Real-Time Recording and Playback System with Multiband Transceiver and FPGA Processing

SystemFlow

Features

- Scalable recording system from two to 40 transceiver channels
- 14-bit, 125 MHz A/Ds
- 16-bit, 500 MHz D/As
- Real-time recording and playback to and from JBOD arrays at sustained rates of 160 MBytes/sec
- Storage up to 500 gigabytes
- 1 GHz G4 PowerPC
- Multiple Xilinx Virtex-II FPGAs
- 64-bit/66 MHz PMC and VIM sites
- Ethernet link to popular hosts
- SystemFlow Recording/ Playback Software
- SystemFlow File Manager
- Windows or Linux host platform
- DDC decimation and DUC interpolation range from 2 to 32,768
- Audio to 40 MHz baseband record and playback signal bandwidths
- IF frequencies to 140 MHz
- Ideal for communications, radar, wireless, SIGINT, telecom and satcom

ReadyFlow Board Support Package

Ordering Information

Model
RTS 2504-001

Description
Real-Time Recording and Playback System with Multiband Transceiver and FPGA Processing

Related Products

4990-504   SystemFlow for RTS 2504

8330   Fibre Channel JBOD

More information on pentek.com

General Information

The Pentek RTS 2504 is a highly-scalable real-time recording system for acquiring, downconverting, processing, analyzing, recording, upconverting and playback of wideband signals. Integrating recently introduced A/D and D/A converters, digital downconverters and upconverters, FPGAs and signal processors, this system allows the design engineer to take advantage of the latest technology for signal processing.

Scalable from two to 40 transceiver channels in a single 6U VMEbus chassis, the RTS 2504 serves equally well as a recording system for advanced research projects and proof-of-concept prototypes, or as a cost-effective strategy for deploying high-performance, multichannel embedded systems.

The RTS 2504, when used with the Model 4990 SystemFlow Recording Software, creates an out-of-the-box, Windows or Linux recording system. Included in SystemFlow is a system level API, a low level API (ReadyFlow Board Support Package) and an integrated development environment. Also included is a file manager and a graphical signal viewer with signal analysis functionality.

Scalable System

The heart of the RTS 2504 is the Pentek Model 4205 I/O Processor running eCos and featuring a 1 GHz MPC7457 G4 PowerPC and two Xilinx Virtex-II FPGAs.

The PowerPC acts both as an executive for managing data transfer tasks and performing signal processing or formatting functions.

Built-in Fibre Channel interface provides excellent I/O connectivity without sacrificing any of the mezzanine sites. Standard RS-232 and 100Base-T Ethernet ports allow the PowerPC to communicate with a wide range of host workstations for control and software development applications.

Attached to the 4205 I/O Processor is the Model 7141 Dual Digital Up/Downconverter module with two 14-bit 125 MHz A/D converters, a GC4016 quad multiband digital downconverter, a digital upconverter and two 16-bit 500 MHz D/A converters. A Virtex-II Pro FPGA contains installed IP cores for dual wideband DDCs and an interpolation filter. Combined with the ASIC devices, they provide an overall decimation range from 2 to 1,048,576 and an interpolation range from 2 to 32,768 for I/O baseband signal bandwidths from audio to 40 MHz at IF frequencies up to 140 MHz or more.

6. Software and Systems

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