

### Company profile

**MVD Cores** is an engineering team highly specialized in Digital Video Broadcasting and FPGA technologies. We provide IP cores for Processing, Transporting and Transmission of MPEG, DVB and ATSC standards for Xilinx FPGAs. The products and services catalog contains a wide range of on-the-shelf IPs to carry MPEG-TS to RF.

Our solutions cover almost all worldwide standards of current technologies for broadcasting over Digital Terrestrial Television (DTT), Cable TV (CATV) and Satellite. The MVD Cores team is continuously looking ahead to next generation of standards.

Our IPs are easy to implement and ready to use. MVD Cores can provide technical support during all the design phases and will help you to use all the benefits of the FPGA by carrying out modular solution and scalable architecture. The expertise field covers optimized DSP functions for modulation, SERDES, high speed functions implementation, TS processing and System-On-Chip into the FPGA.

Our cores have been tailored to meet the requirements of most applications while using the lowest cost components and the lower amount of resources. However they can be adapted to specific needs.

MVD's cores enable its customers to build their high-end products while speeding up development phases.

### Products

- Large range of modulator standards supported for low cost FPGA families. Among them DVB-C, DVB-T/H, DVB-S, J83B, DOCSIS, EURODOCSIS, and coming soon (Q3/Q4 2009) ATSC 8VSB 16VSB, DVB-T2, DVB-S2.
- Complete modulator solution: ready to start up quickly with a low cost DAC. It uses MPEG-TS at input and adapts the bitrate with automatic PCR re-stamping to generate Intermediate Frequency spectrum.
- A set of companion cores allows to construct your ideal modulation solution such as core parameters settings interface (CPU, UART, I2C or SPI), TS processing or ASI interface.
- Modulator main characteristics : robust SPI input, direct startup with default configuration, totally reprogrammable at runtime, single or multiple channel, high quality MER > 43dB with low cost DAC.
- RF Modulation with our Multi-channel Up Converter solution for Direct RF Synthesis. It translates a group of wide or narrow band channels into a wideband RF channel. Takes advantage of the latest generation RF DACs.
- Optional on the shelf modules to convert DVB-ASI to DVB-SPI like or DVB-SPI like to ASI, entirely integrated in the FPGA.
- TS processing cores like DVB/ATSC remultiplexer, TS bitrate adapter typically used for transmodulation. Management of PSI/SI or PSIP tables, service filtering and PCR re-stamping. Specific MUX/DEMUX or adapt MUX rate with PCR restamping can be developed on request.

### Features & Benefits

- Our cores are especially designed to take advantage of the low cost Spartan3/E/A/A\_DSP and Spartan-6 families. For example, DVB-C (J83A/C) and Cable Modulator (J83B) fit into a 3S400A or a 3S500E. DVB-T/H core uses less than 50% of a 3SD1800A.
- All of our IP core solutions can be provided as netlist version or bitstream ready to use for your specific application. In this case **no engineering resources are needed** from our customers on the FPGA side.
- All of our IP core solutions have been written in behavioral VHDL allowing customization to your specific requirements.
- Our R&D engineering team can as well adapt these products or even add extra functionalities on demand. Please consult us.

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## Digital Video Broadcast modulators

Large range of standards supported, among them :

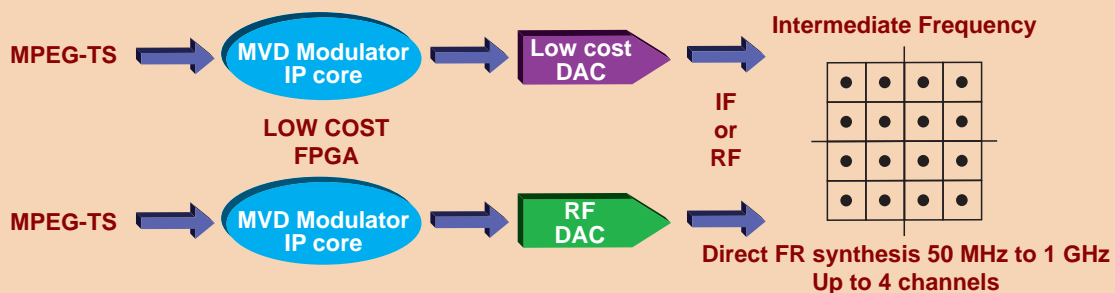
**DVB-C DVB-T DVB-H DVB-S J83B DOCSIS EURODOCSIS**

**ATSC 8-VSB & 16-VSB (Coming soon on Q3 2009) - Also on roadmap DVB-T2 & DVB-S2, contact us !**

Features :

- Drop-in modules for Spartan™-3/E/A/DSP, Spartan-6™, Virtex-5™ and Virtex-6™ FPGAs
- Robust SPI input (discards incorrect input packets)
- PCR re-stamping
- Direct startup with default configuration, totally reprogrammable
- Intermediate Frequency output for low cost DAC
- Direct RF synthesis with AD9789 - Up to 4 channels
- Single or multiple channel
- High quality MER (> 43 dB)
- Set of companion cores to construct your ideal modulation solution : ASI receiver/transmitter, Serial Interface for core settings (RS232, I2C, SPI), DVB Remultiplexer

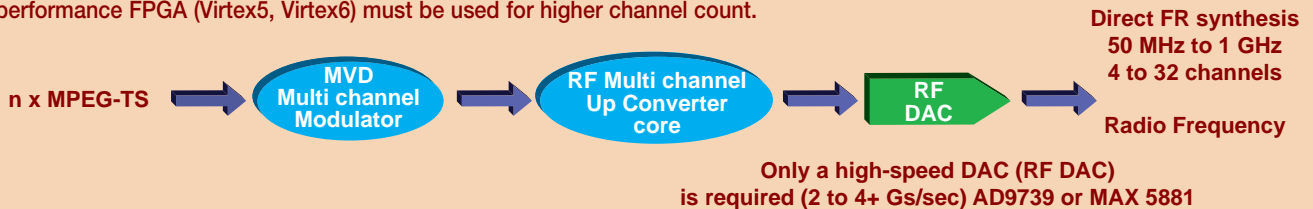
### Complete modulator solution ready to start up in ONE DAY !



## Multi-channel Digital Up Converter for Direct RF Synthesis

**Translates a group of wide or narrow band channel into a wideband RF channel**

Our Up Converter solution is totally scalable and adapted to your needs. Targetted for Virtex-5™, Virtex-6™ and Spartan-6™ FPGA families. Up Converters to 2.4 and 4.2 Gsample/sec can be achieved with low cost Spartan6 for one group of up to four channels. High performance FPGA (Virtex5, Virtex6) must be used for higher channel count.



## MPEG-TS processing

**DVB remultiplexer (available) & ATSC remultiplexer (Coming soon on Q3 2009)**

Features :

- Drop-in module for Spartan™-3/E/A/DSP, Spartan-6™, Virtex-5™ and Virtex-6™ FPGAs
- MPEG TS frame processing for bitrate conversion
- Management of PSI/SI (or PSIP) tables (automatic tables generator)
- Configurable via an UART link
- Service filtering and insertion
- Full PCR re-stamping
- Bandwidth estimation
- Optimized output mux rate thanks to a smoothing FIFO

**Specific TS Multiplex application : contact us !**

Specific MUX/DEMUX or adapted MUX rate with PCR re-stamping can be developed on request.

### Core customization

All of our IP core solutions have been written in behavioral VHDL, allowing customizations to your specific requirements. Our R&D engineering team can therefore adapt these products or even add extra functionalities on demand.

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