

# VIDEO TRANSPORT

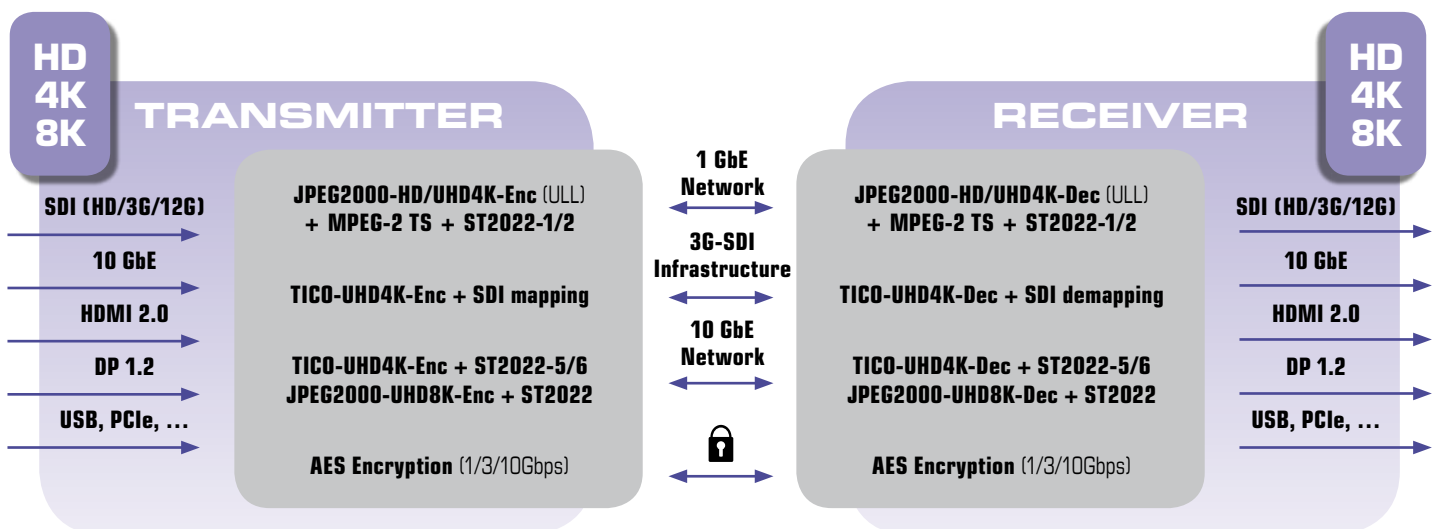
**FPGA**  
**XILINX**

ALLIANCE PROGRAM  
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## Reliable Network Solutions for Live HD, 4K and 8K

intoPIX has developed break-through video transport FPGA solutions for customers that bridge the worlds of professional video production and IP networks.

Today, intoPIX is extending its video transport expertise to address complex issues in delivery of video data in HD, 4K or 8K through IP networks in Broadcast, Pro-AV and Digital Cinema workflows with minimum latency, maximum reliability, quality, cost effectiveness and interoperability.



### Video over IP Reference Design:

- > SMPTE2022-1/2 with JPEG 2000 (Xilinx Series 7)
  - VSF TRO1 compliant
  - J2K Ultra Low Latency support
- > SMPTE2022-5/6 with TICO lightweight compression (Xilinx Series 7)
  - TICO over SDI/ST2022-6
  - TICO over RTP (as VSF TRO3)

### Video over SDI Applications:

- > UHD4K over 3G-SDI with TICO lightweight compression

### Compression & Security IP-Cores:

- > JPEG 2000 compression
- > TICO lightweight compression
- > AES real-time encryption
- > MPEG-2 TS - for codestream/uncompressed audio encapsulation

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# JPEG 2000/TICO Video over IP

The reference designs combine both intoPIX JPEG 2000 or TICO compression cores with Xilinx SMPTE 2022 IP-cores to carry HD and UHD4K video over 1GbE or 10GbE IP network on a Xilinx Kintex-7 FPGA.

