



ENABLING DIGITAL VIDEO AND AUDIO  
INTERFACES IN BROADCAST APPLICATIONS

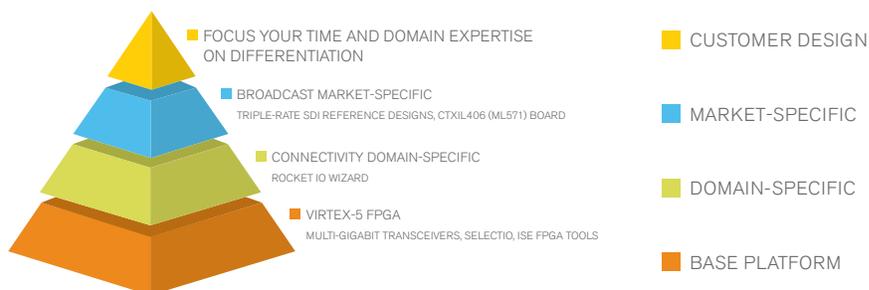
## BROADCAST AUDIO/VIDEO CONNECTIVITY WITH VIRTEX-5 FPGAS

### » Broadcast Industry Demands

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

### » The Xilinx Triple Rate SDI Solution

- Supports all the major SMPTE SDI standards
- Reference designs provided as VHDL and Verilog source code
- Complete hardware and IP solution for evaluation and development



### High-Speed I/O Supports All Major Broadcast Connectivity Standards

Virtex<sup>®</sup>-5 FPGAs with integrated high-speed SelectIO™ technology and multi-gigabit serial transceivers (MGTs) support the widest range of broadcast video and audio connectivity standards, including: standard video interfaces for SD-SDI, HD-SDI, Dual Link HD-SDI, 3G-SDI and DVB-ASI; as well as AES3 digital audio interfaces, audio embedding and de-embedding.

### Lower Cost-Per-Channel by Up to 80% for HD and SD Video Connectivity

Integrating these interfaces into Virtex-5 FPGAs delivers a variety of benefits for broadcast video applications requiring high performance logic with low-power serial connectivity. These include reduced material costs, less board space, and lower overall power, particularly for systems requiring multiple channels.

### Comprehensive Broadcast Audio/Video Connectivity Solutions

Xilinx offers proven connectivity solutions with its Virtex-5 FPGA family developed specifically to address the rapidly evolving requirements in the broadcast market for greater bandwidth, improved jitter performance, and lower power consumption. With the Xilinx portfolio of silicon devices, intellectual property (IP) building blocks, design tools, and serial digital/audio development board, broadcast equipment engineers can focus on differentiating state-of-the-art systems rather than the challenges of implementing multiple SDI rates and formats.

## Xilinx Broadcast Connectivity Reference Designs

Xilinx offers a wide range of video and audio reference designs described in the Xilinx Application Note XAPP1014. These include a low power interface for triple-rate SDI design with Virtex-5 FPGAs. This unique offering supports dynamic switching between SD, HD and 3G-SDI standards for transmit or receive with embedded audio support through MGTs, as well as SDI, AES and DVB-ASI through SelectIO LVDS interfaces. Video pass-through designs are also provided for all the SDI rates with test pattern generators and a very high-performance multi-channel Audio Sample Rate Converter is also included.

XILINX CONNECTIVITY INTERFACES	STANDARD
SD-SDI	SMPTE 259M-C
HD-SDI	SMPTE 259M
3G-SDI Level A	SMPTE 425M-A
3G-SDI Level B	SMPTE 425M-B
Dual Link HD-SDI	SMPTE 372M
DVB-ASI	EN 50083-9

XILINX CONNECTIVITY INTERFACES	STANDARD
AES3	AES3-2003
Embedded AES3 in SD-SDI	SMPTE 272M
Embedded AES3 in HD/3G-SDI	SMPTE 299M
Asynchronous Audio SRC	N/A
Video Payload Identification	SMPTE 352M

## Xilinx CTXIL406 (ML571) Serial Digital Audio and Video Board

The CTXIL406 (ML571) board is used to characterize and verify receiver tolerance to jitter and output jitter performance, which are both well ahead of SMPTE-specified requirements.

### The board features:

- Xilinx Virtex-5 LX50T FPGA
- SD/HD/3G-SDI through MGTs (2 Tx, 2 Rx)
- SD-SDI/DVB-ASI through SelectIO LVDS technology (1 Tx, 1 Rx)
- Seven on-board clock sources and high-speed clock module interface
- Two stereo pairs AES3 audio
- Two Gigabit Ethernet transceivers
- High-speed DDR memory
- Compact flash card for program loading
- Xilinx XGI daughter card interface



## Take the NEXT STEP

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### Corporate Headquarters

Xilinx, Inc.  
2100 Logic Drive  
San Jose, CA 95124  
USA  
Tel: 408-559-7778  
[www.xilinx.com](http://www.xilinx.com)

### Europe

Xilinx Europe  
One Logic Drive  
Citywest Business Campus  
Saggart, County Dublin  
Ireland  
Tel: +353-1-464-0311  
[www.xilinx.com](http://www.xilinx.com)

### Japan

Xilinx K.K.  
Art Village Osaki Central Tower 4F  
1-2-2 Osaki, Shinagawa-ku  
Tokyo 141-0032 Japan  
Tel: +81-3-6744-7777  
[japan.xilinx.com](http://japan.xilinx.com)

### Asia Pacific Pte. Ltd.

Xilinx, Asia Pacific  
5 Changi Business Park  
Singapore 486040  
Tel: +65-6407-3000  
[www.xilinx.com](http://www.xilinx.com)



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Printed in the U.S.A. PN 2425