



Guruswami Sridharan

## ORCA SYSTEMS

### Geared up to Challenge the Biggies

**“30** Years ago making RF products was considered black magic but now it has evolved so much that you can successfully produce the ICs in your second attempt. I have been in the RF/semiconductor industry for more than three decades and know firsthand what the problems are. This inspired me to come up with solutions, along with the other founder, Kartik.” says Guruswami Sridharan, CEO and Founder of Orca Systems. By sensing the opportunity created by the pain points faced by the massive semiconductor industry, Orca systems has managed to steer away from conventional RF and analog design methodology and has used its own DSP-RF platform to bring simplicity in this complex world.

“We discarded the traditional PLL approach for synthesis of frequencies, since, in the traditional approach, wide frequency range and accurate wide-band modulation are not easily possible. Traditional PLL prohibits usage of synthesizer as phase modulator, inefficient power amplification schemes and traditional designers are forced to use IQ upconverters, which consume additional space and power,”

says Sridharan. He also decided to use discrete-time domain and digital domain in the receiver where very heavy usage of DSP at RF is used.

Sridharan adds, “In all our designs we almost eliminated the use of on-chip inductors. I honestly feel that ‘inductor’ is an enemy of chip design. It consumes large space and does not provide great functionality. The end result we achieved is that our chip does not look like a typical RF product at all. Anyone who sees the chip will say it is a digital chip.”

**Use of on-chip ‘inductors’ is an enemy of chip design and is almost eliminated in all our designs; they consume large space and do not provide great functionality**

With the help of the technology provided by Orca Systems, customers will be able to attain a lot of benefits. There is a size reduction of the order of 1/3 to 1/4 of conventional approach along with the reduction in power usage. In the new systems like MIMO these advantages get magnified many times. “This gives us the power to enter any market, any standard, at any time. We need not worry whether our competitors are in

sixth or seventh generation in their product cycle. We need to worry only about our financial muscle. We are able to compete with established giants in the field mainly because of the extra-ordinary advantages that this technology brings and our customers do not bother that we are a very small startup company,” beams Sridharan.

Sridharan could have opted for a big VC funding when he started the company but he decided not to, as he firmly believes that big VCs would have concentrated only on immediate returns and in turn hinder the development of technology, with wrong management decisions. “The valuation of the company will not be good, without silicon proof of concept and at least one product proved in production. We wanted to build the technology using NRE and Royalty model and at the right time partner with a VC.”

Sridharan has started this company along with his son Kartik who is also the company’s Vice President. Orca Systems has developed patented methods for digital RF transceiver designs leveraging nanoscale process technology. The company can effectively combine RF and digital functionality in a single SoC on such technologies as Fujitsu 90nm low power processes,

which are known to minimize fabrication cost and power consumption through size reduction. There is a technical whitepaper available on Fujitsu’s website showcasing Orca’s wireless technologies.

With a headcount of 26 people, and offices located in San Diego and Bangalore, the company plans to launch its first product in the third quarter this year. Sridharan is positive that once the product is out, and with other products in the pipeline, the company will be able to achieve 50-100 million dollars revenue in the next three years and compete with the biggies of the semiconductor industry. 