Talon RTR 2736A

Serial FPDP rugged portable recorder

Portability and performance in a compact recorder

- Records and plays multiple Serial FPDP datastreams
- Supports Flow Control, CRC, and Copy/Loop Mode
- Up to of 122 TB of SSD storage
- Real-time aggregate recording rates up to 1.6 GB/sec

The Talon® RTR 2736A is a complete turnkey recording system capable of recording and playing back multiple Serial FPDP data streams in a rugged, lightweight, portable package. It is ideal for capturing any type of streaming sources, including live transfers from sensors or data from other computers, and is fully compatible with the VITA 17.1 specification. Using highly-optimized disk storage technology, the system achieves aggregate recording rates up to 1.6 GB/sec.

The RTR 2736A can be populated with up to four SFP connectors. Single-mode and multi-mode fiber interfaces are available. The RTR 2736A is capable of both receiving and transmitting data over these links and supports real-time data storage to disk.

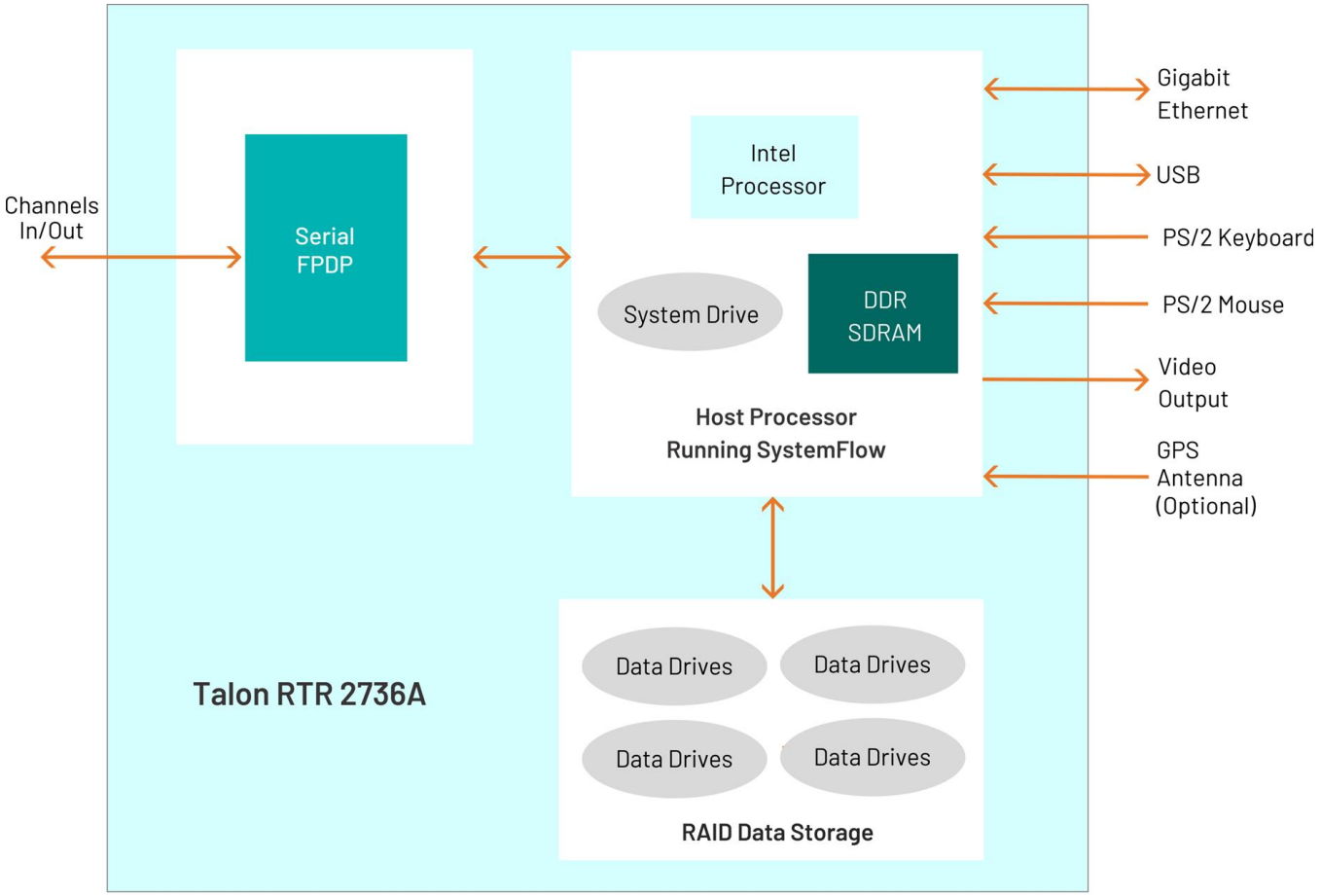
Programmable modes include flow control in both receive and transmit directions, CRC support, and copy/loop modes. The system is capable of handling 1.0625, 2.125, 2.5, 3.125, and 4.25 GBaud link rates supporting data transfer rates of up to 420 MB/sec per Serial FPDP link. Optional GPS time and position stamping allows the user to mark the beginning of a recording in the recording file's header.

