

# Sx3099

Multi-Orbit, Multi-Satellite  
1 GHz LEO/MEO/GEO  
SDR Multi-Modem SoC



SatixFy's Software Defined Radio chip with native DVB-S2X/RCS2, is capable of processing 1 GHz in up to 8 modems in Tx and Rx with beam hopping and outputting over 5 Gbps of user data, through 10GbE ports.



# Sx3099 ASIC

## DVB-S2X/RCS2 modem with Software Defined Architecture

The satellite industry is witnessing a paradigm shift. Capacity is building up in LEO and MEO orbits which complement the existing GEO bandwidth. Modern satellites bring the promise of targeted high capacity data to the user through beam forming and beam hopping.

SatixFy designed the Sx3099 to take advantage of all these new technologies.

The ASIC is capable of communicating simultaneously with multiple satellites in multiple orbits and being programmed with different waveforms, promoting concepts like roaming and multi-vendor operations.



### MAIN FEATURES

- + LEO/MEO/GEO chip with full support of LEO/MEO constellations
- + Multi-modem chip with 1 – 8 modems aggregated to 1 GHz in Tx and Rx with flexible bandwidth allocation
- + Full Beam Hopping support of the latest DVB S2X 2019 version
- + Generates multiple beams with ESMA. 8 beams with data and control over a single 10GbE interface port
- + The second SatixFy chip with VLSNR support
- + LEO doppler and fade profile handling
- + Quad core ARM A53 host processor and powerful DSPs running at 1GHz clock rate
- + Digital interface to multi-beam electronically steered antennas

204 SerDes

AFE DIG

DFE Tx

DFE Rx

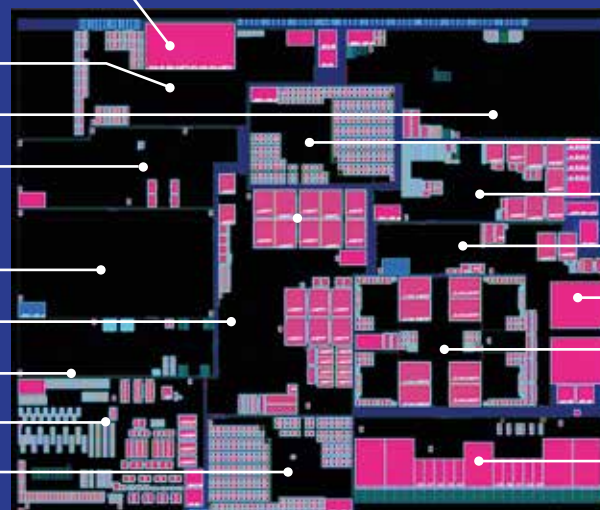
GEN\_CORR

PFB GSR

ACQ

FEC Rx

Ceva Rx



### Sx3099 FLOOR PLAN

Ceva Tx

MTX BE

Serials

ETH

Host CPU

DDR

# Sx3099

## Evaluation & Software Development Package

The Sx3099 ASIC is a Software Defined Radio (SDR) platform. The platform offers built-in standard waveform such as DVB-S2X and DVB-RCS2 as well as high capability communications DSPs and microprocessor which can be programmed at will. SatixFy provides a complete development infrastructure covering different customizing needs. Support and training services are also available.

### **Evaluation Package**

provides complete infrastructure needed to test the chip's functionality and demonstrate its performance

