

Cliff Rants

Commex – Content-Aware 10GbE NICs

Commex has developed a family of content-aware NICs based on its Thunder network controller chip. I believe classification at the edge, whether L2-L7 DPI or something “lighter” will become a desirable and ubiquitous feature at some point in the future. However, for this to happen, I also believe that the premium for DPI needs to go away – that’s the nature of innovation. Today’s feature becomes tomorrow’s checkmark.

So for now, Commex has a very interesting, and very expensive solution. At roughly \$3,500, surely there are other alternatives to achieve the same end game.

For initial market penetration, price probably isn’t the obstacle. For now, the market needs to understand the power and benefits of DPI. However, competitor cPacket’s premise is that the solution must be cheap and a bump-in-the wire for DPI to become pervasive. Perhaps in chip form, Commex’s price does move a few decimal points.

Lightscape – Photo-Luminescent Phosphors for LED Lighting

Now I don’t know much about phosphors. And the CEO specifically said, “you know this isn’t a semiconductor company, right.” But I do know one thing – LED lighting is hot. And I do like innovation at the periphery – those things that aren’t dead-on, but add a lot of value, especially when they come out of R&D powerhouses like Sarnoff. Thermal management in the LED lighting arena is one example, perhaps phosphors is another. So this is one opportunity I would certainly dig into to see what it’s all about.

Nitronex – GaN-on-Si RF Power Devices

Nitronex has come a long way since 1999 in developing its gallium nitride-on-silicon (GaN-on-Si) RF power devices. After years of development, the company appears to be at the knee of the curve with strong growth prospects ahead. The company has a unique process for growing GaN on silicon, which provides it with a strong advantage over other GaN supplier that use expensive silicon carbide (SiC) and sapphire substrates.

The worldwide TAM for its RF power products is not growing rapidly; however, traditional LDMOS and GaAs devices will not be able to serve the market as performance requirements continue to increase, thus providing high growth for GaN.

The company has numerous fully qualified devices in production, has active customers, and a strong supply chain that utilizes existing Si infrastructure. With profitability expected this year, Nitronex is finally hitting its stride.

SiOnyx – Shallow Junction Photonics

Harvard University stumbled upon the remarkable attributes of Black Silicon, which was mistakenly created as part of a pulsed femto-laser research project. When this was first reported, I thought the results sounded mystifying – magical “conical cones”? Seriously... Furthermore, who really want a “fuzzy” silicon surface – does wonders for a planar process... Well now SiOnyx has actually figured out what it has created, and its pretty cool. Hint – the cones have nothing to do with it.

Shallow Junction Photonics is a patented semiconductor process that creates a thin film, broad spectrum detector that is 100 times more sensitive to light than silicon, detects energy from UV to SWIR, operates at low voltage bias, is extremely thin (<0.5 micron), and is compatible with existing CMOS process flows. It outperforms the industry’s best Avalanche Photodiodes at a fraction of the cost, without resorting to exotic and hazardous materials, while using mainstream silicon infrastructure. That’s way cool. And SiOnyx can take this innovation in many directions, from photodiodes to image sensors and more. If SiOnyx can deliver, this company is a winner.

OneChip – Indium Phosphide-based Photonic ICs

OneChip Photonics is developing optical transceivers based on monolithic Photonic Integrated Circuits (PICs) in Indium Phosphide (InP) for access networks and other mass-market broadband applications. Most current FTTH transceiver providers base their transceivers on either Discrete Optics or Planar Light-wave Circuit (PLC) designs.

OneChip integrates the entire optical transceiver in a single, monolithic PIC. Furthermore, the company argues that it is the only InP PIC supplier that uses just one epitaxial growth step. Targeting the rapidly growing FTTx market, OneChip believes this provides a distinct and sustainable competitive advantage, removing the cost and performance barriers that have been impeding ubiquitous deployment of Fiber-to-the-Home.

The opportunity is sizable, growing from \$387 million by the end of 2009 to \$594 million by the end of 2013. I like the opportunity, and most importantly I like the CEO, who is a proven winner, having previously sold Catena to Ciena for nearly \$500 million in 2004.

PeRaSo – 60-GHz ICs

No details – deep stealth with no response yet from the founder. As a general statement, I am not bullish on the 60G market, having issues with both the technology and market opportunity. But companies continue to receive funding, and SiBeam has raised a small fortune, so surely others must be smarter than me. ■