

## UHD Solutions

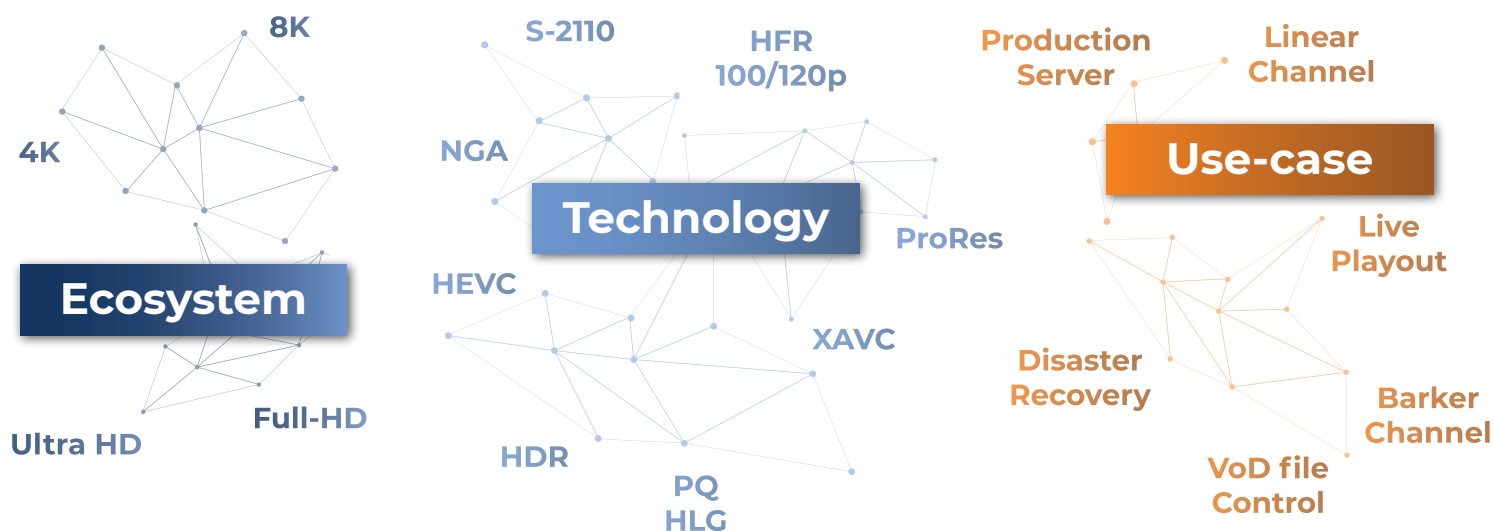
Software-based Video Processing for  
Live, Linear, Barker, Replay, D.R. channels

Ultra HD, also named 4K, is now a reality for a large number of linear and live channels around the world, mostly distributed over satellite broadcast and IPTV networks. Some OTT and terrestrial broadcast channels have already started in certain countries.

Indeniably, UHD has enough matured to deeply modify the video landscape along with emerging technologies such as High Dynamic Range [HDR], Wide Color Gamut [WCG ie. BT2020/2100], then followed by High Frame Rate [HFR] at 100/120 fps and finally 8K.

Being an Ultra HD pioneer since 2013, BBright proposes a range of solutions from the affordable UHD multi-stream playout, to feature-rich UHD contribution ingest or decode and up to the most advanced UHD baseband integrated playout for a linear channel.

Working with an UHD expert provides a wealth of experience, allowing to save deployment time with field proven software-based processing fully supporting these new and demanding video workflows.

