Model RTS 2707

500 MS/sec RF/IF Rackmount Recorder

TALON RTS COMMERCIAL RECORDER

SystemFlow

Features

- Complete multiband recording and playback system
- 4U 19-inch industrial rack-mount PC server chassis
- Windows® 7 Professional workstation with high-performance Intel® Core™ i7 processor
- 500 MHz 12-bit A/Ds or 400 MHz 14-bit A/Ds
- 800 MHz 16-bit D/As
- 80 MHz record and playback signal bandwidths
- Capable of record/playback of IF frequencies to 700 MHz
- Real-time aggregate recording rates of up to 1.6 GB/sec
- Up to 100 terabytes storage to NTFS RAID disk array
- RAID levels of 0 ,1, 5 , 6, 10 and 50
- SystemFlow® GUI with signal viewer analysis tool
- C-callable API for integration of recorder into application
- File headers include time stamping and recording parameters
- DDC decimation and DUC interpolation range from 2 to 65,536
- Optional GPS time and position stamping

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

General Information

The Talon® RTS 2707 is a turnkey, multi-band recording and playback system for recording and reproducing high-bandwidth signals. The RTS 2707 uses 12-bit, 500 MHz A/D converters and provides agregate recording rates up to 1.6 GB/sec in two-channel configuration.

The RTS 2707 uses Pentek's high-powered Virtex-6-based Cobalt® modules, that provide flexibility in channel count, with optional digital downconversion capabilities. Optional 16-bit, 800 MHz D/A converters with digital upconversion allow real-time reproduction of recorded signals.

A/D sampling rates, DDC decimations and bandwidths, D/A sampling rates and DUC interpolations are among the GUI-selectable system parameters, providing a fully-programmable system capable of recording and reproducing a wide range of signals.

Optional GPS time and position stamping allows the user to record this critical signal information.

SystemFlow Software

The RTS 2707 includes the SystemFlow Recording Software. SystemFlow features a Windows-based GUI (Graphical User Interface) that provides a simple means to configure and control the recorder.

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.

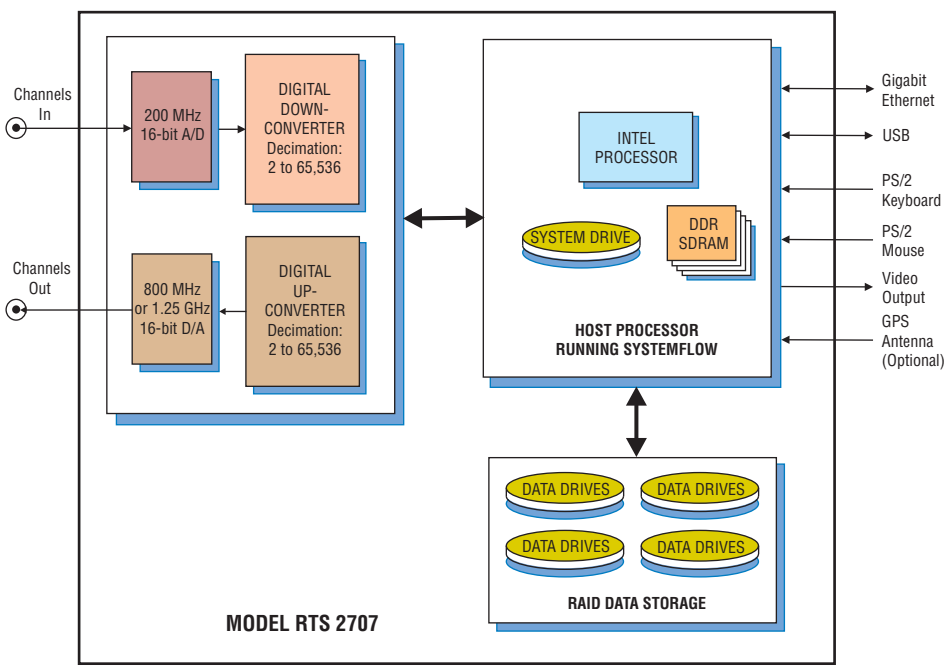
Built on a Windows 7 Professional workstation, the RTS 2706 allows the user to install post processing and analysis tools to operate on the recorded data. The RTS 2706 records data to the native NTFS file system, providing immediate access to the recorded data.