RUGGED CHASSIS WITH SSD STORAGE

The RTR 2736A is configured with hot-swappable SSDs, front panel USB ports, and I/O connectors on the side panel. It is built in an extremely rugged steel and aluminum chassis and is tested for shock and vibration. The SSDs provide storage capacities of up to 30.7 TB. Drives can be easily removed or exchanged during or after a mission to retrieve recorded data. Multiple RAID levels, including provide a choice for the required level of redundancy.

FEATURES

- Designed to operate under conditions of shock and vibration
- Portable system: 16.0" W x 6.9" D x 13.0" H
- Lightweight: approximately 30 pounds
- Shock- and vibration-resistant, SSDs perform well in vehicles, ships and aircraft
- Up to four I/O channels
- Supports Flow Control, CRC, and Copy/Loop Mode as a receiver and transmitter
- Supports 1.0625, 2.125, 2.5, 3.125 and 4.25 GBaud link rates
- Single-mode and multi-mode fiber interfaces are available
- Real-time aggregate recording rates of up to 1.6 GB/sec
- Windows® workstation with a high-performance Intel® processor
- Up to 122 terabytes of SSD storage to NTFS RAID disk array
- SystemFlow® GUI with Signal Viewer analysis tool
- File headers include time stamping and recording parameters
- Optional GPS time and position stamping
- Optional 18-36 VDC power supply



SYSTEMFLOW SOFTWARE

All Talon recorders include the Mercury SystemFlow® recording software. SystemFlow software enables users to configure and control a Talon recorder:

- The SystemFlow GUI provides a point-and-click user interface. 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 API provides a set of C-callable libraries that allow engineers to develop their own user interface to configure and control their Talon recorder. Additional high-level libraries, like Python, are available upon request.

The SystemFlow GUI and API can be run from a remote connection over Gigabit Ethernet. Recorders can be set up to run autonomously by implementing scripts using the API interface.

Talon systems record all data to the native NTFS file system, allowing for quick and easy access to the data from any computer. A simple header that holds the recording parameters is added to the beginning of each file. An optional GPS receiver allows the user to precisely timestamp files and optionally track the recorder's position throughout a mission.

SYSTEMFLOW SIMULATOR

To learn more about SystemFlow software, contact Mercury at techsales@mrcy.com. The SystemFlow Simulator allows you to learn how to use a Talon recorder's SystemFlow software interface before you acquire a recorder or while you are waiting for delivery of a recorder.

The Simulator can simulate the operating environment of all the different Talon recorder models. The Simulator also demonstrates the SystemFlow Signal Viewer by playing recorded signals to simulate the appearance of live signals being digitized and recorded by a Talon analog signal recorder.

Features

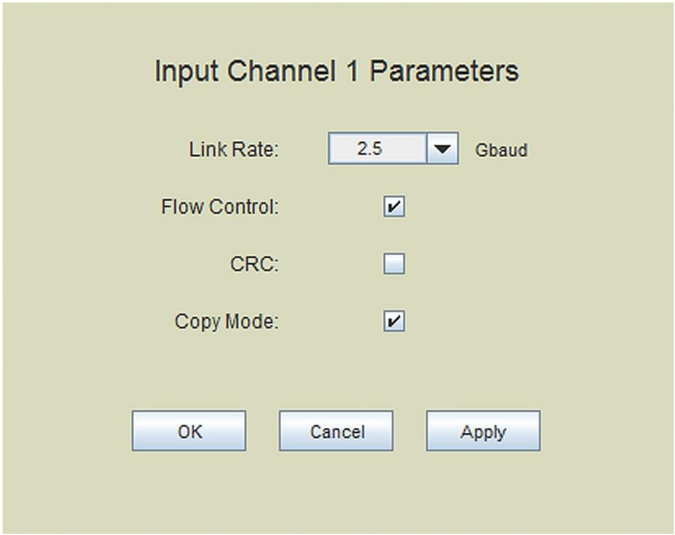
- Provides real-time recording system simulation
- Allows engineers to write and test their application (built using the SystemFlow API) before receiving the recorder hardware
- Demonstrates SystemFlow signal and file viewer tool
- Capable of simulating all Talon analog and digital recording systems
- Full Talon SystemFlow GUI
- Simulator can be used to develop Talon system profiles for use in the final system

