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Signatec Releases PX1500-4, Its 4-Channel, 1.5 GHz Per Channel / 2-Channel, 3 GHz Per Channel PCI-Express Digitizer with Two Virtex-5 FPGAs

Newport Beach, California – December 17, 2009 – Signatec Inc. today announced the PX1500-4 high-speed digitizer, the most advanced PCIe-based wideband A/D board on the market. The PX1500-4 captures four synchronized channels at sampling rates up to 1.5 GHz, or two synchronized channels up to an amazing 3 GHz when interleaving the ADC data. 2 GB of on-board memory configured as a large FIFO and a PCIe x8 bus ensures Signatec's PX1500-4 can continuously sustain long recordings at up to 1.4 GB/s through the PCIe x8 bus (both mechanical and electrical) to PC disk storage without any break in the analog record.

Dual embedded Virtex®-5 FPGAs control the PX1500-4 board functionality with available DSP Slice and logic resources optionally available in both chips for custom in-line signal processing. As a Xilinx Alliance Program partner, Signatec created standardized data and control interfaces that are customer accessible along with VHDL source code examples that demonstrate the use of these interfaces to simplify real-time processing tasks through its optional firmware development kits.

“The PX1500-4 was designed to maximize the quality of captured signals in terms of signal-to-noise ratio and spurious-free dynamic range over a very wide frequency range,” said Anthony Hunt, Chief Technology Officer at Signatec. “By relying on the Virtex-5 FPGA family to deliver embedded processing and serial transceiver capabilities, combined with Signatec's growing suite of development libraries for FPGA programming, Signatec's PX1500-4 offers exceptional value for engineers in the aerospace, defense and intelligence communities.”

Precise Sampling Rate Flexibility

Beyond its high-speed, multi-channel performance capabilities, the PX1500-4's frequency synthesized clock allows the ADC sampling rate to be set to virtually any value from 200 MHz, the minimum allowable ADC clock, up to 1500 MHz, offering maximum flexibility for sampling rate selection. Additional divide-by-2 circuits are provided for sampling at even lower frequencies. This frequency selection flexibility comes at no cost to the acquisition clock quality/performance when locked to either the onboard 10 MHz, 5 PPM reference clock or to an externally provided 10 MHz reference clock. The ADC may also be clocked from an external clock source.

This level of accurate clock tuning without sacrificing performance gives the best integrated onboard ADC clock flexibility in the industry. Users no longer need to settle for fixed clocks or limiting divide-by-2 clocks only. This feature is ideal for undersampling applications, where the Nyquist bands need to be perfectly tuned to optimally place the center frequency of the sampled signal into the middle of the Nyquist zone and to optimize for the total bandwidth or data captured. In addition to the onboard clock capabilities, the ADC may also be clocked from an external clock source.

Up to three PX1500-4 boards may be interconnected in a Master/Slave configuration via a ribbon cable that connects at the top of the board. In this configuration the clock and trigger signals from the Master drive the Slave boards so that data sampling on all boards occurs simultaneously. Up to six boards can be set up for fully synchronized operation by utilizing the SYNC1500-6 as the clock and trigger source for the system, where all six boards can function synchronously even when placed into different PC chassis. This scalability of chassis and system resources allows for increasing the sustained data rate per channel for high speed signal recording and/or real-time processing applications.

Time Stamps

In Segmented Mode, 'time stamps' allow for storing the time relationship between the memory segments. Time Stamps are 64 bit timer values with a clock resolution of $4/f_{ADC}$, and are accumulated in a 2048 element FIFO memory separate from the data. If necessary, time stamps may be read during acquisition in order to prevent overflow. This is possible in any acquisition mode.

"Signatec's new PX1500-4 is our fastest data acquisition card to date, and one of the highest-performance high-speed digitizers available on the market today," said Tom Wagner, Director of Marketing for Signatec, Inc. "Our customers can stream multiple synchronized channels continuously with Signatec's turnkey recording systems, including real-time processing options leveraging Xilinx's Virtex-5 FPGA with embedded programs such as FFTs, FIRs, DDC and channelization."

Pricing and Availability

Signatec's PX1500-4 is currently shipping with a 6 week delivery forecast. For the latest pricing and availability information, please contact Tom Wagner by email at twagner@signatec.com.

About the Xilinx Alliance Program

The Xilinx Alliance Program is composed of companies with the best available technologies in the areas of IP cores, EDA, DSP, and embedded development tools, as well as design services, board-level products, integrated circuits, and electronic components. Participating companies provide optimized products and services that contribute to a broad selection of industry-standard solutions dedicated for use with Xilinx FPGAs.

About Signatec, Inc.

Delivering advanced system solutions since 1988, Signatec is a leading designer and manufacturer of high-speed data acquisition, parallel digital signal processing, continuous signal data recording and arbitrary waveform generation systems. Signatec differentiates itself by being one of the only single-source suppliers that works with its customers to build affordable, real-time signal technology systems for advanced radar, SIGINT, ultrasound, imaging and other high-speed communications systems. For more information, visit Signatec online at www.signatec.com