

# TotalMedia

## Live Transcoding Solution

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TotalMedia Live is a real-time transcoding and streaming solution serving a wide range of clients including TV Stations, IPTV providers, OTT platforms, Cable Networks, Telecom operators, ISPs, and Enterprise. It supports a wide range of video codecs including MPEG 2, H.264, H.265, as well as SMPTE-2110 and NDI signals as inputs, enabling transcoding of SD, HD, 4K, and even 8K. It seamlessly delivers output formats such as TS Over UDP, HLS, RTMP, RTP, SRT, NDI and broadcasts content to various terminals including Set Top Boxes, Smart TVs, Computers, Tablets, Mobile Phones and Outdoor Screens.

It also incorporates AI-powered video quality enhancement features such as super resolution, frame interpolation, fog removal, and SDR/HDR conversion. It also provides pre-processing capabilities for tasks like block removal, noise removal, and color tuning, delivering a one-stop solution for live broadcasting needs.

### Core advantages

#### Time Proven

Every day, more than 20,000 live broadcasting powered by TotalMedia are in operation, multi-screen live signals delivered on various platforms, serving more than 400 million home and mobile users.

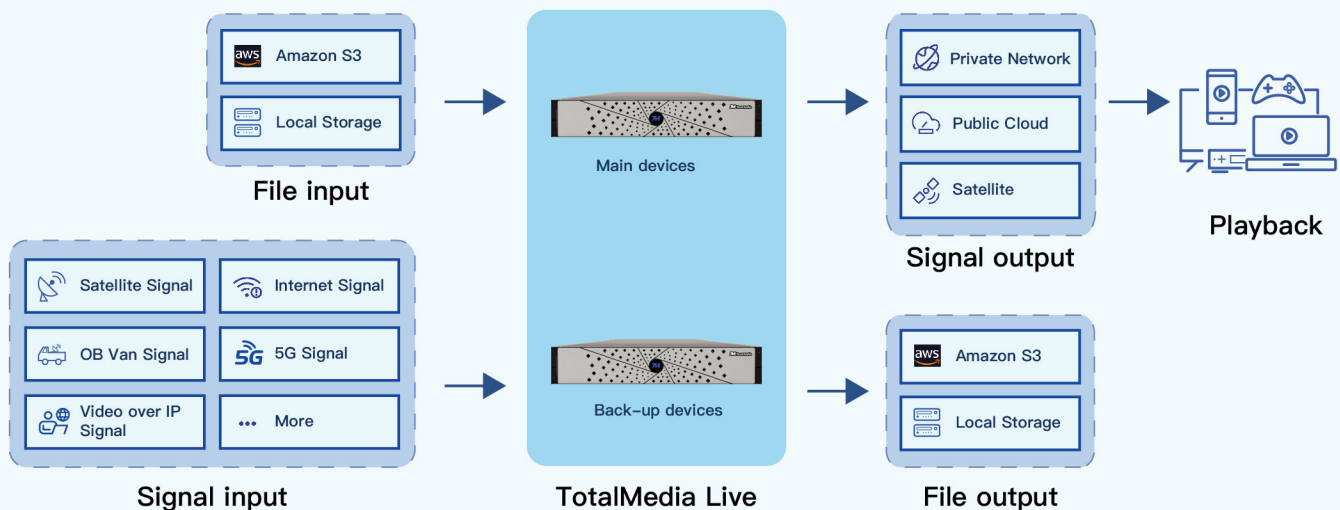
#### Flexible Deployment

Software defined solution enables the flexible deployment on both on-premise server and cloud. GPU acceleration enables higher video pipeline performance and introduces AI capabilities, and balances between performance and density.

#### AI Strengthen

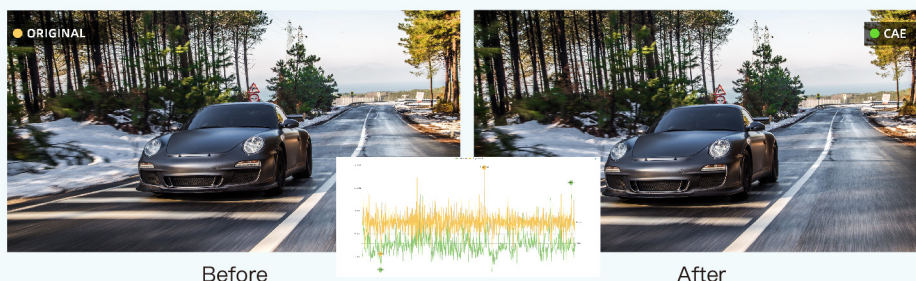
Traditional video quality enhancement benefits from new AI algorithms, improve frame interpolation, super resolution, color enhancement, SDR/HDR conversion to higher level.

