

FPGA Enhanced Development System (SigPro-FEDS®) Real-Time DSP

The **FPGA Enhanced Development System (SigPro-FEDS®)** is part of the ERISYS **SigPro-4000®** Enterprise-class, broadband, multi-channel, digital RF spectrum **recording, signal analysis, test scenario creation**, and **RF playback** system. Designed by EW Signal Analysis experts for EW experts. **SigPro-4000B** system is a uniquely powerful, professional tool for solving today's most challenging spectrum issues.

The **SigPro-FEDS** enhances the capabilities of the **SigPro-4000B** system by providing:

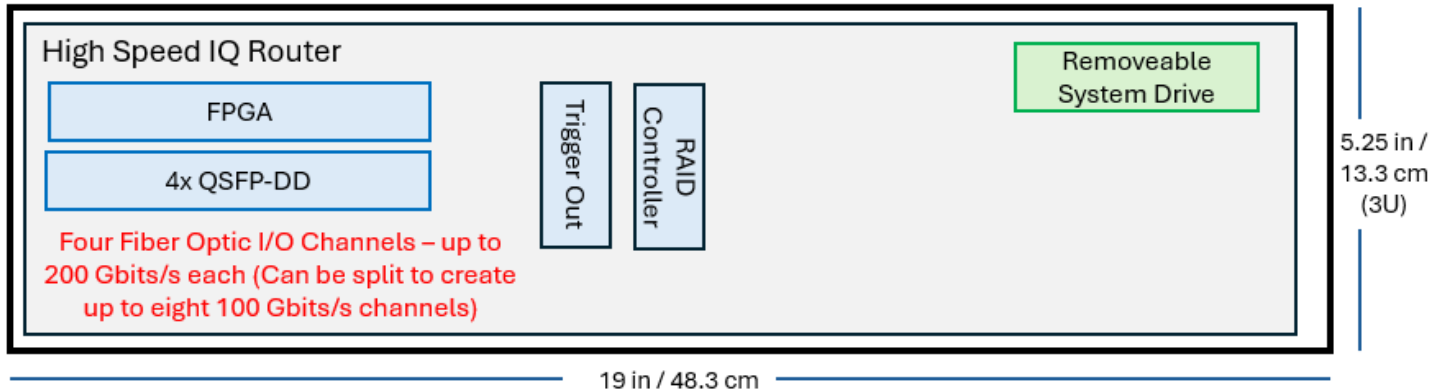
- ✧ **Additional Fiber Optic Channels** – The **SigPro-FEDS** can increase the number of 100 Gb/s fiber optic channels by up to seven. These can be used to connect to additional external devices, typically additional **FSW** spectrum analyzers and/or SMW vector signal generators.
- ✧ **FPGA for Customer Use** - The **SigPro-FEDS** contains a powerful FPGA, almost 100% of which customers can use to develop their own near real-time digital signal processing techniques. This FPGA has direct real-time access to the streaming real-time spectrum data information from the attached **R&S® FSW®** as well as direct access to all recorded spectrum files and signal libraries.
- ✧ **Simultaneous Recording and Playback** – The addition of a **SigPro-FEDS** to a **SigPro-4000B** system makes it possible for the system to **simultaneously** playback and record RF spectrum up to 1.2 GHz IBW (Using external **R&S® FSW®s** and **SMW®s**). This capability can be used, for example, to simultaneously generate test spectrum for a Unit Under Test (UUT) and record the UUT's response with precise time synchronization.
- ✧ **Simultaneous multi-channel playback** – The **SigPro-FEDS** makes it possible for the system to simultaneously record up to 1.2 GHz IBW of RF spectrum, to modify it, if desired in near real-time using the **SigPro-4000B** or **SigPro-FEDS** FPGA, and simultaneously re-create the spectrum on up to 13 independent channels, each up to 1.2 GHz IBW channels. (Using an external **R&S FSW** spectrum analyzer and multiple **SMW** vector signal generators)
- ✧ **Increased Low-Latency Digital Signal Processing** – The addition of a **SigPro-FEDS** effectively doubles the FPGA resources of the **SigPro-4000B** system. This makes it possible for the system to perform even more sophisticated near real-time signal processing while keeping latency as low as possible.

