

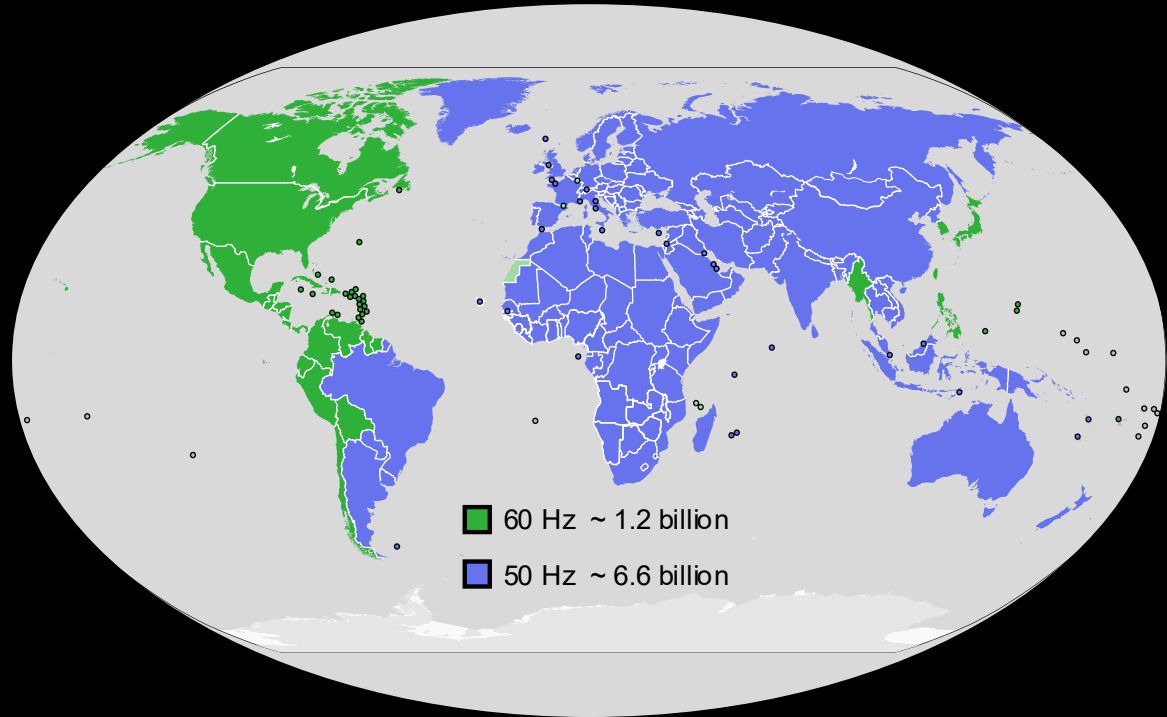
Motion Compensated Standards Conversion

**High End Brücke zwischen
den Welten?**

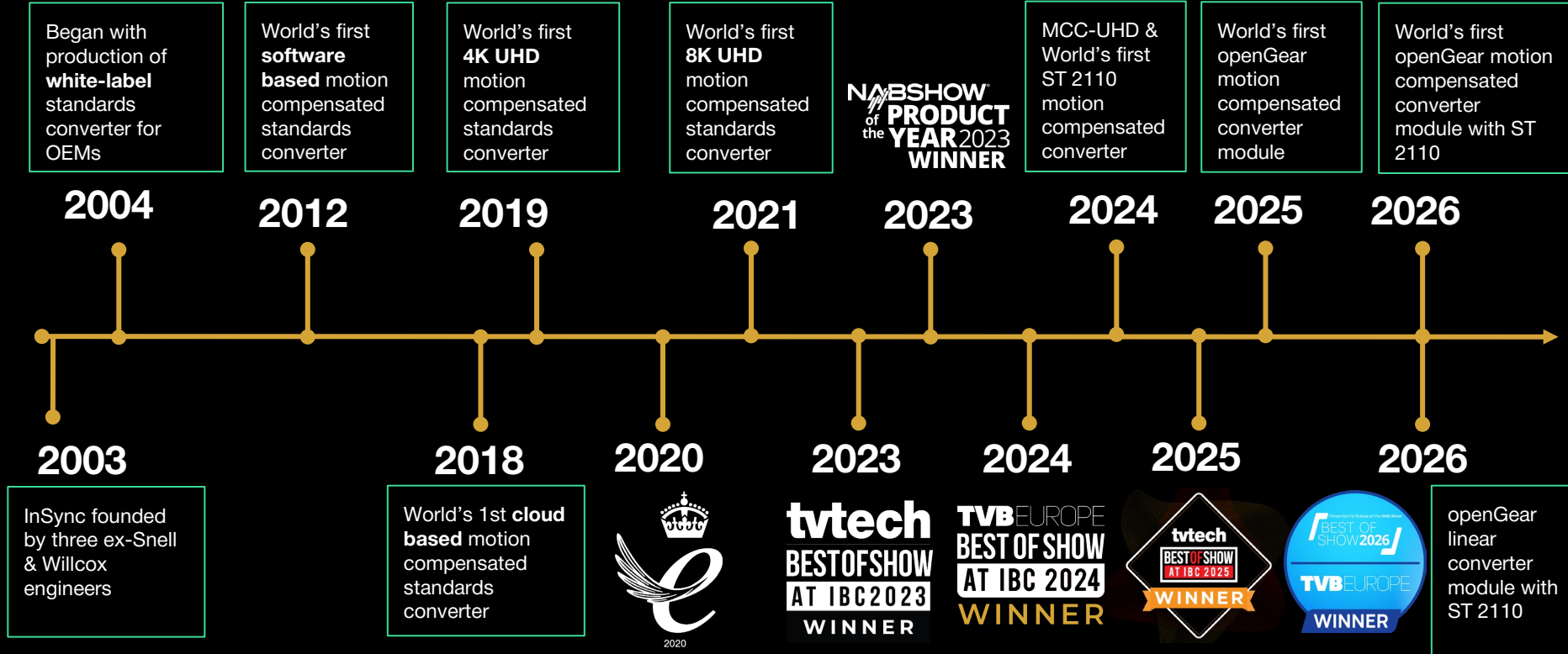


Standards Conversion Applications

- International content distribution
- Global broadcast of shows or events
- Low <> High frame rate conversion



Delivering **excellence** in broadcast technology for over 20 years...

