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Challenges for future IoT gateway/infrastructure platforms and the embedding of new memory technologies

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Aula 6 • 19 de noviembre de 2015 • 15:00
Entrada libre hasta completar el aforo

Resumen

It is well-known that today's computing platforms for the IoT big data server and network router infrastructure is highly energy-consuming. And scaling this to the exascale sizes and Tbps bandwidth handling, which are required for the future, looks implausible with incremental innovations. The exploding energy consumption in today's solutions is largely due to the requirement for maintaining a strong platform flexibility and programmability across a wide range of different tasks and services. But still, also some clear opportunities are emerging to reduce this energy compared to the state-of-the-art reference platforms of today. In the literature many proposals have been launched to better customize the computing nodes themselves. But also the importance of the memory organization for the typically data-intensive application loads has been identified. In this talk, the challenges to tackle this data memory organisation and some emerging opportunities are highlighted.

Sobre Francky Catthoor

Prof. Francky Catthoor is a fellow at IMEC, Heverlee, Belgium. He received the Eng. degree and a Ph.D. in El. Eng. from the K.U.Leuven, Belgium in 1982 and 1987 respectively. Since 1987, he has headed research domains in the area of architectural and system-level synthesis methodologies, within the DESICS (formerly VSDM) division at IMEC. His current research activities belong to the field of architecture design methods and system-level exploration for power and memory footprint within real-time constraints, oriented towards data storage management, global data transfer optimization and concurrency exploitation. Platforms that contain both customizable/configurable architectures and (parallel) programmable instruction-set processors are targeted.