TICO lightweight compression IP-cores, with a pixel line-based latency, can be used as a smart way to map 4K video over IP using SMPTE 2022-5/6 or VSF TRO3 10G infrastructure. intoPIX JPEG 2000 4K cores can be directly integrated to carry 4K over SMPTE 2022-1/2 1G network.

The reference designs answer broadcasters' needs for a cost-effective and reliable solution to enable to migrate toward IP networks for video transport such as contribution links, studio over IP, remote monitoring...

## JPEG 2000 over TS over SMPTE 2022 1/2:

In collaboration with Xilinx, intoPIX can deliver a ready-to-use SMPTE 2022 reference design that has successfully participated in the J2K VSF Interop tests.

Fully compliant with the VSF (Video Services Forum) Technical Recommendation, "Transport of JPEG 2000 Broadcast profile video in MPEG-2 TS over IP", intoPIX JPEG 2000 and MPEG-2 TS cores, guarantee a faster time to market to new adopters. The design has been successfully connected with the equipment of major players of the broadcast market.

### Key features:

- intoPIX HD & 4K JPEG 2000 and MPEG-2 TS encapsulation IP-cores
- Xilinx SMPTE 2022 IP-cores for IP transport
- Ultra Low Latency option (down to 10 ms end-to-end)
- Compliant with VSF TRO1
- Carry HD and UHD 4K on 1GE networks
- Reference application and IP-cores available from intoPIX and Xilinx

**EMMY® Award-winning**  
intoPIX JPEG2000 solutions

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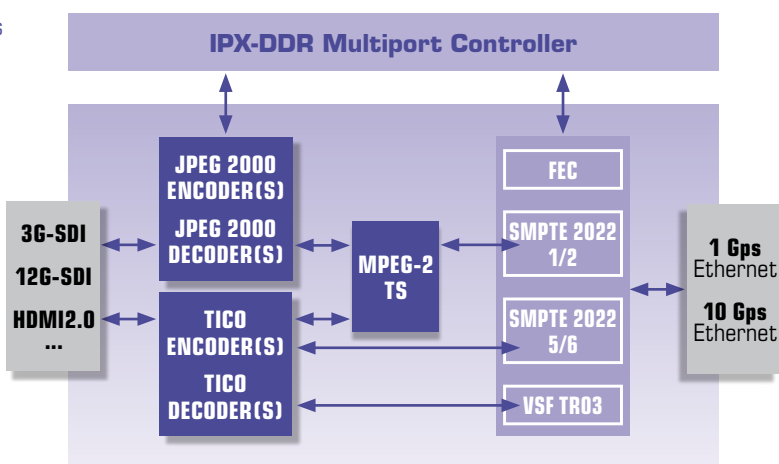


## TICO over SMPTE 2022 5/6 and VSF TRO3:

Leveraging the power of SMPTE 2022-5/6 and VSF TRO3, intoPIX can embed the TICO lightweight compression to carry more HD streams, higher resolution (4K/8K) or higher frame rates (60p,120p) without any impact on latency.

### Key features:

- SMPTE 2022-5/6 integrating TICO lightweight compression to carry 4K60p over 10 GbE
- VSF TRO3 using an independent TICO RTP streams

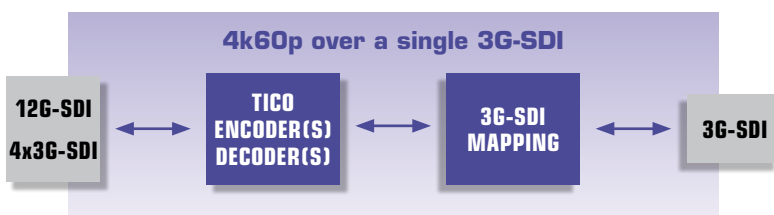


# UHDTV 4K TICO over 3G-SDI

Leveraging the existing SDI infrastructures, TICO lightweight compression can be embedded in the active area of the 3G-SDI in order to carry 4K 60P over a single 3G-SDI cable without any impact on quality and latency.

### Key features:

- Efficient mapping on SDI following the SMPTE RDD35 recommendations (avoiding forbidden values)
- Leverage existing and deployed 3G-SDI equipments
- Leverage existing and deployed SMPTE 2022-6 equipments



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