Among all decisive topics revolutionizing cars in the next future, Silicon Mobility is committed to supporting 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 motivated candidate to join our company in Sophia-Antipolis on the French Riviera. Please contact us: **internship2024@silicon-mobility.com**
Offer ref.	SM-STC 009-2024
Subject – Offer title	Control Algorithm for DCDC Converter Application
Duration	5-6 months– between February/March/April and September 2024
Work hours	35 hours per week, job location at Silicon Mobility office
Education	Last year of Master (BAC+5 or equivalent)
Content/ mission	As part of the R&D System and Software team, the apprentice will participate in the development of the algorithm for a proposed DCDC control application. The apprentice will study the proposed DCDC topology for EV applications. The apprentice will contribute to the integration and configuration of the proposed algorithm from specification down to verification using Model In the Loop tests environment, covering the AGILE development flow with the project team. The Silicon Mobility solution is based on the OLEA® FPCU System-on-Chip dedicated to automotive applications. The purpose of this apprenticeship is to analyse, define, develop, configure, and test the solution. During the apprenticeship period, several tasks will be addressed: 1. Requirements analysis As part of this task, the apprentice will have to study the proposed DCDC topology, the DCDC control algorithms, the architecture of OLEA® FPCU, the development tools used including OLEA® COMPOSER environment and flow. A particular attention will be paid to the characterization of key performance parameters. 2. System and Software specification Based on the previous analysis, the apprentice will have to write a detailed specification of the solution in collaboration with other R&D team members as well as the customer support team. This specification shall cover the following aspects: • System design and characterization • Innovative solutions and respective analysis • User guide and engineering documentation compliant with the ISO 26262 standard. 3. System and Software development During this task, the apprentice will have to characterize, model, develop, integrate, and validate the different components of the Model Based Design.

© SILICON MOBILITY 2023

Profile required	We are looking for a candidate with good knowledge of electrical engineering, power electronics, and control algorithms. Good skills in electrotechnics, DCDC topologies, Matlab Simulink/ Simscape, and/or DSPACE HIL Bench. The candidate shall be autonomous, rigorous with a strong team spirit. English speaking is required.
Expected Skills/knowledge	• Matlab/Simulink and SimScape Toolbox • Power electronics transistors • Functional Safety • Advanced algorithm control for power converters • General knowledge of microcontroller development • Critical real-time embedded software on ARM processor • General knowledge of microcontroller development • Requirement analysis and specification writing • Quality management skills • Notions of planning and project management • Quality management skills
Remuneration	1400€/month + Lunch tickets + Public transport

© SILICON MOBILITY 2023