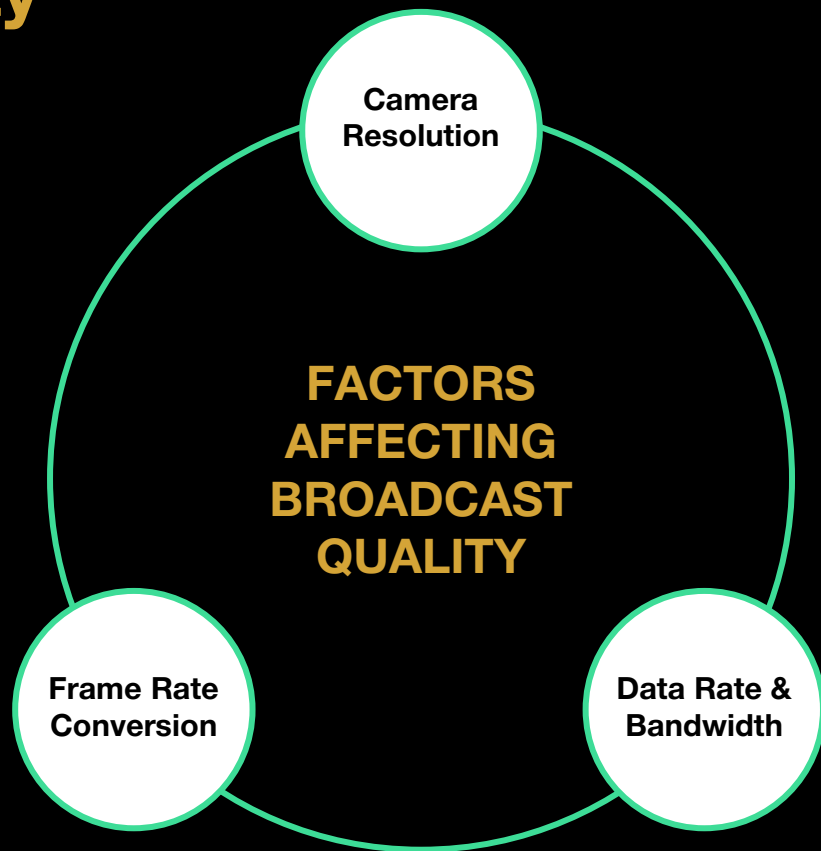


Conversion is **key to quality**

Broadcasters spend millions / billions on rights, broadcast equipment, high quality CDNs & customer acquisition

Yet conversion technologies are often under invested in or are not a primary consideration

Conversion plays a critical role in maintaining picture quality & guaranteeing a premium experience for viewers



World Leading **Video Standards Conversion**



Low Quality Conversion



InSync MC Conversion



inSync
|||||

- Sharper motion
- Background clarity
- Low latency
- Cross platform availability
- Capex or Opex



World Leading **Video Standards Conversion**



Low Quality Conversion



InSync MC Conversion



Trusted by the world's
biggest broadcasters...

BBC

IMG

ESPN

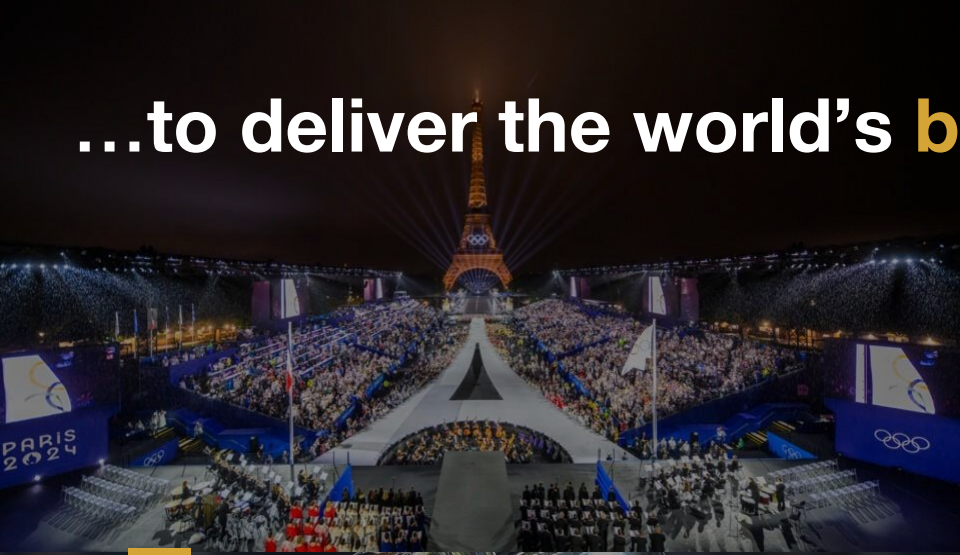
ITN

tvglabo

NHK



...to deliver the world's **biggest sports events**



InSync Technical Benefits

We use macro scale motion compensating transforms

Historically motion compensated standards converters have had limited analysis windows for motion estimation leaving them unable to 'see', measure and describe very large/full screen divergent movement such as full screen rotation and zoom.



