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DRESDEN CENTER FOR »MORE THAN MOORE TECHNOLOGIES«

Powerful pilot lines for innovative technologies will emerge in the coming years in Dresden due to the European project »ADMONT.« As a result, system integrators from all over Europe will be able to use either individual modules or entire production lines for the development of their applications. They'll be able to create a unique design center thanks to a symbiosis of expertise, technological platforms and existing clean rooms.

Holistic value creation processes for More than Moore technologies are lacking Europe-wide. The project ADMONT starts here and will merge various competencies and technical equipment regarding this topic within the area of Dresden. The goal is to establish a distributed pilot line for products and services, from ultra-high voltage technology, to OLEDs, to the 2.5D and 3D integration of ICs. Due to the local proximity of the individual modules in the pilot line, users can benefit from short throughput times and fast production processes. The project partners from industry and research are therefore creating an offer for pioneering developments, such as from the areas of medical technology, mobility or intelligent production.

The pilot line pursues the approach of covering the broadest possible process variety while ensuring a high level of reliability and robustness of the resulting products. Fraunhofer IIS/EAS will help manage these challenges with its design expertise. For this purpose, automatically created models in particular should help, which can be integrated into simulations with typical design environments of IC designers. The researchers are thus developing simulation models with which the future behavior of circuits and their components can be tested virtually. In order to ensure that these simulations can be used by a number of potential clients, they are adapted to all popular design environments that semiconductor designers work with.

ADMONT is financially supported by the European Commission as well as the participating member states. The national funding for Saxon project partners is divided equally between the federal government and the Free State of Saxony.

KICK-OFF MEETING FOR ADMONT

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OPTIMIZING THE LATENCY IN WIRELESS COMMUNICATION

Distributed sensor actuator systems today often do not yet meet the requirements of real-time communication. Their long query times make them currently unattractive for certain fields of application. In order to change this in the future, the research partners in the »fast real-time« project are researching options to optimize this latency.

A real-time optimization of systems with distributed sensors and actuators to transmission latencies from 1 to 10 ms is the basis for a greater distribution of this technology to various fields of application. In order to achieve further development in this area, the project partners are examining technical requirements in specific application scenarios. In addition to the high demands on latency time, the systems must also be reliably available, and high data rates and a secure transmission must be ensured.

REAL-TIME COMMUNICATION FOR INDUSTRIAL AUTOMATION

Furthermore, self-powered sensors must also be considered in some cases, which are frequently part of the communication systems. Only through a holistic view of all of these aspects can the latency be reduced to very short values. As a result of the project, specifications will be developed for future systems as well as design guidelines for a new technology platform. The subject of the examinations are scenarios from human-machine interaction, industrial automation and transportation.

The project partners will be focusing on two different approaches. On the one hand, they will optimize the latency starting from the currently used approach for the design of distributed systems. On the other hand, the status quo should also be fundamentally questioned and design guidelines for a new system design geared towards latency optimization should be developed.

Fraunhofer IIS/EAS focuses in »fast realtime« on applications from industrial automation. Here, the researchers specifically examine wireless systems where the query times are currently generally still insufficient for many application areas. This is because today's wireless communication systems always have a latency of several 10 ms and therefore do not yet meet the requirements of a real-time communication. The Fraunhofer researchers focus on specific applications in their analysis, such as an engine controller. In order to obtain realistic examination results from which the desired design specifications can be derived, they carry out experiments on a prototype and also consider reusable safety components.

Fast realtime is part of a cluster project and is funded by the Federal Ministry of Education and Research as part of the funding measure »Twenty20 - Partnership for Innovation.«

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Aktuelles

DATE 2016 from March 14 to 18 in Dresden
Design, Automation and Test in Europe (DATE) is one of the leading international events for electronic system design and the development of systems-on chips and embedded software. The institute division EAS presents its offers for the functional integration for micro / nanoelectronics at the research location Dresden / Chemnitz.
www.date-conference.com

EDA solutions of Fraunhofer IIS/EAS for American customers
To be able to meet the demand for design tools, mixed signal IP and EDA services in North America as well, the institute division EAS is cooperating with the American company EDATechForce from Sunnyvale. Starting in 2016, the Fraunhofer offers from this field will also be available through the partner company. The cooperation will also provide significant impetus for the further development of tools and technologies from the crucial US market.

OFFERS FOR THE »PRODUCTION OF TOMORROW«

SPS IPC Drives is Europe's leading trade fair of the electric automation industry. Over 64,000 visitors were informed about innovations from this sector in November 2015. Two of the featured future topics were self-learning condition monitoring and the »dual wireless analysis« in industrial automation – both presented by Fraunhofer IIS/EAS.

Fraunhofer IIS/EAS presented its current offers from the field of the »production of tomorrow« at this year's SPS IPC Drives in Nuremberg. The numerous visitors to the booth received an insight into the current status of research on wireless communication systems in industrial automation and intelligent data analysis, such as how it can be used for a self-learning condition monitoring in production. The institute division developed both topics into the current state in close cooperation with the industry, which is now ready for practical application.

The condition monitoring approach of the researchers allows an intelligent, independent monitoring of system components. The key feature of the solution is its significantly simplified operation, linking automatic data analysis with a self-learning classification. To do this, the condition monitoring system establishes certain settings, such as the limit values, automatically. This is achieved with mathematical algorithms, which evaluate known operating conditions of the plant. The data characteristics of the states are »learned« and then changes are automatically detected and reported.

VISITORS TO THE SPS IPC DRIVES 2015

A second topic of the future for which practical offers are being developed at Fraunhofer IIS/EAS is wireless communication. This can make automation more flexible and favorably priced than with wired solutions, but only if it works just as reliably. That is why the researchers have developed the »dual wireless analysis« that can reliably analyze the given wireless conditions in an extremely detailed manner, even under the most demanding environmental conditions. In this way, problem areas can be detected early on, accurately diagnosed and corrected in a targeted manner. The approach of the solution is based on the linking of measurement results from telegram and spectral analysis in order to allow accurate statements about the system status or disruptive factors.

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PILOT LINE MORE THAN MOORE
SPS IPC DRIVES
LATENCY OPTIMIZATION