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ICT Project No 688101

SUPERAID7

Stability Under Process Variability for Advanced Interconnects and Devices Beyond 7 nm Node

D1.1: Project Presentation

	Name	Organisation	Date
Edited	Jürgen Lorenz	Fraunhofer IISB	07.03.2016

Contents

Abstract

This Project Presentation provides a high-level summary of the SUPERAID7 project to the public, including the objectives, and outline of the workplan and of the commercialization perspectives, and information on the consortium and the project duration and budget.

Contract number

688101

Project acronym

SUPERAID7

Project name

Stability Under Process Variability for Advanced Interconnects and Devices Beyond 7 nm node

Research area

H2020-ICT-2015: Generic micro- and nano-electronic technologies

List of participants

Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V. .	Germany
Gold Standard Simulations ltd	United Kingdom
CEA-Leti	France
UNIVERSITY OF GLASGOW	United Kingdom
TECHNISCHE UNIVERSITÄT WIEN	Austria

Project summary

Among the physical limitations which challenge progress in nanoelectronics for aggressively scaled More Moore, process variability is getting ever more critical. Effects from various sources of process variations, both systematic and stochastic, influence each other and lead to variations of the electrical, thermal and mechanical behavior of devices, interconnects and circuits. Correlations are of key importance because they drastically affect the percentage of products which meet the specifications. Whereas the comprehensive experimental investigation of these effects is largely impossible, modelling and simulation (TCAD) offers the unique possibility to predefine process variations and trace their effects on subsequent process steps and on devices and circuits fabricated, just by changing the corresponding input data. This important requirement for and capability of simulation is among others highlighted in the International Technology Roadmap for Semiconductors ITRS.

SUPERAID7 will build upon the successful FP7 project SUPERTHEME which focused on advanced More-than-Moore devices, and will establish a software system for the simulation of the impact of systematic and statistical process variations on advanced More Moore devices and circuits down to the 7 nm node and below, including especially interconnects. This will need improved physical models and extended compact models. Device architectures addressed in the benchmarks include especially TriGate/ΩGate FETs and stacked nanowires, including alternative channel materials. The software developed will be benchmarked

utilizing background and sideground experiments of the partner CEA. Main channels for exploitation will be software commercialization via the partner GSS and support of device architecture activities at CEA. Furthermore, an Industrial Advisory Board initially consisting of GLOBALFOUNDRIES and STMicroelectronics will contribute to the specifications and will get early access to the project results.

Total costs

€ 3.377527,50

Commission funding

€ 3.377527,50

Project start and duration

January 1, 2016 to December 31, 2018 — 36 months

Project web site

http://www.superaid7.eu

Coordinator contact details

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