

SFX4

GNSS SDR Receiver Platform

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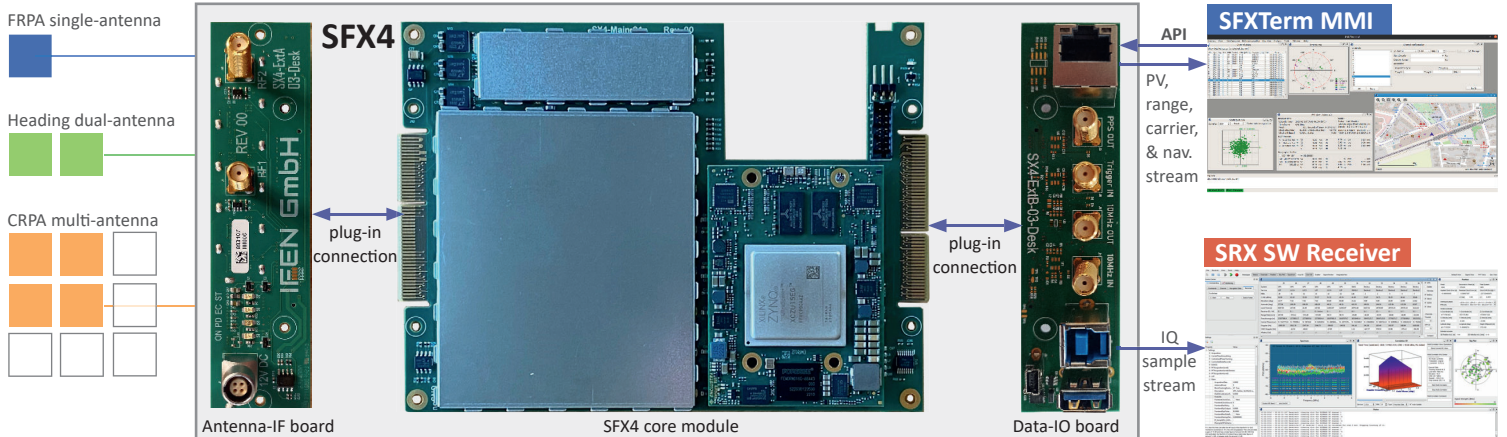
New Highlights

- Galileo E5a-QP signal from new Galileo OS SIS ICD 2.2
- Galileo E6 Signal Authentication Service encrypted ranging code
- Using PRN codes reading from files or streamed from external source



SFX4 SDR Modular Receiver Platform

The SFX4 is a modular SDR GNSS receiver MPSoC platform, designed for high performance, scalability and flexibility. The SFX4 module hosts the signal conditioning & processing, but also the different PVT processing solutions. The RF Antenna-Interface (IF) can be adapted to different antenna solutions (FRPA, CRPA). The Data Flex-IO boards can be easily customized to fit different data interface needs. The remote SFX4 terminal MMI software allows remote configuration, monitoring and analysis through a complete API. The streamed IQ samples can be processed in a separate software receiver.



Specification

Flexible Antenna-IF Board	SFX4 Core Module	Flexible Data-IO Board
Baseline board <ul style="list-style-type: none"> 2 x sma RF inputs Active antenna support: 5V/150 mA 1st LNA per chain for low receiver noise 12 VDC power supply interface 	Signal processing board <ul style="list-style-type: none"> 4 RF chains simultaneously with 50 MHz RF bandwidth each 1.1 to 2.5 GHz (all L- and S-band) frequency support 11-bit ADC with custom ceramic RF-filter Plug-in MPSoC (FPGA & ARM) for scalable processing power 	Baseline board <ul style="list-style-type: none"> 1 x 1 GB Ethernet 1 x USB 3.0, 1 x RS-232 10-MHz in, 10-MHz out 1-pps-out, trigger-in
Antenna-IO options <ul style="list-style-type: none"> Other RF connector types: TNC, N-type 1, 2 or 4 RF-in connectors Up to 8+ RF-in connectors (beamforming, by combining several SFX4 boards) 	GNSS signal options <ul style="list-style-type: none"> Galileo-1G E1 (OSNMA), E5ab, new E5a-QP, E6 (SAS & HAS SL1) Galileo-2G E1, E5ab, E6 GPS L1CA & L1C, L2C & L2P, L5 BeiDou B1I & B1C, B2I & B2a GLONASS L1, L2 NavIC L5, S QZSS L1, L2, L5 SBAS L1 (and L5 tracking only) 	Communication options <ul style="list-style-type: none"> Additional Ethernet ports SFP+ or QSPF28 ports CAN bus USB 2.0
Signal routing options <ul style="list-style-type: none"> Configurable signal splitters Configurable signal combiners Routing of single or dual antenna inputs to different SX4 RF-chains 	Acquisition and tracking capability and configurability <ul style="list-style-type: none"> Standard Tong acquisition, but also fast acquisition unit (FAU) 60 (standard) up to 300 (next. gen. MPSoC) tracking channels Full channel configurability (PLL/DLL order, loop bandwidth, integration time, multi-correlator..) Interference detection & mitigation (notch filter & pulse blanking) 	Signaling options <ul style="list-style-type: none"> 10-MHz out Trigger-in Synchronisation to combine multiple SFX4 boards (e.g. for beamforming)
Signal amplifiers options <ul style="list-style-type: none"> Optional dual-stage LNA (for low CN0) By-passable LNA (for high CN0) 	Measurement performance <ul style="list-style-type: none"> Code accuracy: < 2 ... 20 cm (depending on CN0) Carrier accuracy: < 1.5 mm 	Wireless communication options <ul style="list-style-type: none"> WLAN & Bluetooth LTE & 5G
Signal frequency conversion options <ul style="list-style-type: none"> Custom signal down-converters (e.g. from Ka-band to L-band) Custom signal up-converters (e.g. from L-band to Ka-band) 	PVT capabilities and performance <ul style="list-style-type: none"> PVT modes: WLSQ, SBAS, DGNSS, PPP (including HAS SL1) PVT update rate: 0.02 - 20 Hz (up to 100 Hz with IMU) TTF: 60 s(cold), 30 s(warm), 10 s(hot), 2 s (re-acquisition) typical Operational limits: < 600 m/s velocity, < 18.000 m height 	Sensors options <ul style="list-style-type: none"> MEMS IMUs Barometer Magnetic field sensor Temperature
Power options <ul style="list-style-type: none"> ADC power supply option 12 - 36 VDC power supply option 	Outputs at all levels <ul style="list-style-type: none"> IQ samples, IQ correlator values Measurements in IFEN binary & ASCII, RTCM and RINEX PVT solution in IFEN binary & ASCII and NMEA 	Clock options <ul style="list-style-type: none"> TCXO or OCXO clocks

Applications

Test & Measurement (T&M)

- Galileo 2G Test User Receiver Non-PRS
- Galileo 2G Legacy Payload Test Receiver
- Galileo 1G In-Orbit Test



Mobile Applications

- Agriculture & Forestry
- Maritime & SAR



CORS & RFI Monitoring (C&M)

- Continuously Operating Reference Station
- Multi-Antenna RFI Detection and Localization Receiver



Disclaimer:
All specifications subject to change without prior notice

IFEN GmbH
www.ifen.com
sales@ifen.com