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Rugged Interconnect and Pentek further cement partnership

News



In May this year, Rugged Interconnect Technologies hosted the co-founder and vice president of Pentek, Rodger Hosking, for a week-long visit to reinforce the two companies' partnership in the South African market.

According to Rugged Interconnect Technologies' owner, Bossie Coetzer, the experience was highly valuable in terms of networking and interacting with local electronics engineering companies and developers. As its name implies, the company focuses on providing rugged solutions for the commercial, industrial and military market segments, by offering single board computers, modules and server solutions, with support for high-end processors and FPGA functionality including high-speed interconnect capabilities.

To comprehensively cater for its customers' requirements, Rugged Interconnect Technologies' offering includes I/O boards and sub-systems, backplanes, power supplies, chassis, system integration and training. The company also boasts an open and welcoming policy of putting together

demonstration systems for developers, to assist them with proofs-of-concept.

“The ability to offer Pentek’s market-leading solutions is a vital component in us being able to provide a complete one-stop experience to our customers,” Coetzer states. “Their design and engineering philosophy directly correlates with our own, making Pentek products a perfect fit for our business and for the South African market.”

The history and growth of Pentek

Hosking, a Master’s degree graduate from Columbia University in New York, co-founded Pentek in 1986 together with three colleagues of his at the time. “We are in a very fortunate and somewhat unusual situation where the founders all still get along really well, and those strong relationships have given us the foundation to continue to grow our business with a clear, coordinated vision,” he says.

“Today the company employs around 70 staff, with roughly 30 of those being engineers. We have always fostered a strong family culture and this shows in terms of our phenomenal record of staff retention, and has enabled us to consistently uphold our philosophy of always treating the customer right. We also offer free lifetime application support as opposed to simply selling support packages to our customers.”

Based on constantly evolving digital signal processing (DSP) and data converter technologies, Pentek’s board-level products enable solutions for wireless telecoms, radar, waveform generation, and especially military/defence applications where most of its market resides. Today the company provides over 700 high-performance COTS (commercial off-the-shelf) and rugged board and recording system solutions for the lab and deployment, in AMC, cPCI, FMC, PCIe, PMC, PMC+, XMC, VME, VPX, XMC and 1U rack-mount form factors.

“Fundamentally, Pentek’s focus is the same as it’s always been: to provide solutions that fit into our customers’ systems, and enable developers to fit the pieces of the puzzle together. We therefore endeavour to abstract the chip design aspect while keeping to compact form factors, and also give developers sophisticated software tools to enable maximum design flexibility,” Hosking explains.

Harnessing the power of RFSoc

Over the years, Xilinx FPGA hardware has provided the ideal platform for Pentek to create its specialised solutions, and Hosking says Xilinx’s release of the Zynq UltraScale+ RFSoc architecture in 2017 was something of a game-changer. It enabled Pentek to introduce its new

Quartz family, starting with the Model 5950, an eight-channel A/D and D/A converter, 3U OpenVPX board that opens up new opportunities in applications such as electronic warfare and countermeasures, phased-array antenna systems, 5G wireless infrastructure, waveform and radar chirp generators, and high-bandwidth data streaming.

While the Model 5950 follows the form factor of a standard 3U OpenVPX board, the unique modular design of Pentek's Model 6001 QuartzXM eXpress Module provides the flexibility to deploy this solution in many different situations. The QuartzXM is a system-on-module containing all of the key components including the RFSoc FPGA, DDR4 SDRAM, and power and clock management.

The 5950 design places the RFSoc as the cornerstone of the architecture. All control and data paths are accessible by the RFSoc's programmable logic and processing system. A full suite of Pentek developed IP and software functions utilise this architecture to provide data capture, timing and interface solutions for many of the most common application requirements.

Pentek helps streamline the process from development to deployed application by providing a full suite of built-in functions. These address the data flow and basic processing needed for some of the most common applications.

In closing

In describing the company's core philosophy, Hosking says: "Pentek takes pride in listening to its customers and creating new products to meet their needs. We promise an atmosphere of freedom and creativity among our engineers, so they can design industry-leading products to satisfy the most demanding applications. This has been the key to our success through the years."

For his part, Coetzer states that "it was a pleasure for Rugged Interconnect Technologies to host Rodger in South Africa. I enjoyed the opportunity to tap into his knowledge and experience first-hand, and having had him accompany me on visits to companies and developers across the country really put a stamp of our approval on both of our companies' efforts in the local market. I look forward to welcoming him back in the future."

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