LVDS Digital I/O Rugged SFF Recorder

General Information

Optimized for SWaP (size, weight and power) the Pentek Talon® RTR Small Form Factor (SFF) product line provides the performance and storage capacity previously only possible in much larger rackmountable chassis. Measuring 5.25" H x 8.5" W x 14" D and weighing only 17 pounds (7.7 kg), this small package can hold up to 30.6 TB of SSD storage.

The Talon® RTR 2558 is a complete turnkey system for recording or playing back digital data. Using highly optimized disk storage technology, the system achieves sustained recording rates of up to 1.0 GB/sec.

The RTR 2758 utilizes a 32-bit LVDS interface that can be clocked at speeds up to 250 MHz. It includes Data Valid and Suspend signals and provides the ability to turn these signals on and off as well as control their polarity.

An ATX power supply accepts 110-240 VAC, drawing under 150 W and typically around 100 W. These models have the option for a 6-30 VDC power supply.

Eight front panel data drives can be easily removed along with a front panel removable OS drive to allow all non-volatile memory to be removed from the system in seconds.

Optional GPS time and position stamping accurately identifies each record in the file header.

SystemFlow Software

The RTR 2558 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.

Built on a Windows 7 Professional workstation, the RTR 2758 allows the user to install post-processing and analysis tools to operate on the recorded data.

The RTR 2558 records data to the native NTFS file system, providing immediate access to the recorded data.

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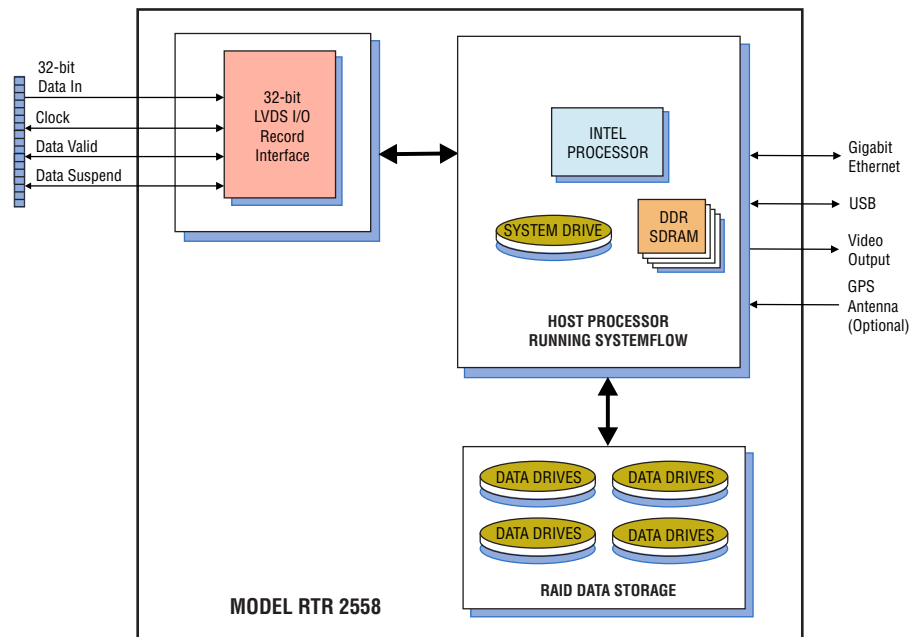
Ruged and Flexible Architecture

Because SSDs operate reliably under conditions of shock and vibration, the RTR 2758 performs well in ground, shipborne and airborne environments.

