Marcus Dyrstad

Web and Marketing Lead

Transcript Video #1

Title: Okika Devices Technical Introduction

Link: https://www.youtube.com/watch?v=0v9LnAFrbE0

Script:

00:02: Okika devices is the industry leader in field programmable analog array . Building on the pioneering work of Pilington, Motorola and Anodime and integrating the cutting edge technology of Georgia Tech and Sophia Tech, Okika devices blends the inherent efficiency of analog solutions with the flexibility of digital reprogrammability. Our Flex Analog products leverage switch capacitor technology and fully differential analog signal chain to create a dynamically reconfigurable analog signal processing platform.

00:30 Even designers without analog expertise are able to use Okika's design software to quickly assemble application specific circuits from a library of over 40 configurable analog modules called CAMs. Circuits can be immediately tested using an Apex or PIA development board containing one, two, or four FPA chips. Apex development boards incorporate a microcontroller for prototyping software controlled analog functions such as time vary gain adapted gain control and softwaredefined filters.

00:58 Stable higher order filters can be implemented using our filter design tool and the characteristics adjusted in the system. New circuit parameters can be loaded while the circuit is operating with nearly instantaneous switch over to new parameters. The combination of circuit building blocks and simulation tools allows designers to create custom analog signal processors without the huge financial and time investment of designing a custom integrated circuit. Our SOC products greatly expand the available onchip resources, interle programmable analog and programmable digital circuits within the same architecture, adding a microcontroller and shared analog resources.

01:34 Developed with biologically inspired neuromorphic circuits in mind, even the switch fabric is analog programmable, enabling extremely energyefficient signal classifiers. In one keyword detection example developed at Georgia Tech, the SOC FPA consumes only microwatts compared to millows for equivalent performance using digital processing, a power reduction factor of 1/ 10,000th.

01:59 USB programmable development boards provide access to several analog IO, enabling immediate technology evaluation. The scalability of the SOC technology and ongoing design methodology improvements position it well for a rapid deployment into advanced silicon process nodes that will unlock massive gains in signal bandwidth and array density. Flex analog products are currently used in a wide range of consumer sonar systems, traffic monitoring radar systems, sensor analog frontends, and analog control loops.

02:28 Using arrays of flex analog chips, researchers have demonstrated the benefits of analog computing in solving systems of simultaneous equations and the programmability of FPAAS enables new equations to be solved without having to rewire the external connections. The large number of cabs and the SOC products and routing flexibility supercharge its analog computing capabilities such that some interesting algorithms originally developed for quantum circuits may soon be within the reach of configurable analog circuits.

02:54 Okika Devices is ready to partner with industrial IoT product developers, intelligent sensor manufacturers, researchers in the fields of analog computing, quantum computing, and probabilistic computing, and forward-thinking analog signal processing experts. We especially think that companies pursuing analog computing or neural networks would find a partnership or collaboration with OKA devices very compelling.