SYSTEMFLOW GUI

The RTR 2736A 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

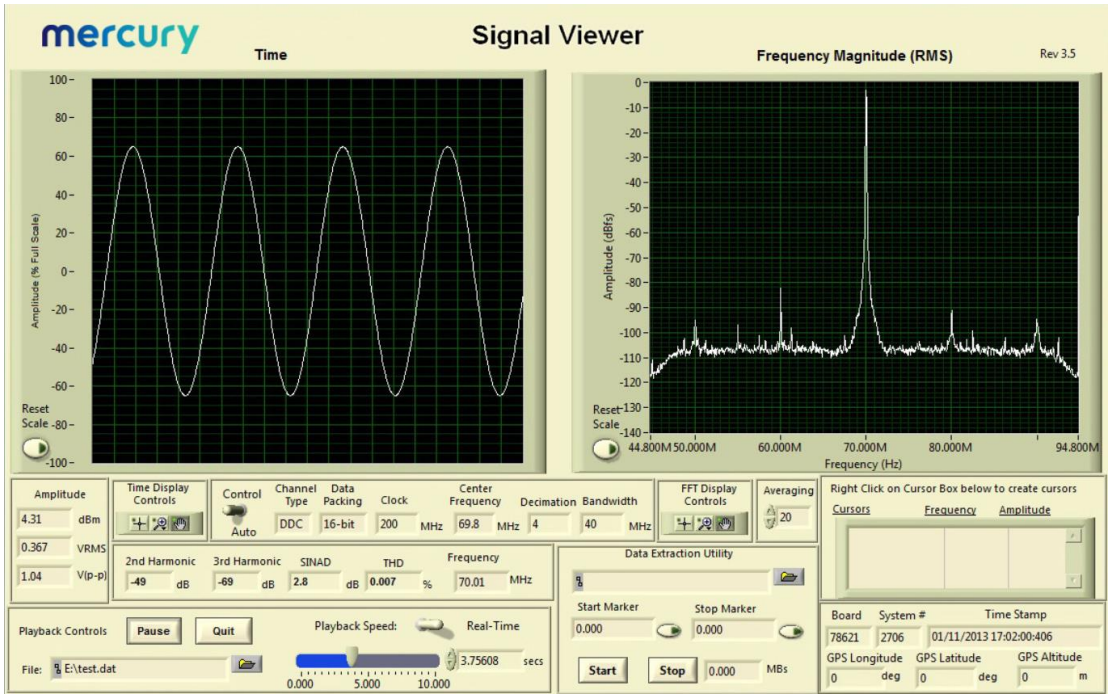
The Configure screen presents operational system parameters including temperature and voltages. Parameters are entered for each input or output channel, specifying the flow control settings and the recognition of a CRC in the data stream. Each channel can also be set up to utilize Serial FPDP's copy/loop mode. All parameters contain limit-checking and integrated help.



SIGNAL VIEWER

The SystemFlow Signal Viewer includes a spectrogram, 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.



SYSTEMFLOW API

SystemFlow includes a complete API (Application Programming Interface) supporting control and status queries of all operations of the Talon recorder from a custom application.