Configurable with hot-swappable SSDs, the RTR 2558 can provide storage capacities of up to 30.6 TB in a rugged chassis. Drives can be easily removed or exchanged during or after a mission to retrieve recorded data.
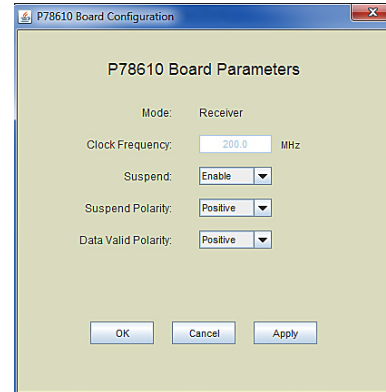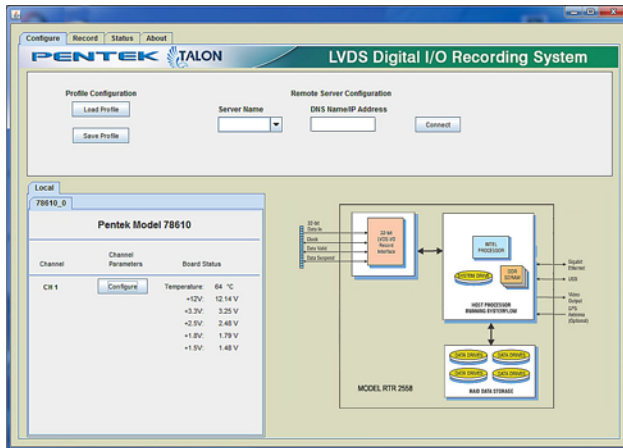
The RTR 2558 is configured with hot-swap data drives, front panel USB ports and I/O connectors on the rear panel. Systems are scalable to accommodate multiple chassis to increase channel counts and aggregate data rates.

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, 5, and 6 provide a choice for the required level of redundancy. ➤

Features

- Housed in a small chasis measuring 5.25"H x 8.5"W x 14"D
- Weighs 17 lb (7.7 kg)
- Shock and vibration-resistant SSDs perform well in vehicles, ships and aircraft
- 32 bits of LVDS digital I/O
- LVDS clock, Data Valid and Data Suspend signals
- Supports clock rates up to 250 MHz
- Real-time aggregate recording rates up to 1.0 GB/sec
- Up to 30 terabytes storage to NTFS RAID disk array
- RAID levels of 0, 5, and 6
- SystemFlow® GUI virtual instrumentation panel for fast, intuitive operation
- C-callable API for integration of recorder into application
- File headers include time stamping and recording parameters
- Optional GPS time and position stamping
- Windows® 7 Professional workstation with high-performance Intel® Core™ i7 processor

