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Welcome to CopPeR

The CopPeR project will provide a novel copper deposition process based on the use of non-aqueous solvents to overcome the limitations of currently employed interconnect formation processes enabling device scaling beyond the 32nm technology node. This non-aqueous process will open novel routes to implement direct on barrier plating, focussing on tantalum and ruthenium as diffusion barriers.

As another main advantage the process developed and implemented within the CopPeR project will significantly improve the quality of the Cu metallization due to the fact that more space is available in trenches for high quality, low resistivity Cu, due to the fact that the resistivity limiting seed-Cu will be eliminated and thinner barrier films can be applied, e.g. by ALD (atomic layer deposition).

CopPeR will achieve the final goal through collaborations within a very strong consortium based on a team with outstanding scientific, engineering and manufacturing qualifications. In a first phase, electrolyte ingredients will be selected and experimentally verified, a deposition cell designed through modelling and simulation as well as new analytical techniques evaluated to enable adequate analysis of the deposited films. The second phase will focus on the development of the copper deposition process based on the findings from phase one with the additional support of micro-modelling and the process scaled and integrated into a 300mm proof-of-concept. In the third and final phase, the process will be integrated into a complete interconnect scheme, and optimised according to the industrial chip manufacturer's needs.

Project details

Start date: 2008-01-01

End date: 2010-11-30

Duration: 35 months

Project reference: 216474

Project cost: 4.692.488 EURO

Project funding: 3.150.000 EURO

Programme acronym: FP7-ICT

Programme Type: Seventh Framework Programme

Subprogramme area: Next-Generation Nanoelectronics

Components and Electronics Integration

Contract type: Collaborative project (generic)

About CopPeR

CopPeR is co-financed by the European Commission under EU Framework Programme 7 . The project is running for 30 months from January 2008 until June 2010. The consortium of the project consists of eight European partners, among those three universities and five companies.