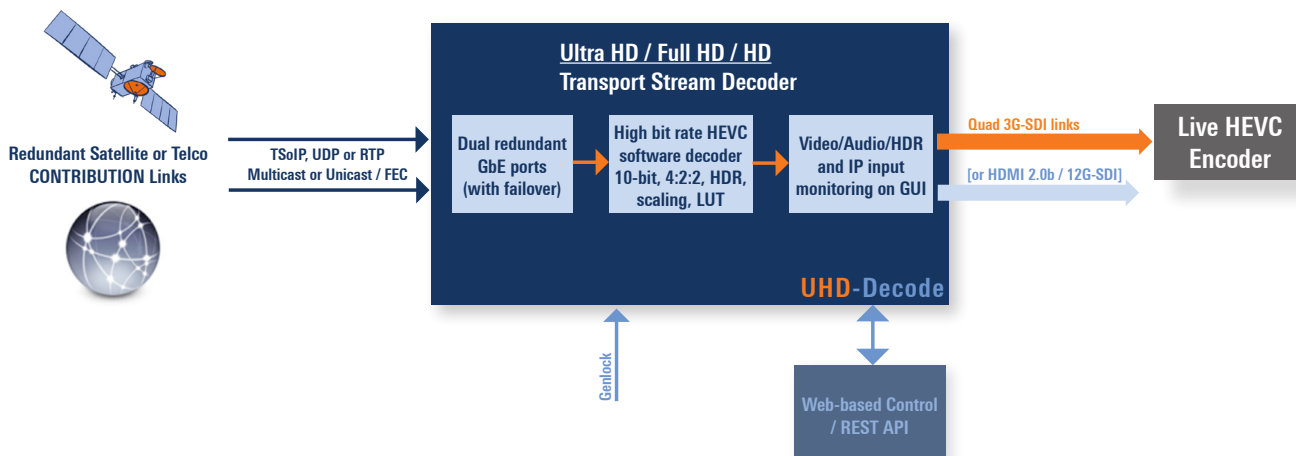


# UHD Solutions Decode - Ingest

## USE-CASE: Ultra HD Transport Stream DECODER

### ■ For Live and Linear Channels Contribution Decoding and Delivery Monitoring

- Ultra HD (3840 x 2160p) at 23.98, 24, 25, 29.97, 30, 50, 59.94, 60 fps. Full-HD (1080p) and HD (1080i / 720p) decoding
- HEVC / H.265, AVC / H.264, 8 or 10-bit, 4:2:0 or 4:2:2 Codec's / Dolby™ Digital, Digital+, AC-4 audio data stream pass-through
- Dual redundant TSoIP Multicast (UDP / RTP) inputs, up to 160 Mbps
- Quad 3G-SDI outputs, Level A and Level B, four quadrants or 2-SI pixels and/or 12G-SDI + HDMI 2.0b outputs[hardware option]
- HDR compliant: HDR10-PQ and HLG, with signalization metadata pass-through.
- 3D LUT's for HDR to SDR/1080p down-conversions or cross-conversions
- Output video resolution independant of TS input video resolution; selectable down-scale and up-scale processing



### ORDERING INFORMATION and OPTIONS

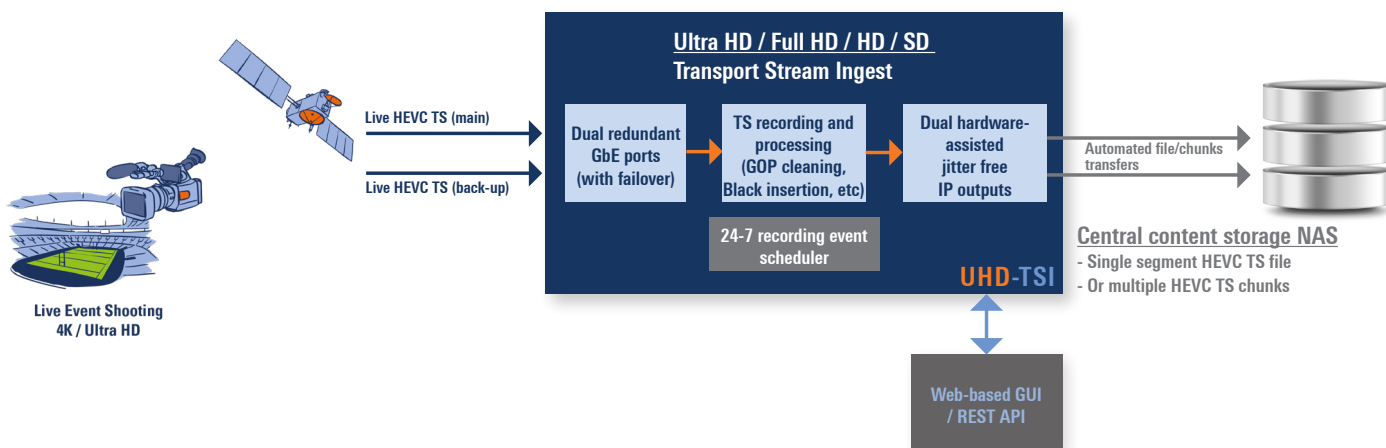
- Part number: **UHD-Decode**
- Options: **12G-SDI + HDMI 2.0b outputs**  
**Dolby™ Digital and Dolby™ Digital+ decoding**



