

## Technical Overview

The Zaltys DVB-S2 Modulator (DVBS2-M) IP core is a variant of the Zaltys HDRM-M Modulator core which implements a DVB-S2 compliant modulator. The core accepts an input stream of MPEG2 TS-packets over an ASI interface, and after performing all necessary BB, FEC and PL processing, provides a stream of complex-valued samples which are pushed to the HDRM-M modulator block (included) for sample-rate conversion and RRC filtering.

Functional blocks include:

- MPEG2 TS alignment recovery and buffering
- Baseband (BB) frame construction
- BCH and LDPC FEC processing
- Physical Layer (PL) frame construction

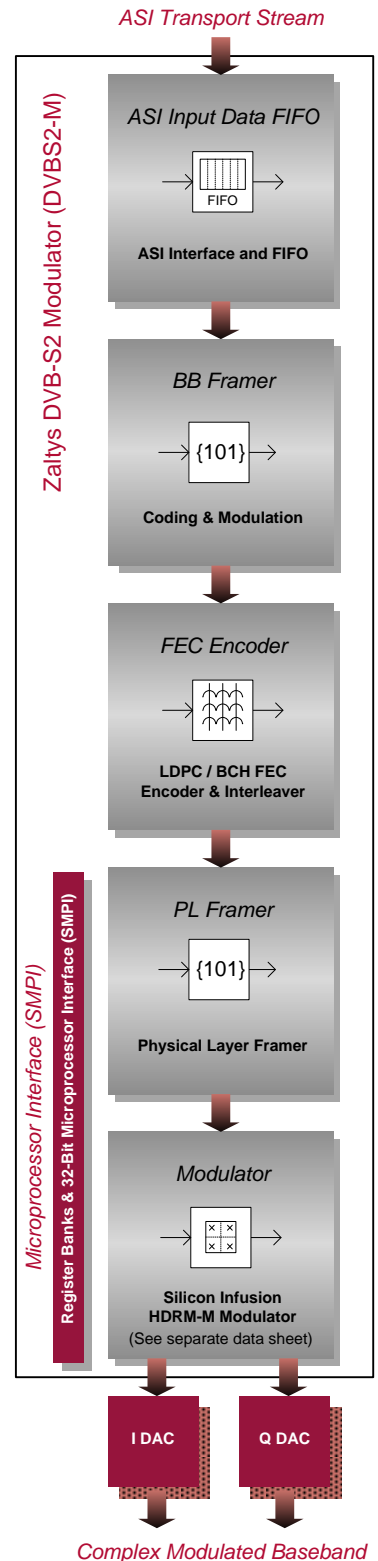
The modulator processes a single MPEG2 TS-packet stream and drives a complex baseband output signal to the HDRM-M Modulator core (included). Incoming TS-packets are buffered in a 16K-byte ASI input FIFO before being consumed by the internal processing blocks. A FIFO level signal is available so that external circuitry can control the flow of packets into the core. If the FIFO does not contain enough information to allow a BB frame to be constructed the core will send dummy PL frames until ready.

The Zaltys DVB-S2 Modulator core instantiates the Xilinx DVB-S2 FEC Encoder LogiCORE. Users of the DVBS2-M modulator core must acquire a licence to this Xilinx core in order to generate a usable design.



## Features

- ASI interface for incoming TS-packets
- Supports QPSK, 8PSK, 16APSK & 32APSK modulation
- Supports VCM operation
- Normal and short frame sizes
- 1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10 code rates
- Simple microprocessor interface (SMPI)
- Two clocks: one system clock & one ASI interface clock
- Test-mode traffic generator
- Fully synchronous design
- Available now for Xilinx FPGA



# DVB-S2 Modulator Core

## Applications

- Satellite Communications
- Microwave Line-of-Sight
- Broadcast Networks

## Licensing

There are three licensing models for this IP core (both royalty-free and royalty-based):

- Single-Project Netlist (project-based, Xilinx-specific)
- Multi-Project Netlist (site-based, Xilinx-specific)
- Multi-Project VHDL (site-based, source-code)

## Additional Products

### Zaltys Related Cores

The Zaltys DVB-S2 demodulator (DVBS2-D) is an efficient, high-performance, DVB-S2 demodulator and is the natural partner for the Zaltys DVB-S2 modulator core.

Zaltys MPE adapters enable Ethernet and other data services to be connected to our range of modulators and demodulators to provide high data rate communication links. The Zaltys MPE Encapsulator core (MPE-E) encapsulates high rate Ethernet and arbitrary data streams in a transport stream so they can be input to a modulator (such as the Zaltys DVBS2-M) for transmission. At the receiver, a demodulator (such as the Zaltys DVBS2-D) recovers the transport stream and the Zaltys MPE Decapsulator core (MPE-D) recreates the original Ethernet and other data streams.

Silicon Infusion also supplies many other communications-related cores to help complete your design, including our High Data Rate modulator and demodulator cores (HDRM range), DVB-S and DVB-S2 solutions and Intelsat related framing and FEC solutions. Please contact us with your enquiry.

### Zaltys Evaluation Boards

Evaluation boards are available for Zaltys products including the DVBS2-M core. They connect to a PC via a USB or

serial port, allowing easy communication with the ZEDwire Communicator software.

### Zaltys GUI Software (ZEDwire Communicator)

ZEDwire Communicator is a software GUI which runs under Microsoft Windows®. It interacts with the Zaltys evaluation boards, enabling rapid testing and evaluation of Zaltys cores.

## About Silicon Infusion and Zaltys

Silicon Infusion has been established for over ten years, and has a successful history of providing unique and innovative technical solutions to the wireless telecommunications industry. Our global client list includes organisations from many diverse market sectors - from Broadcast and Telecoms equipment manufacturers to Military solutions providers.

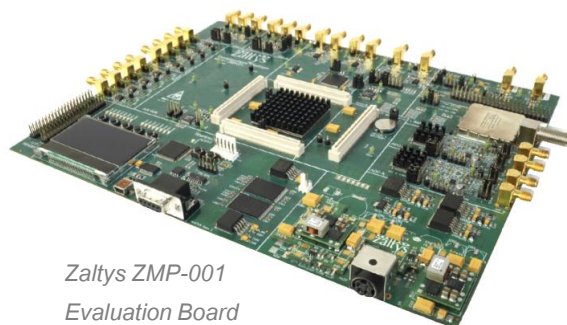
The Zaltys range of products are used for efficient high-speed transmission of voice, video and data. Zaltys modem cores are currently being used in many third-party products, carrying many thousands of user connections on a daily basis.

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Zaltys ZMP-001  
Evaluation Board