

DVB-RCS2 (Digital Video Broadcast - Second Generation DVB Interactive Satellite System) is the latest ETSI standard of the second generation for digital data transmission via satellites.

The Creonic DVB-RCS2 Multi-Carrier Receiver supports multiple frequency time domain multiple access (MF-TDMA), performs all tasks of an DVB-RCS2 receiver including carriers separation, baseband conversion, demodulation, and turbo decoding. It can process intermediate frequency (IF) real signal with center IF frequencies between 0 and 100 MHz. The Creonic turbo decoder is included in the receiver to provide users with Frame PDUs at the output.

## Benefits

- Supports MF-TDMA using the DVB-RCS2 protocol.
- The receiver performs multi-carrier processing. including gain adjustment, timing correction, decimation, filtering, bursts synchronization, derotation, descrambling, phase and frequency correction, DVB-RCS2 deframing, turbo decoding, and CRC-16 / CRC-32 checks.
- On-the-fly reconfiguration of superframe and number of active carriers.
- Configurable amount of turbo decoder iterations.
- Low-power and low-complexity design.
- AXI4-Lite interface for controlling and for retrieving status information.
- Collection of statistics (error rates, superframe and timeslot counters, frequency and timing offsets, signal-to-noise ratio (SNR)).
- Validated on Xilinx RFSoc board with the Creonic DVB-RCS2 modulator
- Available for ASIC and FPGAs (Xilinx, Intel).

## Key Features

- Supports 32 carriers at aggregate symbol rate of 50 MSymbols/s, sample rate of 200 MSamples/s.



## Features

- Compliant with ETSI EN 301 545-2 (DVB-RCS2)
- Support for Linear Modulation Bursts of Table A-1
- Optional support for Spread-spectrum Linear Modulation Bursts waveforms of Table A-2
- Support for BPSK, QPSK, 8-PSK, 16-QAM
- Supports real, intermediate frequency signal at input.

## Applications

- Satellite communication
  - Digital Video Broadcasting
  - Interactive Services
  - Professional Services
  - News Gathering

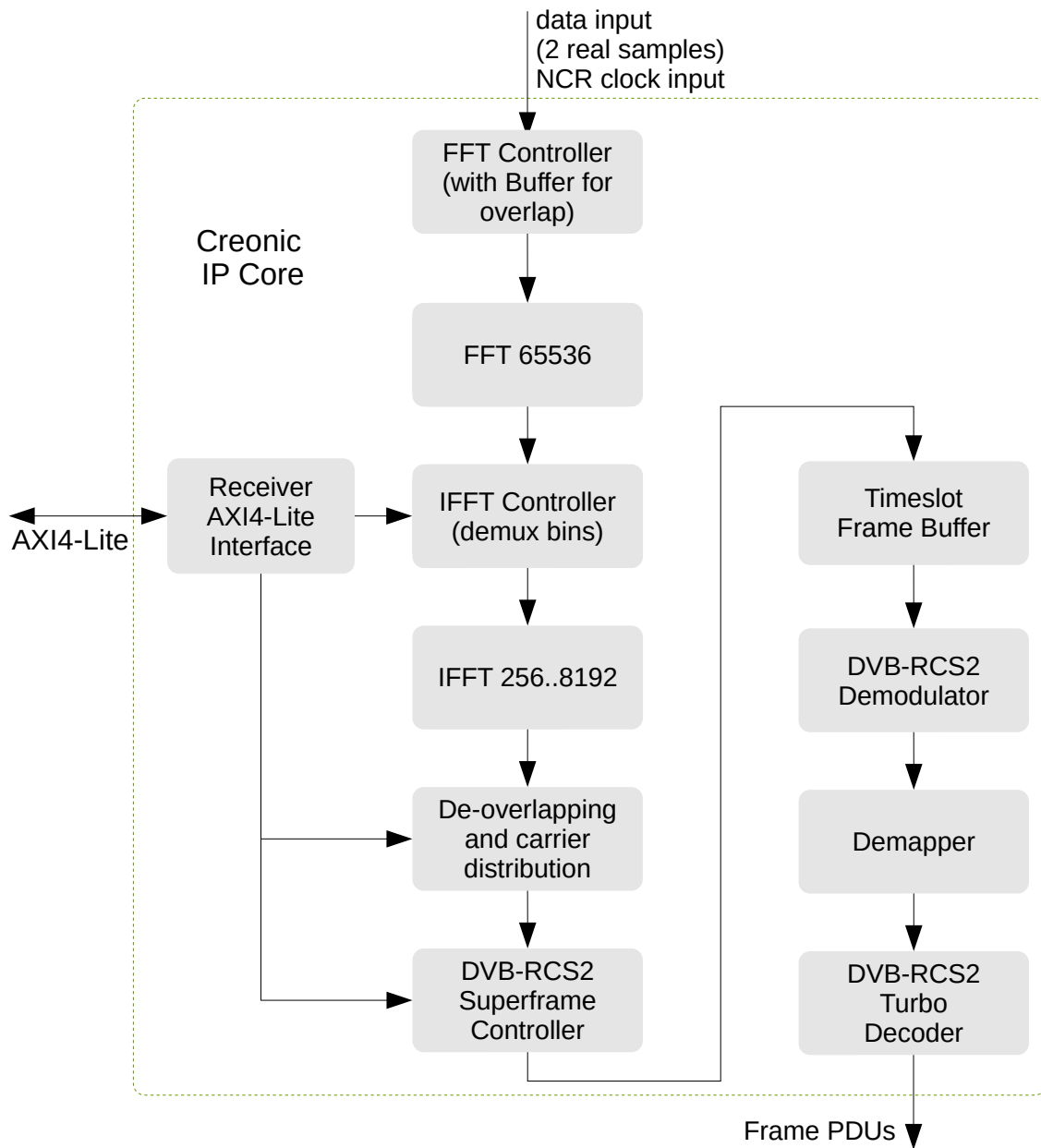
## Deliverables

- VHDL source code or synthesized netlist
- HDL simulation models e.g. for Aldec's Riviera-PRO
- VHDL testbench
- bit-accurate Matlab, C or C++ simulation model
- Comprehensive documentation

- Supports symbol rate per carrier from 200 kSymbols/s to 12.5 MSymbols/s at an input rate of 200 MSamples/s.

## **DVB-RCS2 Multi-Carrier Receiver Overview**

The following figure gives an overview of all components that are part of the DVB-RCS2 Multi-Carrier Receiver IP core. The receiver reads a quantized real signal from an analog digital converter (ADC) for processing. The FFT and IFFT stages separate the carriers and distribute them to RCS2 demodulator. After that the signal is demodulated and decoded by the integrated turbo decoder. The receiver provides the bytes of the Frame PDUs at the output. The user configures the receiver with an AXI4-Lite interface.



## Related Products

[DVB-RCS2 Modulator](#)

[DVB-RCS2 Turbo Decoder](#)

[DVB-S2X Demodulator](#)

[DVB-S2X LDPC/BCH Decoder](#)

## About Creonic

Creonic is an ISO 9001:2015 certified provider of ready-for-use IP cores for several algorithms of communications such as forward error correction (LDPC, Turbo, Polar), modulation, and synchronization. The company offers the richest product portfolio in this field, covering standards like 5G, 4G, DVB-S2X, DVB-RCS2, DOCSIS 3.1, WiFi, WiGig, and UWB. The products are applicable for ASIC and FPGA technology and comply with the highest requirements with respect to quality and performance. For more information please visit our website at [www.creonic.com](http://www.creonic.com).

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