Multi-Channel High Speed Radio

Product Description

The Nxbeam four-channel software-defined radio (SDR) is built on a highly integrated RFSoC-FDE platform and features four independent transmit (Tx) and four independent receive (Rx) channels, each of which can be configured individually. The Tx channels can operate either as DVB-S2X transmitters or as Synthetic Aperture Radar (SAR) waveform generators. In DVB-S2X mode, each Tx channel supports a symbol rate of up to 500 Msps and a user data rate of up to 2.88 Gb/s. The transmitter fully complies with DVB-S2X standards, including Adaptive Coding and Modulation (ACM) and up to 256-APSK modulation, ensuring seamless interoperability with most commercial ground station systems. In SAR waveform mode, the Tx can generate wideband chirp signals with bandwidths exceeding 1 GHz, suitable for high-resolution radar imaging. The Rx channels are equally versatile, capable of functioning either as Digital Predistortion (DPD) receivers, to enhance power amplifier linearity and improve power efficiency, or High-speed radar data acquisition and raw data processing systems. The entire SDR is housed in a sub-0.5U enclosure and weighs only 550 grams, making it ideal for space and weight constrained platforms. This integrated SDR platform provides an ideal solution for combining SAR imaging, high-speed data transmission, and radar signal processing, delivering significant advantages in size, weight, power, and cost (SWaP-C).

Applications

- LEO/MEO Earth Observation
- Synthetic Aperture Radar

Key Specifications:

- L-band DVB-S2X Modulator:

Frequency range:	1.5-2.2 GHz
Modulation:	DVB-S2/DVB-S2X up to 256-APSK
Number of channel	4
Symbol rate:	5 to 500 Msymbol/s, 1 KHz step
Single channel user date rate:	5 to 2882 Mbit/s (4 Gbit/s raw data rate)
Max user data rate	11.528Gbit/s (16 Gbit/s raw data rate)
Date input:	Nano-D or Ethernet 10G SFP
Max output power:	-10 dBm

- L-band SAR Waveform Generator

Chirp Bandwidth	> 1 GHz

- Command Telemetry Interface: RS422
- Dimension: 95 x 95 x 24 mm
- Weight: 500 g
- DC Power: 20 W (4 channels)
- Operating Temperature Range : -25°C – 65°C
- Radiation Tolerance: >15 krad
- Shock and Vib: Designed for Space-X launching

4388 Cerritos Avenue
Los Alamitos, CA 90720

www.nxbeam.com
info@nxbeam.com

Phone: 949-656-2883