## USE-CASE: Ultra HD Transport Stream INGEST

### ■ For any resolution and High Bit Rate transport stream Live Contribution Recording

- Ultra HD (3840 x 2160p) at 23.98, 24, 25, 29.97, 30, 50, 59.94, 60 fps, and Full-HD / HD / SD transport stream recording
- Dual redundant TSoIP Multicast (UDP or RTP) inputs, with IGMPv3 SSM and FEC CoP3, up to 130 Mbps
- Live stream input monitoring; video thumbnails and audio meters
- Codec agnostic and HDR compliant: HDR10-PQ and HLG
- 24 -7 recording event scheduler on GUI, with manual Start and Stop takeover
- Automated recorded file transfer to central storage (NFS or CIFS protocols)



### ORDERING INFORMATION and OPTIONS

- Part number: **UHD-TSI** (3 TB storage)

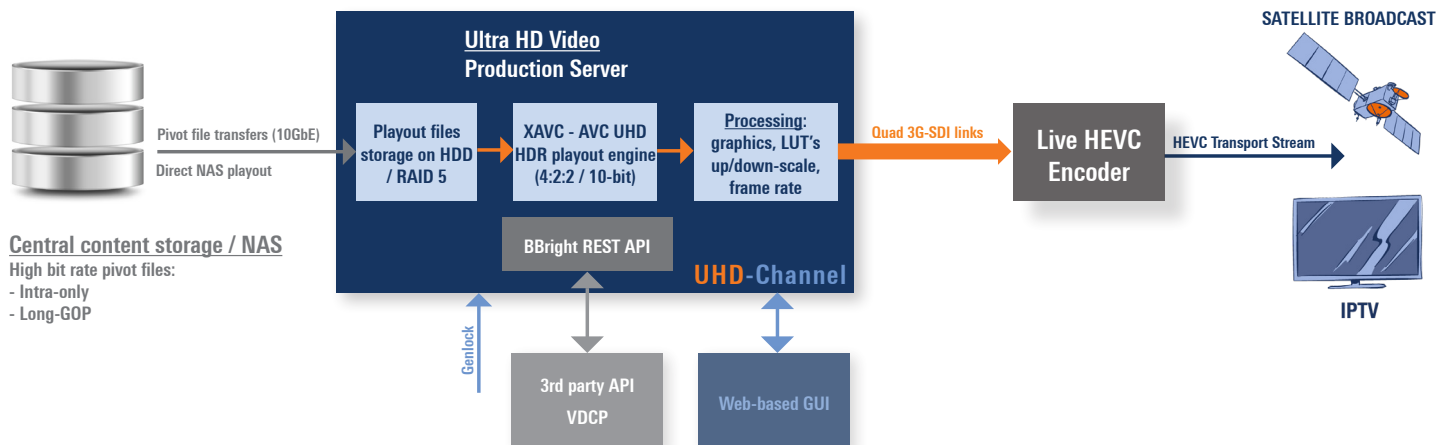


# UHD Solutions Live Playback - TS Payout

## USE-CASE: Ultra HD LIVE SDI - Baseband PLAYOUT

### Video Production Server for UHD Content Loop or driven by an External Automation

- Ultra HD (3840 x 2160p) or full-HD (1920 x 1080p) processing / 720p and 1080p resolutions up-scale to UHD
- Frame rates: 23.98, 24, 25, 29.97, 30, 50, 59.94, 60 fps (allowing frame rate conversions on multiples)
- XAVC-I (.mxf), AVC - H.264 (.mp4) pivot file formats. HDR10 (PQ) and HLG support and signalization (SMPT-352, SMPT-2108)
- 10 GbE ports, Ethernet or SFP, for faster than real-time large UHD file ingest / Direct playback from NAS - remote storage
- Separate subtitle file support (.stl / .srt) / SCTE-104 marker insertions
- Multiple logo insertions, managed as secondary events [option]
- Straightforward interfacing with external automation, either with VDCP - RS 422 [option] or with REST API