High-level C-language function calls and the supporting device drivers allow users to incorporate the RTR 2736A as a high-performance server front end to a larger system. This is supported using a socket interface through the Ethernet port, either to a local host or through an internet link for remote, standalone acquisition. Recorded NTFS files can be easily retrieved through the same connection. In addition to C, support is also provided for high level languages such as Python and C#. Below is an example of controlling recording via the SystemFlow API.

```
728         }
729         //transfer until end of disk
730         else if (transferType == TRANSFER_END_OF_DISK)
731         {
732             recordParams->transferTime    = 0;                    // must set to 0
733             recordParams->transferLength  = 0;                    // must set to 0
734         }
735
736         ////////////////////// Start the record //////////////////////
737         SetConsoleTextAttribute (hConsole, FOREGROUND_GREEN | FOREGROUND_INTENSITY );
738         printf("\nCase 6: RTS_Record\n");
739         SetConsoleTextAttribute (hConsole, wOldColorAttrs);
740
741         //trigger immediately
742         if(recordParams->trigger == RTS_TRIGGER_IMMEDIATELY)
743         {
744             //send record command
745             if ((error = RTS_Record(++msgNum,
746                                     serverInfo,
747                                     recordParams,
748                                     recordChanId,
749                                     fileName[0])) != RTS_SUCCESS)
750             {
751                 printf("Record Error # 0x%lx.\n", error);
752                 exitHandler(error);
753                 goto freeMem;
754             }
755
756             Sleep(500);
757         }
758
759         //wait for SW trigger
760         else if(recordParams->trigger == RTS_WAIT_FOR_SW_TRIGGER)
761         {
762             //send record command which set up record and start DMA
763             if ((error = RTS_Record(++msgNum,
764                                     serverInfo,
765                                     recordParams,
766                                     recordChanId,
767                                     fileName[0])) != RTS_SUCCESS)
```

SPECIFICATIONS

PC Workstation

Operating System: Windows®

Processor: Intel Core i7 processor or better

Operating System Drive: 128 GB SSD

Monitor: Built-in 17.3" high-resolution LCD, 1920 x 1080 pixels, 16:9 aspect ratio, anti-glare surface Brightness: 300 cd/m2; Contrast ratio: 400:1 typical

SDRAM: (standard) 8 GB

- Option -309: 16 GB
- Option -310: 32 GB
- Option -311: 64 GB

RAID

- Storage: 1.92, 3.8, 7.6, 15.3 or 30.7 TB
- Drive Type: SATA III SSDs
- Supported RAID Levels: (standard) 0
  - Option -285: RAID 5
  - Option -286: RAID 6
- Drive Bays: Hot-swap, removable, side panel
- USB 2.0 Ports: Four on left side, two on front panel
- USB 3.0 Ports: Two on left side
- 1 Gb Ethernet Ports: Two on left side
- eSTAT Ports: Two on left side
- Aux Video Output: 15-pin VGA on left side

Serial FPDP Interface - Option 280

Cable: 100-ohm shielded twin-ax

Connector Type: SFP+

Max. Cable Length: 20 m

Multi-mode Fiber Optical - Option 281

Cable: Multi-mode fiber, 850 nm

Connector Type: LC

Max. Cable Length: Up to 300 m

Single-mode Fiber Optical - Option 282

Cable: Single-mode fiber

Connector Type: LC

Max. Cable Length: Up to 10 km

Optional DC Power Supply

Voltage: 18 to 36 VDC

Input Current: 42 to 26 A (39 A at 24 VDC)

Inrush Current: 100 A at 24 VDC

Temperature Range: Oper.: 0° to 50° C, Store: -0° to 80° C

Efficiency: >80% typical at 24 V full load

Power Good Signal: On delay 100 to 500 msec

OverPower Protection: 110% to 160%

Remote Control: On/Off

Safety: Meets UL, TUV, CB specifications

Physical and Environmental

Size: 16.0" W x 6.9" D x 13.0" H

Weight: 30 lb max.

Operating Temp: 0° to +50° C

Storage Temp: –40° to +85° C

Relative Humidity: 5 to 95%, non-condensing

Operating Shock: 30 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

Non-Operating Vibration: 5 to 500 Hz: 2.06 g RMS

Power Requirements: 100 to 240 VAC, 50 to 60 Hz, 500 W max.

ORDERING INFORMATION

Channel Configurations	
Option -204	4- Ethernet ports

Interfaces	
Option -280	SFP+ connectors
Option -281	Multi-mode optical, LC connectors
Option -282	Single-mode optical, LC connectors

RAID Configurations	
Standard	RAID 0 configuration
Option -285	RAID 5 configuration
Option -286	RAID 6 configuration

Memory Options	
Standard	8 GB system memory
Option -309	16 GB system memory
Option -310	32 GB system memory
Option -311	64 GB system memory

Storage Options	
Option -415	7.6 TB SSD storage capacity
Option -420	15.3 TB SSD storage capacity
Option -430	30.7 TB SSD storage capacity
Option -460	61.4 TB SSD storage capacity
Option -485	122.8 TB SSD storage capacity

General Options (append to all options)	
Option -261	GPS time and position stamping
Option -264	IRIG-B time stamping
Option -625	Removable operating system drive

Contact Mercury for compatible option combinations. Storage and general options may change, so contact Mercury for the latest information.

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Learn more

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