TALON
RTR RUGGED RECORDER

SystemFlow

Features

- Designed to operate under conditions of shock and vibration
- Recording of IF signals up to 2 GHz.
- 1 GHz 12-bit A/Ds
- 1 GHz 16-bit D/As
- 400 MHz recording and playback signal bandwidths
- Real-time aggregate recording rates up to 4.0 GB/sec
- 4U 19-inch rugged rackmount PC server chassis
- Available in 21" deep 24-bay rackmount chassis or 26" deep 40-bay rackmount chassis
- Up to 46 terabytes of SSD storage to NTFS RAID solid state disk array
- RAID levels of 0 ,1, 5 , 6, 10 and 50
- Complete high-performance Windows® workstation with Intel® Core™ i7 processor
- SystemFlow® GUI with signal viewer analysis tool
- C-callable API for integration of recorder into application
- File headers include time stamping and recording parameters
- Optional GPS time and position stamping

Contact factory for options, for number and type of analog channels, recording rates, and disk capacity.

General Information

The Talon® RTR 2748 is a turnkey recording and playback system that allows users to record and reproduce signals with bandwidths up to 500 MHz. The RTR 2748 can be configured as a one- or two-channel system to provide real-time recording and playback rates up to 4.0 GB/sec to an array of solid-state drives.

The RTR 2748 uses Pentek's high-powered Virtex-6-based Cobalt® boards that provide the data streaming engine for the high-speed A/D converters.

A built-in synchronization module is provided to allow for multichannel phase-coherent operation.

GPS time and position stamping is optionally available.

SystemFlow Software

The RTR 2748 includes the SystemFlow Recording Software. SystemFlow features a Windows-based GUI (Graphical User Interface) that provides a simple means to configure and control the system.

Custom configurations can be stored as profiles and later loaded when needed, allowing the user to select preconfigured settings with a single click.

SystemFlow also includes signal viewing and analysis tools that allow the user to monitor the signal prior to, during, and after a recording session. These tools include a virtual oscilloscope and a virtual spectrum analyzer.

Built on a Windows 7 Professional workstation, the RTR 2748 allows the user to install post-processing and analysis tools to operate on the recorded data. The RTR 2748 records data to the native NTFS file system that provides immediate access to the recorded data.

Data can be off-loaded via two gigabit Ethernet ports, six USB 2.0 ports or two eSATA ports. Additionally, data can be copied to optical disk, using the 8X double layer DVD±R/RW drive.

Rugged and Flexible Architecture

Because SSDs operate reliably under conditions of shock and vibration, the RTR 2748 performs well in ground, shipborne and airborne environments. The drives can be easily removed or exchanged during or after a mission to retrieve recorded data. Available in a 21" deep, 24-bay chassis or a 26" deep, 40-bay chassis, the system can be populated with SSD storage up to 46 TB.

The RTR 2748 is configured in a rugged rackmount chassis, with hot-swappable data drives, front panel USB ports and I/O connectors on the rear panel.

Systems are scalable to accommodate multiple chassis to increase channel counts and aggregate data rates. All recorder chassis are connected via Ethernet and can be controlled from a single GUI either locally or from a remote PC.

Multiple RAID levels, including 0, 1, 5, 6, 10, and 50 provide a choice for the required level of redundancy. ➤

