

Unprecedented performance—the combination of superior architecture and DVB-S2 expertise.



The Viasat 96100 MSM is a DVB-S2 customizable forward link multistream modulator core. Combing up to 8 input transport streams, it is an aggregator on a chip.

It enables DVB-S2 transmissions in CCM (Constant Coding and Modulation) and VCM (Variable Coding and Modulation) modes. Each stream can be independently modulated using VCM. Modulators with Viasat MSM optimize satellite bandwidth by aggregating multiple transport streams on one satellite carrier.

The core has been successfully tested and has been employed on multiple variants of DVB-S2 transmitter and transceiver products.

The multistream modulator features can be turned on, off, or modified for specific applications. The design allows easy reconfiguration for specific application requirements.

DVB-S2 compliance, flexible-architecture, and proven hardware make the Viasat multistream modulator core an attractive forward link core for advanced communications.

96100 MSM AT-A-GLANCE

Key Features

- » Aggregation of up to 8 input streams
- » Complete user control to choose any number of streams
- » Each stream independently configurable
- » DVB-S2 CCM and VCM operations
- » Fully DVB-S2 complaint
- » Optimized code/small footprint
- » Altera proven

Major Functional Modules

- » Input data and control interface—ASI with MPEGTS or MPEG-TS + control packets
- » Baseband framer—BB header generation, padding, CRC, scrambling, BCH encoding, LDPC encoding
- » Symbol mapper
- » Tilt compensation
- » PL framer—PL header generation, scrambling, pilot insertion, dummy frame insertion
- » Polyphase RRC filter
- » Interpolating farrow filter
- » Low-IF CORDIC up-converter

Typical Applications

- » Distribution of multiple DVB services (DVB-T, DVB-S2) towards one or multiple receivers
- » Direct Broadcast Satellite (DBS)
- » Digital Satellite News Gathering (DSNG)
- » Broadband VSAT networks
- » Enhanced mobile communication networks

SPECIFICATIONS

Maximum Symbol Rate	50* MSym/sec *Scalable to higher symbol rates
Minimum Symbol Rate	100 Ksps
Block Size	16200 bits (short); 64800 bits (long)
Modulation	QPSK, 8PSK, 16APSK, 32APSK
Code Rates (based on DVB-S2 rate definition, and modulation and block size restrictions)	1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, and 9/10
Output	Bits (coded and interleaved) I/Q samples at 100 MHz sample rate
Output Frequency	Quadrature (I,Q) baseband
Sample Rate	100 Mhz
Input Streams	Eight (configurable from 1 to 8)
Dummy Frames Insertion	32APSK DVB-S2 dummy frames

Modes

- » Constant Coding and Modulation (CCM)
- » Variable/Adaptive Coding and Modulation (VCM) with constant block size

ISI

- » Input stream identifier included in BBFrame. This is an 8-bit configurable value; one value per input stream

Input Data Interface

- » **Inputs** Data: 8-bits CLOCK: 27 MHz DVALID
- » **Outputs** EMPTY HALF-FULL FULL

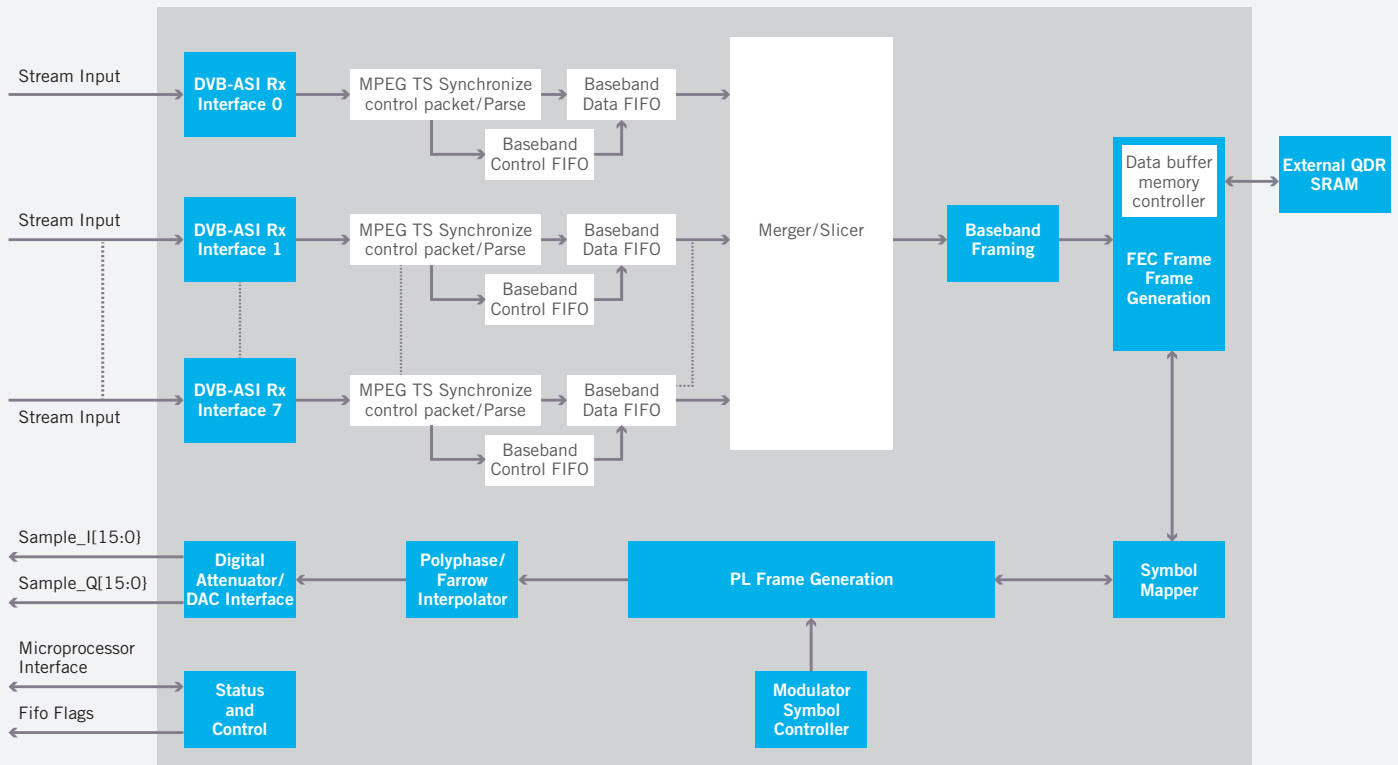
Output Data Interface

- » Encoded and interleaved bits
- » To DAC: 16-bit I and 16-bit Q

Control Interface

- » Parallel address/data interface
- » 8-bit data
- » 6-bit address
- » OE, WE, CS or serial SPI interface

MULTISTREAM MODULATOR BLOCK DIAGRAM



CONTACT

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