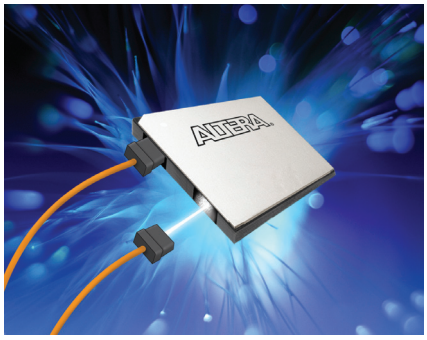
Altera sees the future in optics

The traditional copper-based interconnect is facing a tough road ahead as bandwidth demand continues its explosive growth, driven by applications such as high-definition video, cloud computing, and 3D gaming. Soon enough, as data rates go beyond 20Gbps, 40Gbps or 50Gbps, designers will have to address copper interconnects' lossy characteristics, limited reach, complex routing, and higher cost of PCB materials, according to Bradley Howe, Vice President for IC Engineering at Altera Corp., during the recent Globalpress Electronics Summit 2011 in Santa Cruz, California.

In particular, Howe mentioned that losses will increase 3.5x as data rates go from 10G to 30G. Mitigating such losses through expensive board material, however, will result in a 5x increase in cost for equivalent losses at 30G.

"What we see across the board is that bandwidth increase request is at least about 4x, which is not a simple problem to solve. It involves modification to the core fabric, it involves all kind of changes in system level, silicon level, package level, and



so on," said Luanne Schirrmeister, Senior Director for Component Product Marketing at Altera, in an interview with *EDN Asia*. "Beyond 40Gbps or 50Gbps channels, the prohibitive factors to success will be copper interconnect."

Addressing this issue, Altera has charted a new course for the industry with the development of optically interconnected programmable devices. "What we are saying is that if you have a choice between copper and optics, we think optics is a better solution; and the only way to really solve that problem is to integrate the optics into the FPGA," noted Schirrmeister.

But the technology will not be integrated in the silicon level yet because, according to Schirrmeister, the laser components don't blend themselves naturally to full integration into the company's process technology at this point in time. "That may change over time, but for now, we are seeing a lot of value in integration at the package level. That's the real technology: the integration of the optical subassembly into our package," explained Schirrmeister.

Altera will be showing a prototype of the product before the end of this year. "We're looking at system-level dynamics, customer-design factors using direct-connect optics into the optical FPGA. We are talking about a three- to five-year time horizon for when we think this is going to have commercial relevance, but it's a new technology, that is why we are putting it out there and saying 'this is the kind of direction' as we approach higher and higher bandwidths for more and more applications," Schirrmeister concluded.

— **by Stephen Las Marias**
Editor, *EDN Asia*

Altera Corp., www.altera.com

AWR plans Asia expansion

AWR Corp. is one of the biggest EDA companies targeting the high-frequency segment, with a focus on the wireless industry. "About 50 percent of our business comes from aerospace and defense industries. We get another significant portion from wireless telecom firms and the mobile consumer electronics," explained Sherry Hess, Vice President of Marketing, AWR, in an interview with *EDN Asia* during the recent Globalpress Electronics Summit 2011 in Santa Cruz, California.

The privately-held company boasts 14 years of positive revenue growth since its first product hit the market in 1998. "The overall military/aerospace industry has been good despite the recent recession. For some of the more commercial businesses, we are seeing buyer cycles now similar to two years ago," Hess said. She added that the company's strategy for the new fiscal year is to focus on Asia.

In Asia, we initially relied largely on our reseller networks, but we realized that we really need to invest in our relationship with our customers, and we need to have our direct employees there. So back in 2002, we opened up a Japanese office. Later we opened our Korea office. Now, we will be expanding into China," said Hess.

AWR's recent financial report for its fiscal 2011 ended March 31, 2011, highlights the Asia-Pacific region, which achieved more than 30 percent year-on-year sales growth for the company over the previous fiscal year. "If you look at all EDA data, Asia averages about 40 percent of the business of an EDA company. And if you track the market statistics for the past year, China, Japan, Korea, and Taiwan are consistently in the top four spots—and growing—versus the other regions," Hess noted. "Asia is so important because that is where the microwave and RF activity is growing and expanding. If you want to continue growing, expanding, and surviving as a company, you have to go out to your potential customers wherever they are. And right now, more and more of them are going to Asia."

— **by Stephen Las Marias**
Editor, *EDN Asia*

AWR Corp., www.awrcorp.com