InSync Technical Benefits

We offer resilience to classic motion compensation failures such as disturbance to repeating detail

Decades of experience of MC FRC failure modes allow our designs to prevent problems seen in other converters by actively managing electronic/compression/quantisation noise, numerical sensitivity, ill-conditioned linear regression, ultra-high gain normalisation and those seen using multi-criteria measurement validation systems.



InSync Technical Benefits

Motion compensation for independent object segmentation

We intelligently associate complex motion transformations to segmented video objects maintaining integrity and consistency across moving objects, both hard bodied and soft bodied.





INSIDE

InSync Inside brings our market leading video conversion technology directly to your preferred content management and processing platform – for both live stream and file-based video content.

- FrameFormer® is the World's only CPU frame rate converter
- Flexible workflow deployment (cloud, SDN on-premise)
- COTS hardware, on-premise
- 65% reduction in compute resource

TRUSTED INSIDE



AWS Elemental
MediaConvert

[comprimato]



Grass Valley



hiscala

M2A



Media



Synamedia

techex.

telestream



OUR CONVERSION SOFTWARE TOOLS

FRAME RATE

DEINTERLACING

ST 2110

HDR-SDR

UP-DOWN-CROSS

ASPECT RATIO

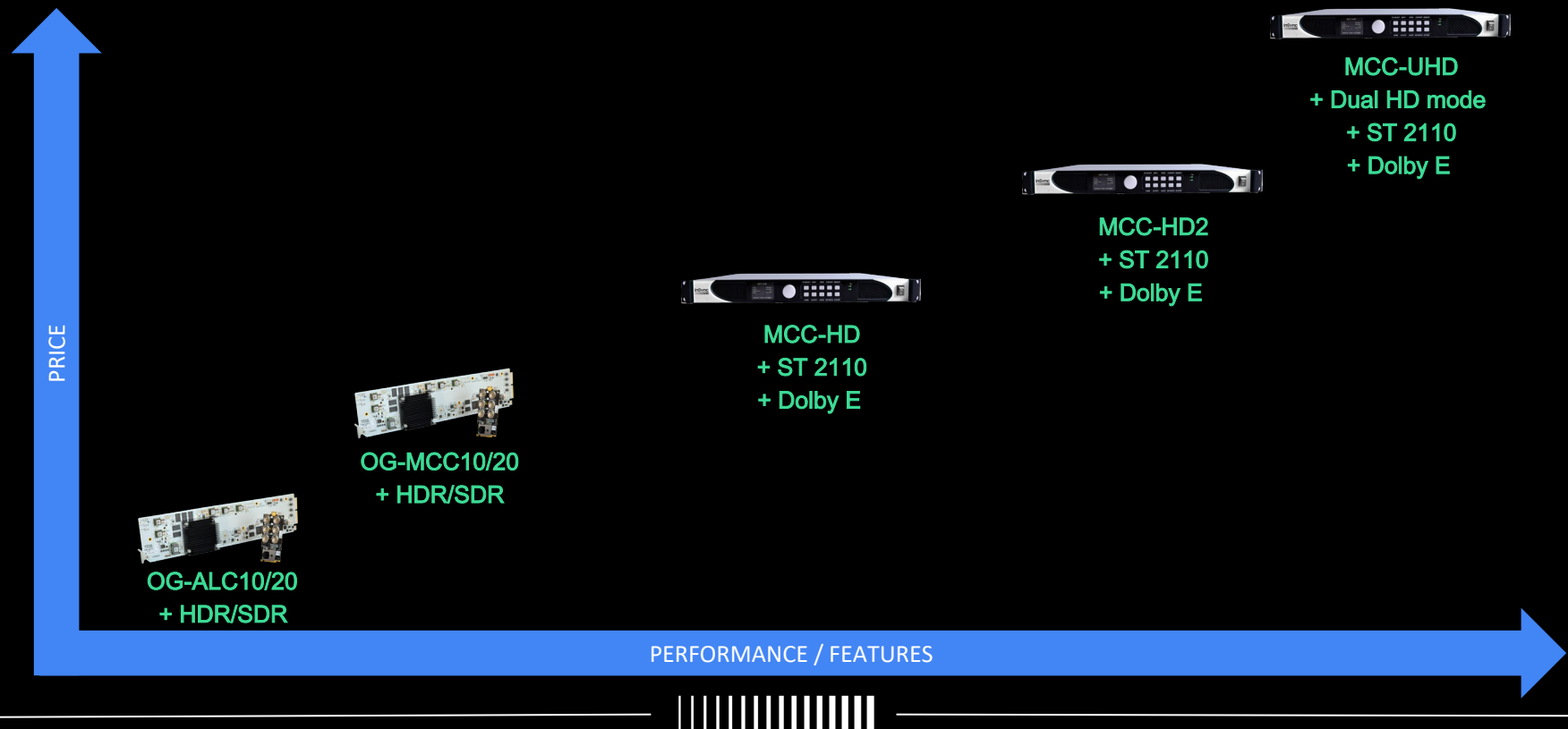
FrameFormer® provides high quality frame rate conversion and video processing in an easily deployable SDK.

