Pentek Onyx Virtex-7 Wideband Software Radio Module

WDD Staff

Pentek [1] (Upper Saddle River, NJ) recently announced the newest member of its popular Onyx family of high-speed data converter XMC FPGA modules: the Onyx Model 71730, a single channel, 1 GHz 12-bit A/D, 1 GHz 16-bit D/A module based on the high density Xilinx Virtex-7 FPGA. The Model 71730 can receive and transmit at the same sampling rate, supporting signal bandwidths up to 400 MHz.

Architectural enhancements in the Onyx family include:

- Doubled DDR3 memory in both size and speed to 4 GB and 1600 MHz, respectively.
- The PCIe interface has been upgraded to Gen 3, delivering peak transfer rates up to 8 GB/sec.
- The Virtex-7 is more power efficient than previous generations, making it easier to utilize larger FPGAs.
- Optional LVDS and gigabit serial connections to the Virtex-7 FPGA are available for connecting to custom high performance I/O.

The Model 71730:

- Comes preconfigured with a suite of built-in functions for data capture, synchronization, time tagging, and formatting, making the board an ideal

turn-key interface for radar, communications, or general data acquisition applications.
- Features an A/D acquisition intellectual property (IP) module for easy capture and data moving and a sophisticated D/A waveform playback IP module that allows users to easily play back waveforms from on-board memory or the PCI Express interface.

GateXpress PCIe Configuration Manager is a sophisticated FPGA-PCIe hardware engine for managing the reconfiguration of the FPGA. At power up, the GateXpress manager immediately presents a PCIe target to the host computer for discovery and enumeration, giving the FPGA time to load from FLASH. Once booted, the GateXpress manager offers multiple options for dynamically reconfiguring the FPGA with a new IP image, handling the hardware negotiation, and streamlining the loading task. GateXpress also allows dynamic FPGA reconfiguration though software commands as part of the runtime application.

For systems that require custom functions, IP can be developed using the Pentek GateFlow FPGA Design Kit, extending or even replacing the factory-installed functions.

The Onyx Virtex-7 Model 71730 shares many of the same architectural and front-end characteristics as the Cobalt Virtex-6 Model 71630 data acquisition module. The similarity of the products gives developers the opportunity to port software developed for Cobalt modules to the corresponding Onyx modules with a minimum of effort. All ReadyFlow board support libraries work with both families, further simplifying the software development effort. Thus, developers will be able to migrate from Cobalt to Onyx modules as their performance needs increase.

Software support packages are available for Linux and Windows operating systems.

The Model 71730 XMC module is designed for air-cooled, conduction-cooled, and rugged operating environments. It is available as a 3U / 6U Compact PCI (Models 73720/74720), 3U VPX (Model 52720), PCIe (Model 78720) and AMC (Model 56720).

For more information, please visit www.pentek.com. [1]

Source URL (retrieved on *03/10/2014 - 10:24am*):
http://www.wirelessdesignmag.com/product-releases/2013/11/pentek-onyx-virtex-7-wideband-software-radio-module

Links:
[1] http://www.pentek.com.