**Central content storage / NAS**  
High bit rate pivot files:  
- Intra-only  
- Long-GOP

## ORDERING INFORMATION and OPTIONS

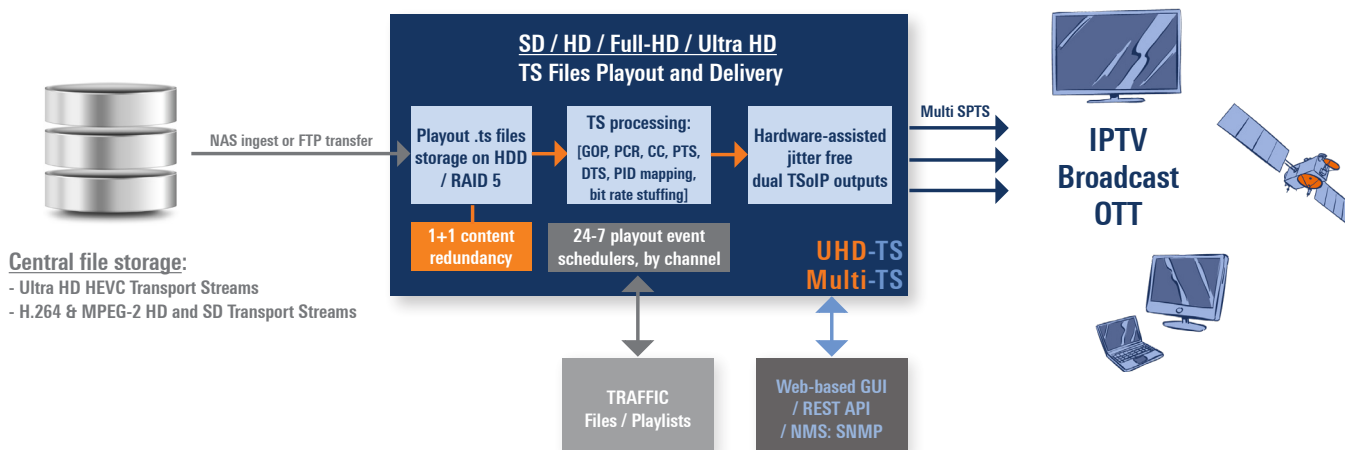
- Part number: **UHD-Channel** (6 TB storage)
- Options: **Still Graphics Insertions**  
**VDCP card / Dual SFP 10 Gbps card**



## USE-CASE: Multiple Channel Transport Stream PLAYOUT

### For any resolution Linear Channels with looping playlist or integrated Playout Scheduler and Automation

- Ultra HD (3840 x 2160p) at 23.98, 24, 25, 29.97, 30, 50, 59.94, 60 fps, and Full-HD / HD / SD / PIP / Slave channel streaming
- HEVC / H.265, AVC / H.264 and MPEG-2 low-jitter TSolP Multicast (UDP or RTP), with FEC CoP3
- Raw TS, or PID remapping, bit rate stuffing, PCR and Continuity Counter alignment, PTS/DTS re-stamping, GOP cleaning
- HDR compliant: HDR10-PQ and HLG
- Advanced 24 - 7 playout event scheduler on GUI or external traffic playlist import in json, xml, text formats [option]
- Automatic video content replication between Main and Back-up units (1+1 redundancy)