- Available in three price to performance packages – Premium, Performance and Base
- Motion compensated frame rate conversion, from any frame rate to any frame rate, providing the highest end-to-end conversion quality for file based or live applications
- Intuitive C API allows easy description of desired input and output formats and frame rates with support for a wide range of video buffer structures
- Unique CPU only deployment, optimised for on-prem or cloud-based workflows

Feature	Premium	Performance	Base
Highest quality MC FRC	✓		
Resource efficient MC FRC	✓	✓	
Linear FRC	✓	✓	✓
Cadence management	✓	✓	✓
Advanced de-interlacer & interlacer	✓	✓	✓
Video scaler – Up, Down, Cross Conversion	✓	✓	
SDR/HDR	✓	✓	
Colour space conversion	✓	✓	
Custom LUT support	✓	✓	
Soft and hard clip display mapping control	✓	✓	
ARC	✓		
QCIF (172x144) to 8k (8192x4320) resolution with any combination of input and output frame-rate	✓	✓	✓
CPU only deployment, optimised for on-prem or cloud based workflows	✓	✓	✓
Highly portable Linux or Windows deployments	✓	✓	✓



Hardware Product Line Up



MCC Range Compact but Powerful



Stunning image quality, low ~100ms latency



Easy to use front panel controls with video confidence display, and intuitive Web interface



ST 2110 option -
Dual 10/25GbE
SFP28 Transceivers



5 x SDI inputs

inSync MCC-HD
Connection Status: ●

Channel 1	Channel 2	System	ST 2110
Input/Output	Video	SDR/HDR	Audio Input Routing
Convert	Metadata	ANC Bridge	Timecode
			Memory

Channel 1 Input/Output

Input

SDI 1	Loss
SDI 2	Loss
SDI 3	Loss
SDI 4	Loss
SDI 5	Loss
SFP 1	Loss
SFP 2	Loss
ST 2110 1	Loss
ST 2110 2	Loss

Output

Output Standard: 1080p60 24A

Pattern Enable: ☐

Test Pattern: ☐

Default Output: ☐

Legislation: ☐

Luma Clipper

Enable: ☐

White Max: 100%

White Min: 0%

Black Max: 0%

Black Min: 0%

Additional A/V Delay

Delay: 0.000s

ARC

Enable: ☐

Size: 100%

Aspect: 100%

Par: 0

Tilt: 0



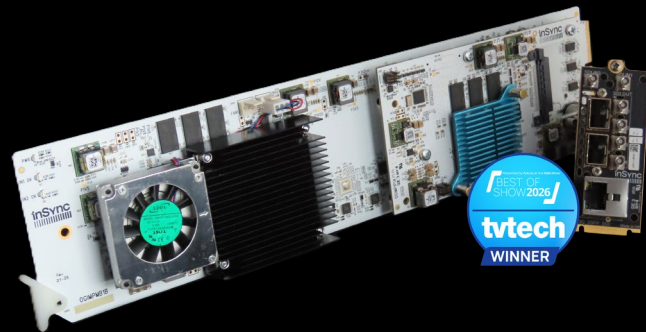
MADI, AES and Analog audio I/O, 32 ch embedded with gain, delay & shuffling