### **Basic Software Development Package**

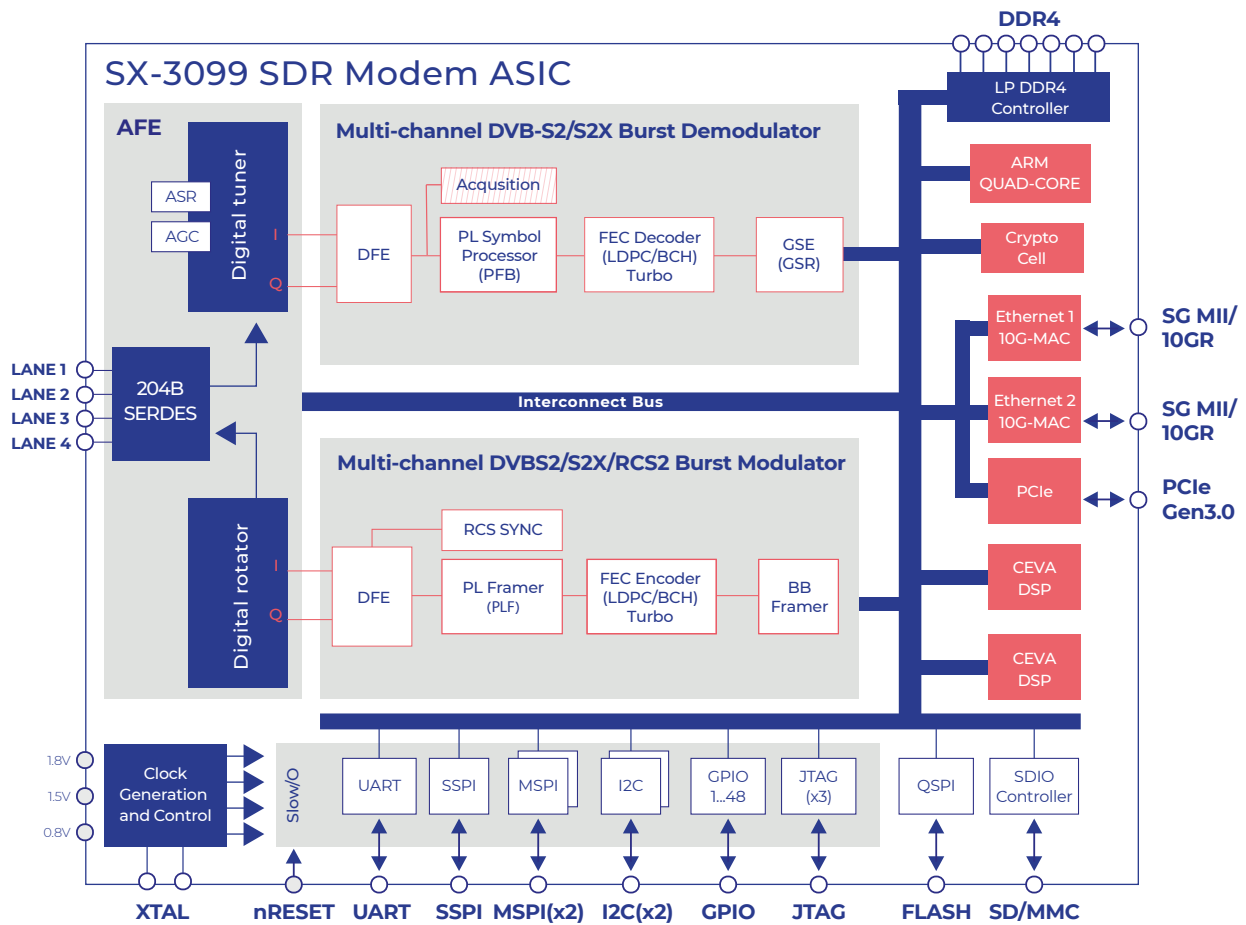
provides the ability to program the ASIC's DSPs and CPU

### **Source Code Software Package**

provides DSP source code written and maintained by SatixFy



# HIGH-LEVEL ARCHITECTURE



## TECHNICAL SPECIFICATIONS

- Satellite support..... LEO/MEO/GEO
- Symbol rate..... 1 Gbps
- Carriers..... 8 Transmit/Receive
- VLSNR/ELSNR..... Down to >-20dB
- Modulation..... BPSK, QPSK, 8PSK, 16 APSK, 32 APSK, 64 APSK, 128 APSK, 256 APSK, VL SNR
- Coding..... According to S2 and S2X MODCOD definition | Frame length: 16200, 64800, 32400
- Beam Hopping..... Annex E Superframe DVB 2019
- Return channel..... DVB-RCS2 or SDR based waveform
- Data output..... 2x 10 GigE
- Data processing..... Quad core ARM A53 CPU, CEVA DSPs

## TERMINAL ON MODULE (ToM)

Sx3099 high density and integration enables building the smallest Industry modem available. ToM includes all the core functionality required for satellite communications. The module also includes up to 4 GB LPDDR4, up to 1GB Flash, 64GB eMMC memory, Ethernet PHY, all relevant power rails, clocks, and all interface connectors supporting all external interfaces including analog SerDes lines – all on a size not much bigger than a quarter coin.

