

Wednesday Keynote

Low-Power High-Performance Asynchronous Processors



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Abstract: This presentation provides an overview of the underlying principles and typical architecture behind an innovative family of high performance, asynchronous processors. The key distinguishing feature of these asynchronous processors is their power consumption. They consume from one third to one half of the energy that equivalent synchronous processors require to deliver the same performance in equal or less area. Given the phenomenon of “dark silicon” which is facing the industry, Asynchronous Processors have the potential to provide relief for several more years of silicon technology improvement. These processors have been applied to Digital Signal Processors (DSPs) and General Purpose Processors (GPP) applications. For DSP applications they have proven their value in a multitude of commercial products used worldwide over the last five years. For GPP applications the development is still at an experimental stage but power/performance ratios appear to promisingly track those in the DSP world.

Biographical Sketch: Michel Laurence is the CEO and co-founder of Octasic Inc. Octasic is a 15 year-old private fabless semiconductor vendor specialized in high-performance DSPs for the telecom industry. Prior to Octasic, Mr. Laurence was VP & GM of the Network Division of Natural MicroSystems (NMS) in Boston. He joined NMS as a result of its acquisition of InnoMediaLogic (IML) which he had founded in 1996. Prior to this Mr. Laurence held various technical management positions in the telecom industry in the US and Canada. He holds a bachelor (1978) and master (1981) degrees in Electrical Engineering. He originally graduated with a BSc in Physics from the Royal Military College of Canada (St-Jean) in 1973.