MODEL RTR 2558

➤ SystemFlow Graphical User Interface
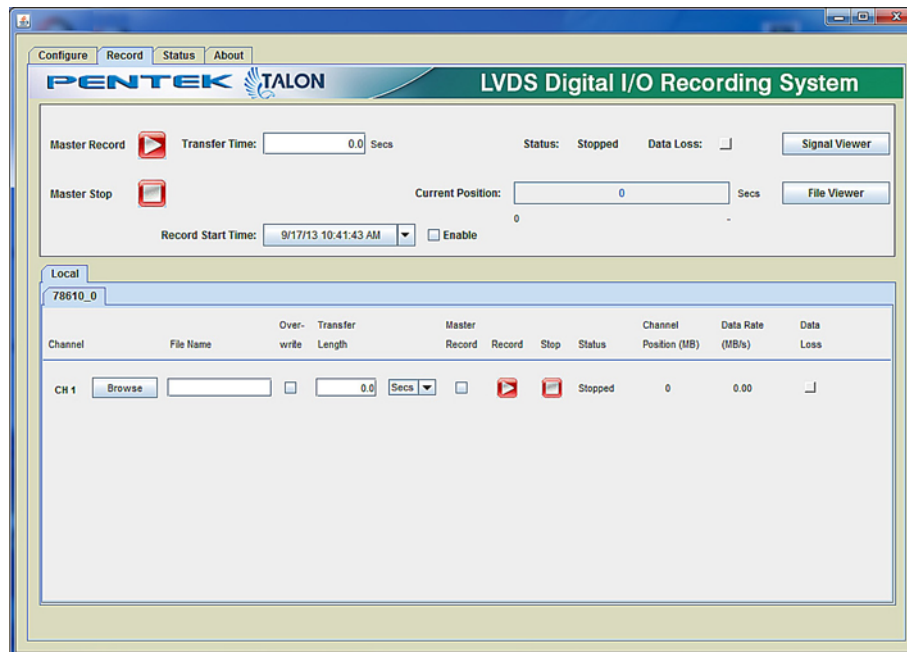

SystemFlow Main Interface

The RTR 2558 GUI shows a block diagram of the system and provides the user with a control interface for the recording system. It includes Configure, Record, Playback, and Status screens, each with intuitive controls and indicators. The user can easily move between screens to configure parameters, control and monitor a recording, and play back a recorded stream.

SystemFlow Hardware Configuration Interface

The Configure screen presents operational system parameters including temperature and voltages. These parameters include data valid and suspend enables, as well as polarity control for both signals. All parameters contain limit-checking and integrated help to provide an easier-to-use out-of-the-box experience.

SystemFlow Record Interface

The Record screen allows you to browse a folder and enter a file name for the recording. The length of the recording for each channel can be specified in megabytes or in seconds. Intuitive buttons for Record, Pause and Stop simplify operation. Status indicators for each channel display the mode, the number of recorded bytes, and the average data rate. A Data Loss indicator alerts the user to any problem, such as a disk full condition.

By checking the Master Record boxes, any combination of channels in the lower screen can be grouped for synchronous recording via the upper Master Record screen. The recording time can be specified, and monitoring functions inform the operator of recording progress. ➤

► SystemFlow API

SystemFlow includes a complete API (Application Programming Interface) that supports control and status queries of all operations of the RTR 2558 from a custom application.

High-level C-language function calls and the supporting device drivers allow users to incorporate the RTR 2558 as a high-performance server front end to a larger system. This is supported using a socket interface through the Ethernet interface

Specifications

PC Workstation (standard configuration)

Operating System: Windows workstation
Processor: Intel i7 7700K (7th Gen) quad core processor
Clock Speed: 4.2 GHz
Operating System Drive: 250 GB SSD
SDRAM: 8 standard, 16 or 32 GB optional
RAID
   Total Storage: 3.8 TB – 30.6 TB
   Supported RAID Levels: 0, 5 and 6
   Drive Bays: Hot-swap, removable, front panel
Rear Panel I/O
   Four USB 3.0 ports
   Two Gigabit RJ45 ports
   Two HDMI and One DVI ports
   Audio and PS2 ports
   USB 3.0 Type-C port
   Two Wi-Fi antenna ports
Front Panel I/O
   Two USB 2.0 ports
   Power and recessed RESET buttons
   LED indicators for power and HDD access

LVDS Interface

Cable: 80-pin ribbon cable
Connector Type: 2x40 pin IDC
Data Lines: 32 LVDS pairs, 2.5 V compliant
Clock: One LVDS pair, 2.5 V compliant
Data Valid: One LVDS pair, 2.5 V compliant
Data Suspend: One LVDS pair, 2.5 V compliant

Physical and Environmental

Size: 5.25" H x 8.5" W x 14.0" D
Weight: 17 lb (7.7 kg)
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, 150 W max.

Model RTR 2558 Ordering Information and Options

Channel Configurations

Option -201	Recording interface
Option -221	Playback interface
Note:	Record and playback interfaces not available together.

Additional Options

Option -261	GPS Time and Position Stamping
Option -285	Raid 5 Configuration
Option -286	Raid 6 Configuration
Option -309	16 GB System Memory
Option -310	32 GB System Memory
Option -630	6 to 30 VDC Power Supply

Storage Options

Option -410	3.8 TB SSD storage capacity
Option -415	7.6 TB SSD storage capacity
Option -420	15.3 TB SSD storage capacity
Option -430	30.6 TB SSD storage capacity

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

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Specifications are subject to change without notice