Dual Redundant PSUs
with class leading low
power consumption



InGear Modular Video Processing

InSync's InGear Modular range takes our Gold Standard video conversion technology and shrinks it into a compact efficient modular package, ideal for Broadcast and Professional Video and Audio applications when providing customers with the best quality solution at the right budget counts



OG-MCC10/20 – Motion Compensated 3G-SDI Frame Rate Converter

- Identical MC performance to 1RU range
- 10 conversion channels in 2RU
- Hybrid HD/3G-SDI and/or ST 2110 IP interfaces

OG-ALC10/20 - Dual Ch 3G-SDI Adaptive Linear Frame Rate Converter

- Dual independent conversion channels
- 20 conversion channels in 2RU
- Hybrid HD/3G-SDI and/or ST 2110 IP interfaces

- Processing tools included – Up/Down/Cross conversion, proc. amp, delay, legalisation, audio gain, delay and routing
- Optional HDR/SDR conversion with BT.709 and BT.2020 colour space handling
- Comprehensive integration options - Dashboard Web UI, REST API, NMOS IS-04/05



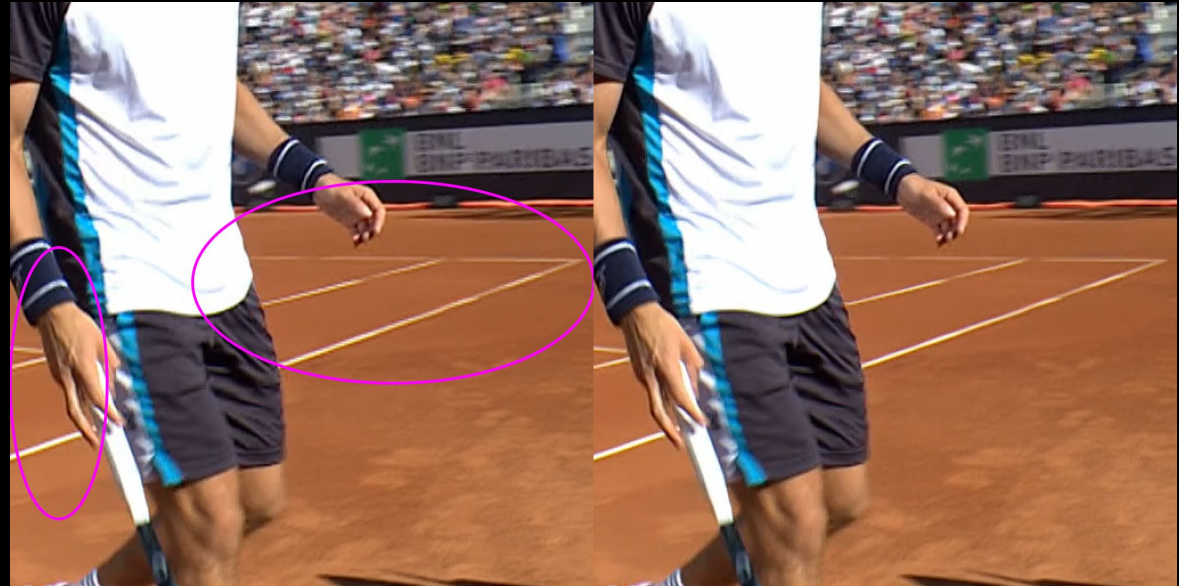
Processing Features – Still Adaptive De-interlacer

InSync's de-interlacer IP performs still-adaptive de-interlacing to provide exceptional results in both static and moving areas.