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

Flexible Architecture

The RTS 2707 is configured in a 4U 19" rack-mountable 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. The hot-swappable HDDs provide storage capacities of up to 100 TB in a single 6U chassis. ➤



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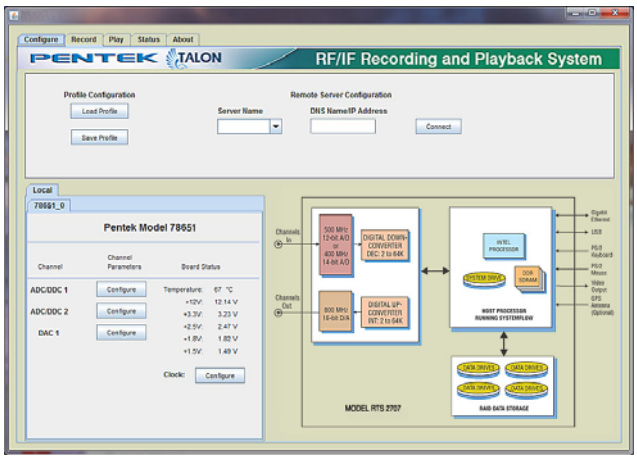
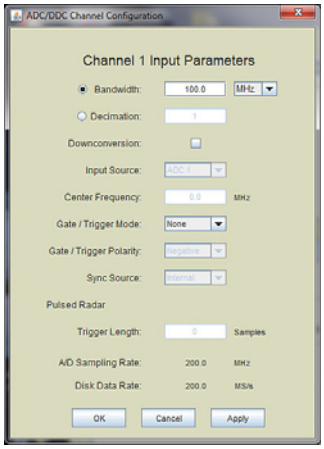
➤ SystemFlow Graphical User Interface



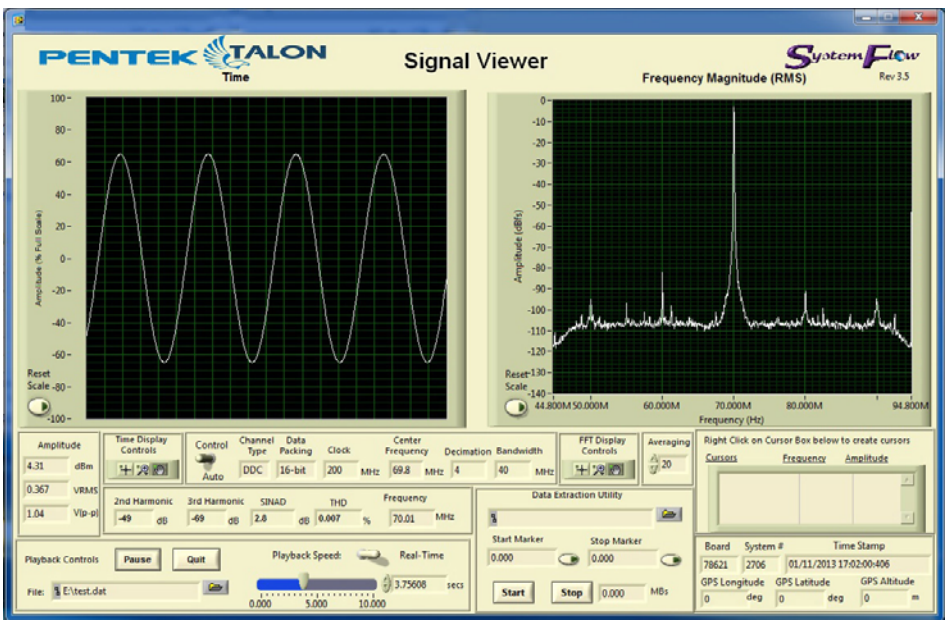


SystemFlow Recorder Interface

The RTS 2707 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 RTS 2707 Configure screens provide a simple and intuitive means for setting up the system parameters. The DDC configuration screen shown here, allows user entries for input source, center frequency, decimation, as well as gate and trigger information. 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. ➤