MODEL RTR 2748
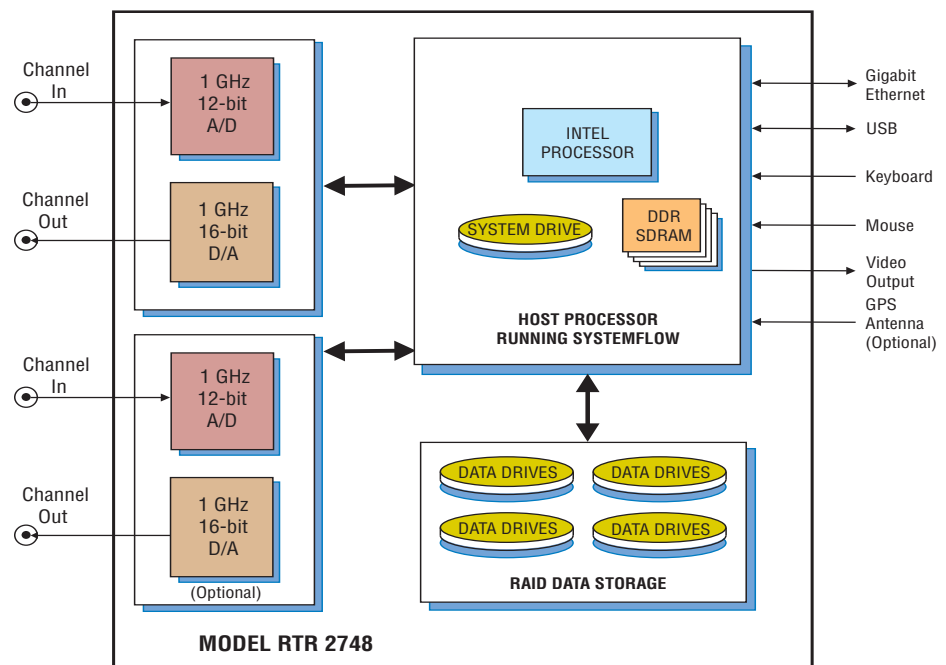
➤ **SystemFlow Graphical User Interface**
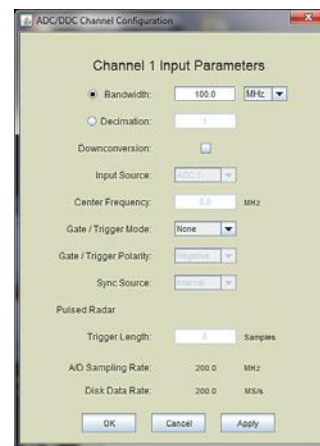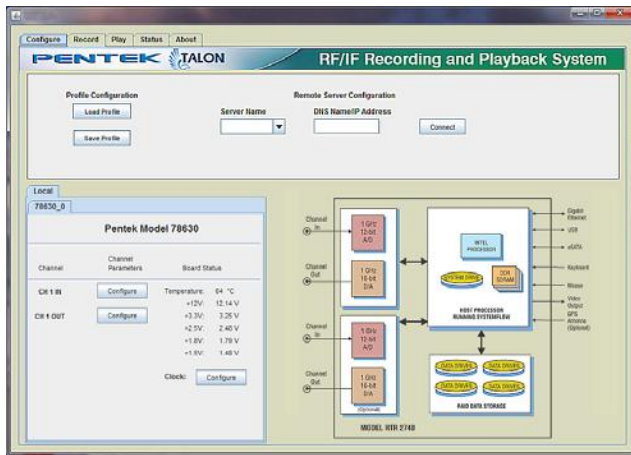

SystemFlow Recorder Interface

The RTR 2748 GUI provides the user with a control interface for the recording system. It includes Configuration, Record, Playback and Status screens, each with intuitive controls and indicators. The user can easily move between screens to set configuration parameters, control and monitor a recording, play back a recorded signal and monitor board temperature and voltage levels. The signal viewer, integrated into the recording GUI, allows the user to monitor real-time signals or signals recorded on disk.

SystemFlow Hardware Configuration Interface

The RTR 2748 Configure screens provide a simple and intuitive means for setting up the system parameters. The A/D configuration screen shown here, allows user entries for gate/trigger mode, gate/trigger polarity, and trigger source. All parameters contain limit-checking and integrated help to provide an easier-to-use out-of-the-box experience.
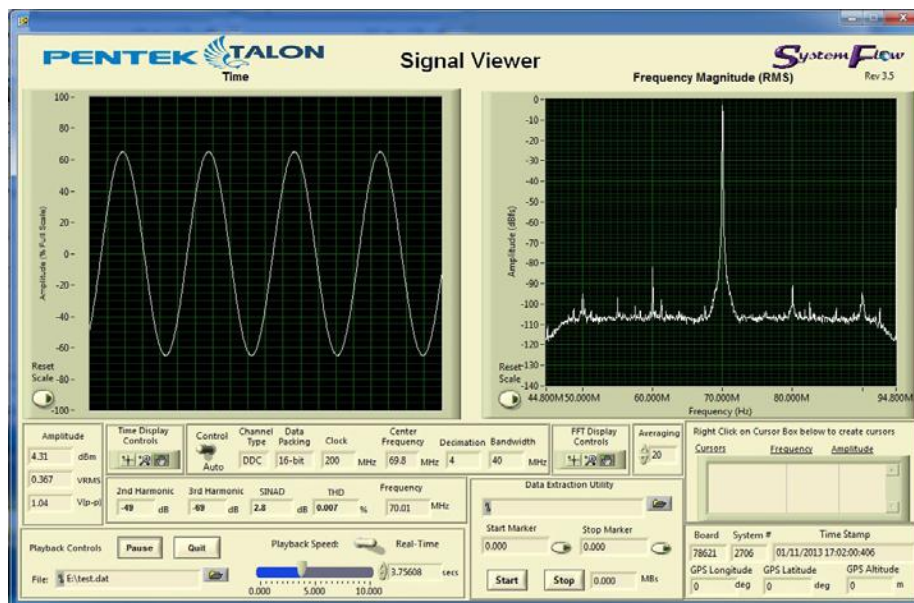
SystemFlow Signal Viewer