Other

InSync

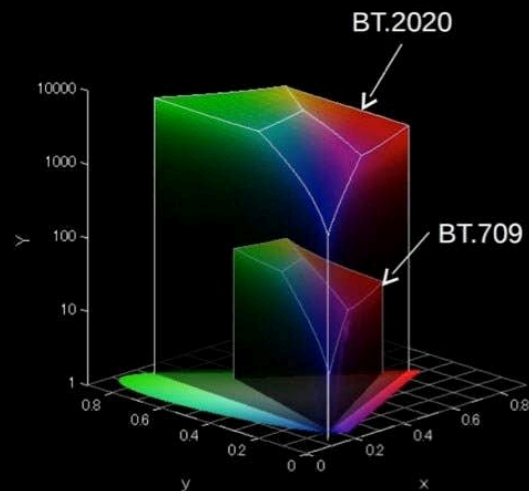
- Selectable standard and advanced 'Still Adaptive' technology
- Supports 25i, 29.97i and 30i input video standard de-interlacing
- Included as standard on all products



Processing Features – HDR & Colour Space Conversion

Provides translation between SDR/HLG/PQ/S log3 and BT.709/2020 colour space using InSync's coefficients and transfer functions, or custom 3D LUT files.

- Scene or display referred with selectable hard and soft clipping and white clip level control
- SDR enhancement with preset or adjustable gain and threshold control
- Auto detect transfer characteristic or force SDR, HLG, PQ or S log3
- Import custom 3D LUTs, type 1, 2 or 3
- Support for BBC v1.7 LUT metadata
- Included with 19" x 1RU range, optional on openGear cards



Processing Features – Video Scaling & Processing

Smooth and efficient up-down-cross scaling for video sources from HD to UHD with associated video processing tools for enhancement, colour correction and legalization.

- Horizontal and vertical frequency enhancement – sharp/soft, mid or high band boost controls
- Progressive to interlaced output formats
- Edge enhancement
- Colour correction, proc. amp controls and gamut legalizer
- 80 – 120% zoom, aspect with pan & tilt control



Processing Features – Audio and Metadata

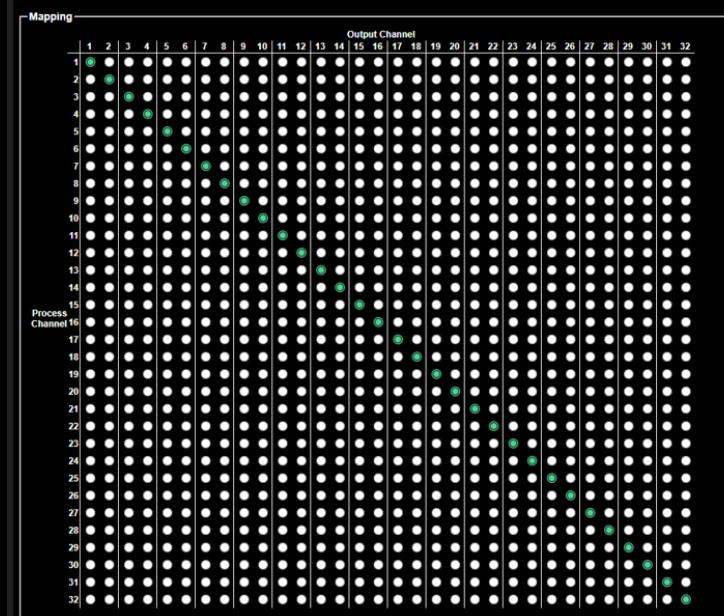
Audio Processing is comprehensively handled, and metadata is also managed

- 32 channel audio processing for UHD, 16 channel for HD/3G
- Audio processing features include – gain, delay, shuffling, phase invert, and Dolby E transcoding option (1R U range)
- All common metadata types handled with ancillary data bridge to pass up to 7 other DID/SID types

