DVB-S2 Modulator

DVBS2_TX.vhd is the transmitter top level component. Inputs consist of one or several streams (transport, generic). The output is a DDR complex baseband modulated signal with two samples per CLK_TXg clock. The maximum modulation rate is thus fclk_TXg symbols/s.

Key Features and Performance:

- Flexible programmable features:
- Input streams attributes (dynamic: can change every BBFRAME): 16200/64800b frame length, FEC encoding rate, modulation type
- Input streams attributes: stream type (transport stream, generic stream packetized, generic bit stream), user packet length, input stream synchronization, null packet detection
- Modulation attributes: symbol rate, frequency offset, SRRC filter roll-off, common to all input streams

Supported Features:

- Inputs: Single or multiple MPEG Transport Stream. 188-Byte fixed length frames, Bytewide
- Maximum payload bit rate Example: 858 Mbits/s (8-PSK, rate 9/10, Xilinx Ultrascale+ -2)
- FEC Frame: normal (64800 bits) short (16200 bits)
- Coding and modulation: CCM, VCM, ACM
- Modulation: QPSK, 8-PSK, 16APSK, 32APSK
- Maximum modulation symbol rate (ultrascale+ -2 speed grade): 318 MSymbols/s 636 MSamples/s

IP Core Deliverables:

- VHDL source code
- GNU radio project and Matlab conversion .m program for generating DVB-S2 waveforms.
- VHDL testbench
- PRBS11 test sequence generator, AWGN noise generator

A comprehensive DVB-S2 Modulator datasheet can be provided under an NDA, please contact info@global-ipc.com.