Flagship Projects to Prepare for DfMM Service Clusters of the Future

PATENT-DfMM has launched a number of flagship projects in the second quarter of 2006 with a focus on providing first solutions to key DfMM problems of industry and also to demonstrate the potential of PATENT-DfMM collaborative efforts towards services to industry. First results will be now evaluated; these will constitute key deliverables into the elaboration of the PATENT-DfMM roadmap towards the launch of DfMM Service Clusters in 2007. The following flagship projects are currently running:

HUMS - Health and Usage Monitoring MicroSystem
This project focuses on the design, manufacture, package and test for reliability of a series of sensors aimed at monitoring the health and use of operation of larger systems. The initial focus is on aerospace systems through the participation of the SME BCF Designs who specialise in test engineering for aircraft systems. The project will over its life demonstrate how MNT based sensors capable of monitoring a range of "health" parameters can be integrated into key technology platforms or components, powered and networked into aircraft supervisory systems.

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BioDrop - Droplet-Based Micro-Electronic Fluidic Operations for Production and Evaluation Platform BioMEMS
The objective of this project is to develop a digital microfluidic platform (using so-called droplets), which is suitable for electrical analysis of biological material, as well as a production platform for peptides. Key to the realisation of this systems and subsequent related products is the realisation of an enhanced design flow that properly addresses reliability, testability and packaging within the design phase. Three European companies will participate, two of which are SMEs, who are involved in these two application areas where the digital droplet platform can be used. A microelectrode Array (MEA) for analysing cell material is already available. Within BioDrop, the latter will be extended with a droplet transport/delivery system.

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RELIABILITY - the reliability flagship project is structured into 3 clusters
Detailed Information on the following projects is available from the PATENT-DfMM Website and will be published in MST News in 2007:

RELMETH - Methodology for accelerated testing and reliability analysis of MEMS
Marius Bazu
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Pascal Nouet
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VIBSHOCK - Holistic Reliability Engineering for MEMS harsh conditions
Khiem Trieu
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Ingrid De Wolf
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Package reliability - Integrated Characterisation of Packaging Hermeticity Combining Test, Modelling, Reliability Characterisation and Packaging Integration of a Humidity Microsensor
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PATENT-DfMM and NEXUS MWG Design Modelling Simulation Workshop, 25-26 Jan 2007, Berlin, Germany

This workshop was originally planned for Oct 2006. Its objective is to identify needs of the MEMS industry (fabless design houses, manufacturers, etc.) in terms of design methodology and software tools. As an outcome, PATENT-DfMM aims at a first draft road map identifying key challenges as well as probable developments associated with future design methodologies and tools in the areas of DfT (Test), DfR (Reliability), DfY (Yield) and DfP (Packaging) strategies for MNT.

MEMS designers from industry and research labs, as well as MEMS software tool providers are welcome to participate. Active participants will receive a copy of the resulting "roadmap documentation". The workshop is jointly organised by the NEXUS MWG Design Modelling Simulation (DMS) and PATENT-DfMM.

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The NoE Patent-DfMM aims to establish a collaborative team to provide European industry with support in the field of "design for micro nano manufacture" to ensure that problems affecting the manufacture and reliability of products based on micro nano technologies (MNT) can be addressed before prototype and pre-production.

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