Data Sheet

SigPro-FEDS

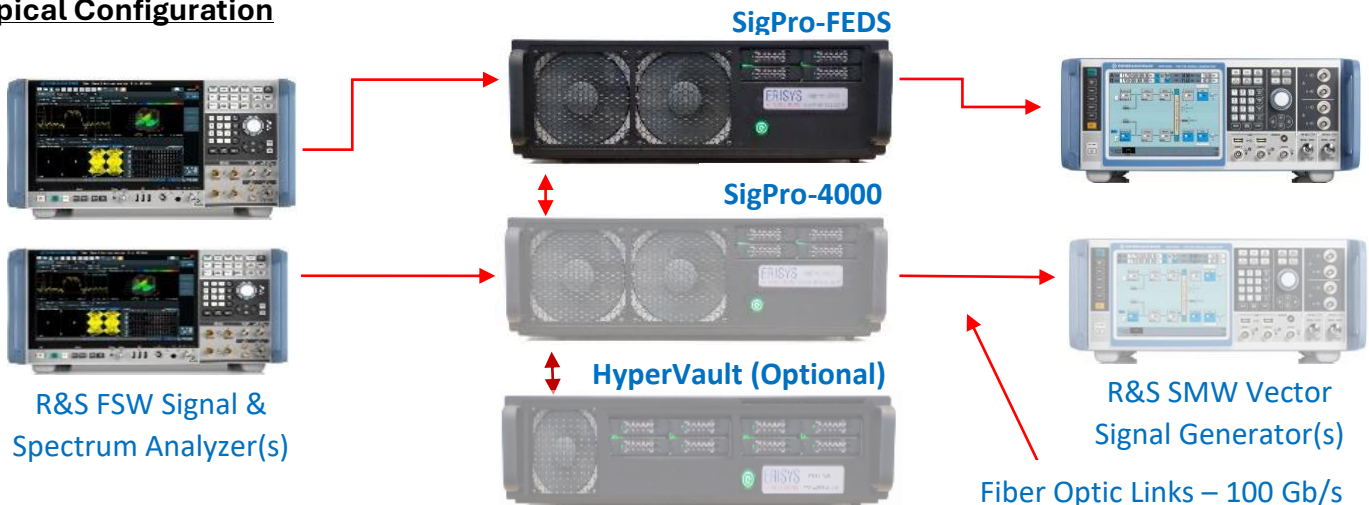
Simplified Block Diagram

SigPro-FEDS



The **SigPro-FEDS** has a high-performance IQ router/signal processor that can efficiently, and with minimum latency, route digitized spectrum and signal information between the system components. A powerful XILINX Field Programmable Gate Array (FPGA) is provided for real time signal processing. The module has four fiber optic QSFP-DD ports which can support up to 200 Gb/s per device. These can be split into up to eight independent 100 Gb/s channels which are typically used to connect to external devices (typically **R&S® FSW** spectrum analyzers and/or **SMW** vector signal generators). The FPGA can be made exclusively available to **customers** for developing their own real-time signal processing algorithms and techniques.

Typical Configuration



The **SigPro-FEDS** connects to the **SigPro-4000** typically using one of the 100 Gb/s or 200 Gb/s fiber optic links. The FPGA in the SigPro-FEDS has direct access streaming real time digital signal data and stored signal files on the SigPro-4000 and SigPro-HyperVault (if equipped).

SigPro-FEDS Key Specifications

I/O Channels	4 – QSFP-DD FO	Up to 200 Gb/s; Can be split into eight 100 Gb/s FO channels	Security	Nothing Stored on non-volatile memory	All sensitive info stored on SigPro-4000B or SigPro-HyperVault removable SSD Drives
Channel IBW	Configurable; up to 1.2 GHz	IBW can be individually configured	Timing	IRIG-B and GPS	Precision time references available
FPGA	XILINX	Powerful FPGA for real time processing	External Monitors	Up to 2	No Confusing overlapping windows
FPGA Resources	LC: 3.7M LUT: 1.7M DSP Slices: 12K	Supports significant near real time signal processing	Size	19” rack 3U (5.25”) 17.25” deep	Rack mount, transport case, or tabletop.
Offloading	Not Required for Analysis or Playback	Access to SigPro-4000B or SigPro-HyperVault stored spectrum; QSFP FO up to 200 GB/s, or 10G or 100G Ethernet	Weight	25 lbs	Readily transportable
			Power	300W typ	Designed for field use
			Source	US Designed and Built	US Sourced Components

We help you solve your previously unsolvable RF spectrum challenges.

For more information, please contact ERISYS RF Solutions for consultation and on-site demonstration.

We have decades of experience with EW oriented RF Spectrum Analysis and signal generation.

You can reach us on the web at www.erisys.com or via email at info@erisys.com.