The SystemFlow Signal Viewer includes a virtual oscilloscope and spectrum analyzer for signal monitoring in both the time and frequency domains. It is extremely useful for previewing live inputs prior to recording, and for monitoring signals as they are being recorded to help ensure successful recording sessions. The viewer can also be used to inspect and analyze the recorded files after the recording is complete.

Advanced signal analysis capabilities include automatic calculators for signal amplitude and frequency, second and third harmonic components, THD (total harmonic distortion) and SINAD (signal to noise and distortion). With time and frequency zoom, panning modes and dual, annotated cursors to mark and measure points of interest, the SystemFlow Signal Viewer can often eliminate the need for a separate oscilloscope or spectrum analyzer in the field. ➤

PENTEK

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► Specifications

PC Workstation (standard configuration)
Operating System: Windows 7 Professional
Processor: Intel Core i7 processor
Clock Speed: 3.0 GHz or higher
SDRAM: 8 GB
RAID
  Storage: 3.8, 7.6, 15.3, 30.7 or 46.0 TB
  Drive Type: SATA III SSDs
  Supported RAID Levels: 0, 1, 5, 6, 10 and 50

Analog Recording Input
  Input Type: Transformer-coupled, female SSMC connector
  Transformer Type: Macom ETC1-1-13TR
  Full Scale Input: +10 dBm into 50 ohms
  3 dB Passband: 5 MHz to 2 GHz
A/D Converter
  Type: Texas Instruments ADS5400
  Sampling Rate (f_s): 100 MHz to 1 GHz
  Resolution: 12 bits
  A/D Record Bandwidth: $f_s/2$ = Nyquist bandwidth
  Anti-Aliasing Filters: External, user-supplied

Analog Playback Output
  Output Type: Transformer-coupled, female SSMC connector
  Full Scale Output: +4 dBm into 50 ohms
  3 dB Passband: 300 kHz to 700 MHz
D/A Converter
  Type: TI DAC5681Z
  Interpolation: 1x, 2x or 4x
  Input Data Rate to DAC5681Z: 500 MS/sec max.
  Output Sampling Rate: 1 GHz, max.
  Output IF: 700 MHz, max.
  D/A Resolution: 16 bits
Clock Sources: Selectable from onboard programmable VCXO or external clock
External Clock
  Type: Female SSMC connector, sine wave, 0 to +10 dBm, AC-coupled, 50 ohms, accepts 100 MHz to 1 GHz input clock or 10 MHz system reference
Internal Clock
  Type: Progammable VCXO
  VCXO Frequency Ranges: 100 to 945 MHz, 970 MHz to 1 GHz

Physical and Environmental
Size
  Width: 19"
  Height: 7"
  Depth: 21" (24-drive chassis)
  Depth: 26" (40-drive chassis)
Weight: 60-85 lb
Operating Temp: 0° to +50° C
Storage Temp: –40° to +85° C
Relative Humidity: 5 to 95%, non-condensing
Operating Shock: 15 g max. (11 msec, half sine wave)
Operating Vibration: 10 to 20 Hz: 0.02 inch peak, 20 to 500 Hz: 1.4 g peak acceleration
Power Requirements: 100 to 240 VAC, 50 to 60 Hz, 500 W max.

Model RTR 2748 Ordering Information and Options

Channel Configurations

Option -201	1-channel recording
Option -202	2-channel recording
Option -221	1-channel playback
Option -222	2-channel playback

Storage Options

		Max. Data Rate
Option -410	3.8 TB SSD storage capacity	4.0 GB/sec
Option -415	7.6 TB SSD storage capacity	4.0 GB/sec
Option -420	15.3 TB SSD storage capacity	4.0 GB/sec
Option -430	30.7 TB SSD storage capacity	4.0 GB/sec
Option -440	46.0 TB SSD storage capacity	4.0 GB/sec

Note: Options -430 and -440 require a 26-inch deep chassis

General Options (append to all options)

| Option -261 | GPS time & position stamping |
| Option -264 | IRIG-B time stamping |

Contact Pentek for compatible Option combinations
Storage and Channel-count Options may change, contact Pentek for the latest information

Specifications subject to change without notice

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