IMEC and CoWare strengthen relationship for multi-mode multimedia development

IMEC and CoWare have signed a letter of intent to collaborate on the development of an integrated design flow for efficiently mapping advanced multimedia and wireless applications on a flexible and programmable platform. The design flow is an integral part of IMEC's multi-mode multimedia (M4) program and will be used to develop software-defined radio and multi-format multimedia codecs. The two organizations intend to close the gap between IMEC's proprietary research tools and CoWare's electronic system-level (ESL) design tools.

One of the major targets within the design technology part of the M4 program is to develop an integrated digital design flow for multi-processor based platforms which is applicable for industrial applications. IMEC has an extensive tool suite in support of this design flow and performs research on tools for the design flow that are currently not available on the market. The intended collaboration with CoWare is a first industrial partnership to complete the flow. The design flow is driven by research on future applications, such as software-defined radio and multi-format multimedia codecs.

With the move toward nomadic embedded systems, such as an M4 terminal targeted in IMEC's program, designers face huge challenges in the efficient mapping of complex digital applications on flexible multi-processor platforms. Currently, no integrated design flow exists for platform creation together with application mapping that deals with the complexity, flexibility and low-power specifications of new applications within an acceptable design time and cost.

To close this gap, both IMEC and CoWare will make the interfaces of their appropriate tools compatible with the requirements of IMEC's design flow. The flow comprises an application mapping flow and platform implementation. Starting from a behavioral specification of the application, the application mapping flow includes three major phases: · High-level platform-independent optimization starting from a single-thread system specification; · Transformation of the sequential description into a concurrent multi-task model; · Platform-dependent optimization resulting in a set of concurrent tasks including communication information. The result of the application mapping is a completely configured flexible platform architecture. The architecture will be further implemented by state-of-the-art hardware/software co-design tools, compilers and synthesizers.

"IMEC has both mature and preliminary research tools that support multi-processor platform-based design. Our ATOMIUM technology for memory optimization is a perfect example of mature research that IMEC spun out to PowerEscape, Inc in 2003. To create a solution to efficiently design future nomadic embedded systems, our research tools need to be made compatible with state-of-the-art SoC tools," said Rudy Lauwereins, IMEC Vice President, Design Technology for Integrated Information and Communication Systems. "By combining tools and building on CoWare's expertise and other industrial players in HW/SW co-design, we can offer our partners a full solution."

"CoWare and IMEC share a strong strategic relationship that extends back to 1996 when CoWare was founded as an IMEC spin-off," said Karl Van Rompaey, Chief Technical Officer, CoWare. "By connecting CoWare's ESL tools with IMEC's design flow and proprietary tools, we jointly take a major step toward the design of nomadic embedded systems."