Channel 1 ANC Bridge

The screenshot shows the 'Channel 1 ANC Bridge' configuration window. It is divided into 'Input' and 'Output' sections. The 'Input' section has 'DID: 0x0' and 'SID: 0x0' with 'Default' buttons, and 'Field: 1' selected with a radio button. The 'Status' is 'VANC -'. The 'Output' section has an 'Enable' checkbox, a 'Repeat Packet' checkbox, and 'Field: 1' selected. Below these are several line-level settings for 720p, 1080i, 1080p, and 1080p0, each with 'Field 1 Line' and 'Field 2 Line' values and 'Default' buttons.

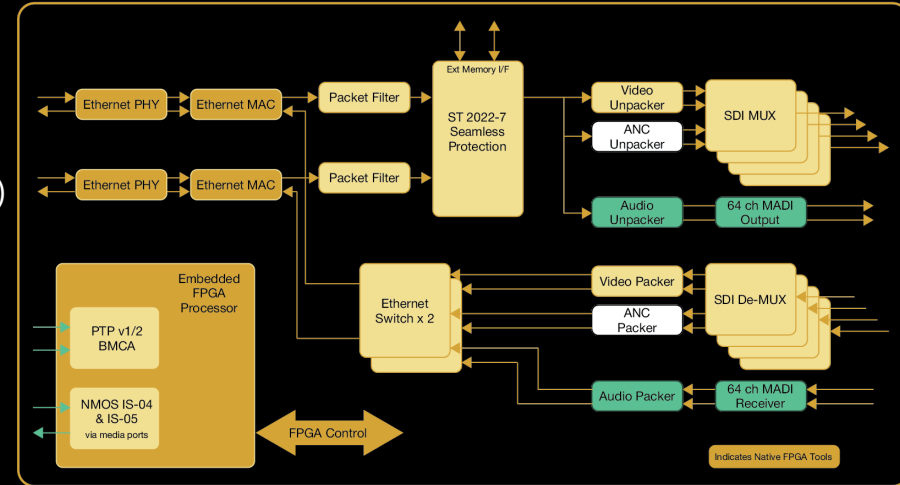
Channel 1 Audio Output Mapping



ST 2110 – Interfacing for 10/25GbE Networks

InSync's ST 2110 core is designed specifically for resource efficient multi-channel applications, and includes PTP timing and NMOS IS-04/05 device management

- Dual 10/25GbE network interfaces supporting SFP28 transceivers
- ST 2110-20 video, and -40 metadata, 1 flow per channel
- ST 2110-30/31 audio, up to 4 flows per channel with 16 channels per flow (or 32 channels for UHD)
- ST 2022-7 RTP seamless protection switching to class A/B/C/D
- Optional ST 2059-1/2 PTP support with BMCA, and NMOS IS-04/05 discovery and connection management
- Hardware option for 19" x 1RU range, select card type for openGear range



InSync USPs & Benefits



- World leading – trusted for premium events demanding the best quality conversion for global distribution
- We OEM to Tier 1 Broadcast Vendors – leveraging 20+ years of collaboration to refine and optimise our algorithms for use in a wide variety of products and applications
- Our products are easy to use, and we offer the lowest processing latency of any motion compensated converter on the market
- We're dedicated to high quality standards conversion as our mission – We're experts, it's what we do!
- We are a customer focussed small UK based technology Company, manufacturing our products locally with a committed ESG policy
- We are easy to deal with, and you speak with the key designers with full understanding of broadcast industry workflows
- We offer a multi-faceted solution, whether software or hardware, it's the same high-quality algorithms
- Our software is purely CPU based to reduce resource overhead, and all our hardware is designed with low power consumption in mind
- Our sales approach is flexible, purchase or rental for Hardware, subscription or PAYG for Software





The **gold standard**
in video conversion



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