

SDI, HD-SDI and DVB-ASI Reference Designs for Xilinx FPGAs



Industry challenges

- Reduce cost-per-channel for standard video interfaces
- Support multiple channels in least number of devices
- Maintain highest quality in terms of jitter performance

Xilinx solutions

- Free-of-charge reference designs for serial digital video
- Complete solution with multiple designs, collateral and boards
- Industry-leading signal integrity
- Easy to integrate into your own FPGA system designs
- Reduce or remove cost of external ASSPs

Leveraging high speed I/O to support all your broadcast connectivity needs

The integration of high speed SelectIO and multi-gigabit serial transceivers into Xilinx FPGAs enables support for a variety of traditional broadcast video connectivity standards, including SD-SDI, HD-SDI, DVB-ASI, emerging interfaces for 3Gbps SDI and Dual Link HD-SDI, and adoption of Ethernet networks for Video over IP.

Reduce cost-per-channel for HD and SD connectivity by up to 80%

These standards offer high-bandwidth transmission between various video applications in the head-end, studio, or edit suite. They reduce material costs, particularly when there's a need for multiple channels. Integrating the network protocols into a Xilinx FPGA also lowers overall system costs.

Xilinx FPGAs provide the flexibility to meet your exact requirements, support and bridge between a wide range of standard interfaces, and industry-leading signal integrity, resulting in designs with high tolerance to input jitter and low jitter output.

Support separate or multi-rate HD/SD interfaces

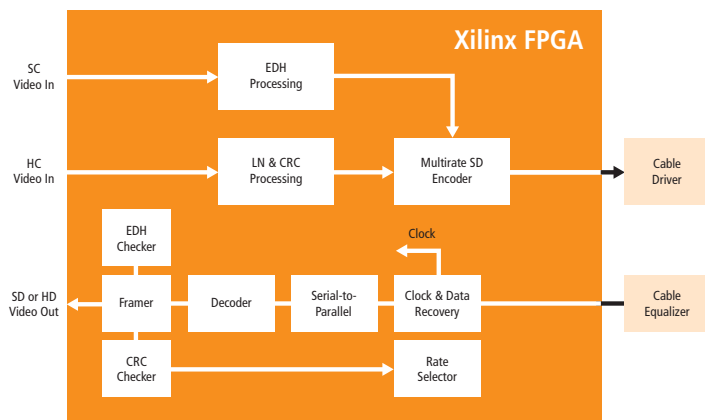
Xilinx offers a complete range of reference designs which allow you to choose either SD or HD-SDI interfaces on separate I/O, or support both on the same I/O.

Reference design specifications and FPGA resources

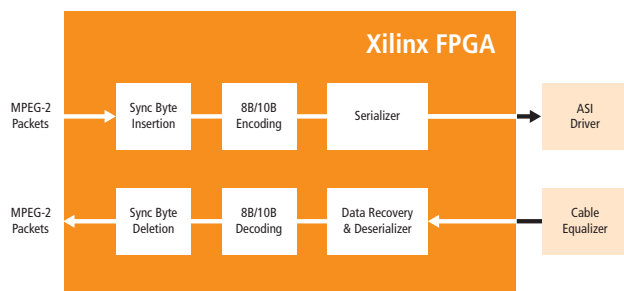
Function	Bit Rates	Standards supported
SDI	143, 177, 270, 360 Mbps	SMPTE 259M
HD-SDI	1.485, 1.4835 Gbps	SMPTE 292M
3Gbps SDI & Dual Link HD-SDI	3, 2.970, 2.967 Gbps	SMPTE372M, SMPTE424M
DVB-ASI	270 Mbps	EN 50083-9

Application note: XAPP514

Source code: VHDL & Verilog



Multi-rate SD/HD-SDI Tx and Rx Example



DVB-ASI Tx and Rx Example

Fuction	Approx. Slices	Virtex-4	Virtex-II Pro	Spartan-3E	Spartan-3
SDI Tx	20	✓	✓	✓	✓
SDI Rx	150	✓	✓	✓	✓
HD-SDI Tx	190		✓		
HD-SDI Rx	300		✓		
Multirate Tx	500		✓		
Multirate Rx	750		✓		
DVB-ASI Tx	50	✓	✓	✓	✓
DVB-ASI Rx	50	✓	✓	✓	✓

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