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Model RTS 2707 — 500 MS/sec RF/IF Rackmount Recorder

➤ Specifications

PC Workstation (standard configuration)

Operating System: Windows 7 Professional
Processor: Intel Core i7 processor
Clock Speed: 2.0 GHz or higher
SDRAM: 8 GB
RAID
- **Storage:** 8–100 TB
- **Supported RAID Levels:** 0, 1, 5, 6, 10 and 50

Analog Recording Inputs

Analog Signal Inputs
- **Input Type:** Transformer-coupled, front panel female SSMC connectors
- **Transformer Type:** Coil Craft WBC4-6TLB
- **Full Scale Input:** +5 dBm into 50 ohms
- **3 dB Passband:** 300 kHz to 700 MHz

A/D Converters
- **Type:** Texas Instruments ADS5485 or ADS5474 (Option -014)
- **Sampling Rate (f_s):** 20 MHz to 500 MHz or 20 MHz to 400 MHz (Option -014)
- **Resolution:** 12 bits or 14 bits (Option -014)
- **A/D Record Bandwidth:** $f_s/2$ = Nyquist bandwidth
- **Anti-Aliasing Filters:** External, user-supplied

Digital Downconverter
- **Type:** Virtex-6 FPGA, Pentek DDC IP Core
- **Decimation(D):** 2 to 65,536
- **IF Center Frequency Tuning:** DC to f_s, 32 bits
- **DDC Usable Bandwidth:** $0.4*f_s/D$

Analog Playback Outputs

Output Type: Transformer-coupled, front panel female SSMC connectors
- **Full Scale Output:** +4 dBm into 50 ohms
- **3 dB Passband:** 300 kHz to 700 MHz

Digital Upconverter and D/A
- **Type:** TI DAC5688 and Pentek-installed interpolation IP core
- **Interpolation:** 2 to 65,536
- **Input Data Rate to DAC5688:** 250 MS/sec max.
- **Output IF:** 250 MHz max.
- **Output Signal:** Analog, real or quadrature
- **Output Sampling Rate:** 800 MHz max.
- **Resolution:** 16 bits
- **Bandwidth Range**: Matches recording bandwidths

Clock Sources: Selectable from onboard programmable VCXO, external or LVDS clocks

External Clock
- **Type:** Female SSMC connector, sine wave, 0 to +12 dBm, AC-coupled, 50 ohms, accepts 10 to 500 MHz divider input clock or PLL system reference

Internal Clock
- **Type:** Progammable VCXO from 10 to 810 MHz

Physical and Environmental

Size: 19" W x 26" D x 7" H
Weight: 60-85 lb
Operating Temp: +5° to +45° C
Storage Temp: –40° to +85° C
Relative Humidity: 5 to 95%, non-condensing
Power Requirements: 100 to 240 VAC, 50 to 60 Hz, 500 W max.

Model RTS 2707 Ordering Information and Options

Channel Configurations

Option -201	1-channel recording
Option -202	2-channel recording
Option -204	4-channel recording
Option -221	1-channel playback
Option -222	2-channel playback

Storage Options

		Max. Data Rate
Option -416	8.0 TB HDD storage capacity	800 MB/sec
Option -421	16.0 TB HDD storage capacity	1.6 GB/sec
Option -423	20.0 TB HDD storage capacity	1.6 GB/sec
Option -439	30.0 TB HDD storage capacity	1.6 GB/sec
Option -450	45.0 TB HDD storage capacity	1.6 GB/sec
Option -460	60.0 TB HDD storage capacity	1.6 GB/sec
Option -480	100.0 TB HDD storage capacity	1.6 GB/sec

Note: Options -450 and -460 require a 5U Chassis; Option -480 requires a 6U chassis

General Options (append to all options)

Option -014	400 MHz, 14-bit A/Ds
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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