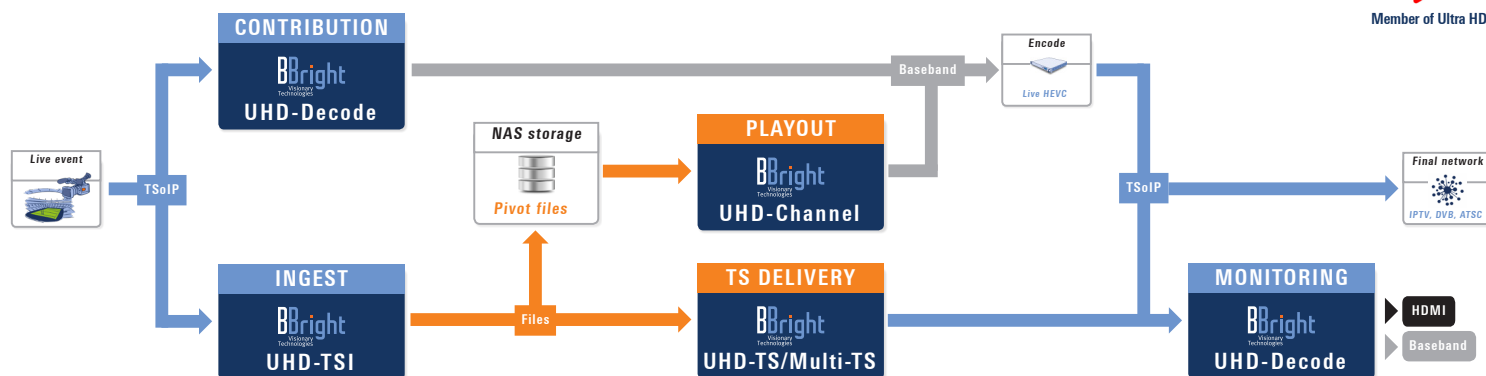


**Central file storage:**  
- Ultra HD HEVC Transport Streams  
- H.264 & MPEG-2 HD and SD Transport Streams

## ORDERING INFORMATION and OPTIONS

- Part number: **UHD-TS** (3 TB storage)  
**Multi-TS** (3 TB or 6 TB storage)
- Software option: **Integrated playout scheduler and automation**





## HFR and 8K Upgrade Paths

■ **High Frame Rate:** Multi-TS, UHD-TSI, UHD-TS are software upgradeable to HFR (100/119.88/120 fps)

■ **8K / UHD Phase 2:** UHD-TS, UHD-TSI servers are software upgradeable to 8K video resolution

*Please contact sales for more information*

## UHD Solutions Tests - Labs

### UHD-Play, Mini-TS, UHD-QC: Versatile Lab Products for Ultra HD Test, PoC and File Control

■ **UHD-Play** is the legacy market reference Ultra HD SDR/HDR and HFR source from BBright with quad 3G-SDI outputs and allowing to playback fully uncompressed video content. It supports all advanced features such as:

- Accept **any resolution, uncompressed or compressed file** for playback output as 2160p, 1080p, 1080i, 1080psf, 720p
- **1080p HFR** at 100, 119.88, 120, 200, 239.76, 240fps
- PQ and HLG **HDR signalization over 3G-SDI; SMPTE-352 and SMPTE-2108**
- Optional 'State-of-the-Art' **SDR to HDR up-conversion algorithm**
- All Dolby™ audio data stream pass-through; Dolby Digital, Digital+, **Dolby E, Dolby AC-4**
- **MPEG-H** audio playback; full display of dynamic Control Track metadata

■ **UHD-QC** is the newest BBright Ultra HD SDR / HDR versatile player for manual quality control with quad 3G-SDI, 12G-SDI and HDMI outputs allowing to playback with full flexibility HEVC, AVC, MPEG-2 transport streams or ProRes, XAVC from NLE or VoD files.

- Advanced playback controls: **Skip / Fast-Forward / Fast-Rewind / Pause / Frame-by-Frame / Cue In** and **Cue Out** points
- Dolby™ audio data stream pass-through; Dolby Digital, Digital+, Dolby Atmos
- PQ and HLG **HDR signalization over 3G/12G-SDI and HDMI 2.0b**

■ **Mini-TS** is a lightweight, fanless and portable / lab version of BBright Multi-TS allowing to stream 3x Ultra HD channels over IP (individual SPTS Multicast / UDP per channel). This constitutes an ideal source to test IP STB, professional decoders and also exercise an entire TSolP delivery chain.

- **Extensive Transport Stream reprocessing** for CC, PCR, video and audio PTS / DTS, PID remapping
- No video decoding/re-encoding to preserve the original encoded TS file quality
- **Slave channel can be synchronized** with another Main playout channel
- Optional embedded scheduler and playout event automation (using .txt, .json, .xml traffic files)



March 2019, rev. 1.60. Product specifications are subject to changes without notice and are not contractual