### Workflow Diagram



### AI enhanced encoding

Content adaptive encoding combines with deep learning enhanced rate control, mode decision benchmarked with perceptual quality metric, could gain over 20% bandwidth savings with similar perceptual quality, comparing to traditional encoding frameworks.

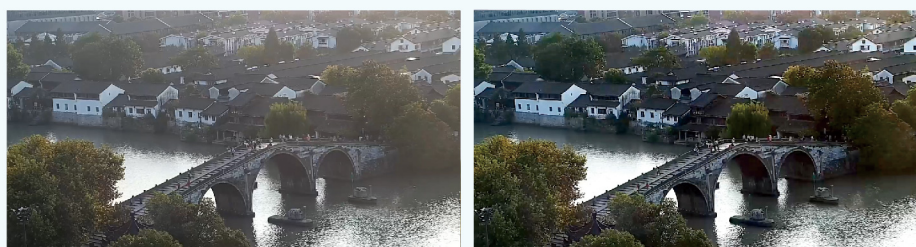


Before

After

### AI picture clarity enhancement

Improved traditional picture quality algorithms with deep learning, support de-noise, de-blocking, picture sharpness and even fog removal, bring better visual quality.



Before

After

### AI frame interpolation

The video frame interpolation based on deep learning can achieve frame rate up-conversion from 25P to 50P, 25P to 30P, and 24 P to 25P, providing a smoother video viewing experience



Before

After

### Multi-level live broadcast stability guarantee

From equipment level, signal level, system level to management level, it provides multi-level live broadcasting security, serving more than 60 Television and Telecom Operators.

### UHD and HDR technology

Serve major 4K and 8K channels and events broadcasting, support mainstream UHD Codec, BT.2020 wide color gamut, 10 bit, 120 frames, HDR10, HLG10, SL-HDR1, SL-HDR2, Dolby Vision, and also support 3D LUT colorblending, compatible for major live broadcasting scenarios.

### Advanced audio processing

Support mainstream audio Codec and 3D surrounding sound formats.

### Multi-interface acquisition

Support 3G/12G SDI, ASI, HDMI, CVBS, AES acquisition, and lossless SDI over IP, including SMPTE ST2110 and ST 2022-6 formats, support ST 2022-7 redundancy solution, seamlessly integrate into Studio, OB Van, for their IP transformation.

### Live CG

For interactive live broadcasting services, it provides one-stop live CG function, supports composition and on/off control of static/dynamic label, and dynamic text, and can preview the modified broadcast effect in real time.



### Interface and Protocol

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#### input:

UDP, RTP, HTTP, RTMP, RTSP, ZIXI, SRT,  
NDI, SMPTE ST2110,  
SDI, AES/CVBS/HDMI/ASI(Optional)

#### output:

UDP, RTP, HTTP, RTMP, SRT, DASH, CMAF,  
MSS, NDI, SMPTE ST2110,  
SDI, ASI(Optional)

### Video processing

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#### Video Codecs:

AVC(H.264), HEVC(H.265), MPEG-2 (MPEG-1 Layer II ),  
VCC(H.266), JPEG-XS, H.263, Passthrough,  
Adaptive Quantization, CBR/VBR/ABR, PAFF/MBAFF

#### Video processing:

- Video inserting
- Image inserting
- Dynamic text inserting
- Mosaic Overlay
- Video/Audio Delay
- Deinterlace
- Brightness
- Contrast
- Saturation
- Hue Adjustment
- De-blocking
- De-noising
- Anti-aliasing
- Watermaking
- Color correction
- Rec.2020 Color
- HDR format conversion
- Variable GOP Support
- AI super-resolution
- AI frame interpolation

#### HDR:

HDR10, HLG10, SL-HDR1, SL-HDR2,  
Dolby Vision(Profile 5/profile 8.1/profile 8.4)

### Audio processing

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#### Audio Codecs:

AAC(Advanced Audio Codec), Dolby Digital(AC3),  
Dolby Digital Plus(E-AC3),  
Dolby Digital Plus JOC(Atmos),  
MP2(MPEG-1 Layer II), MP3(MPEG-1 Layer 3),  
MPEG-H, Passthrough

#### Audio processing:

Volume Gain Adjustment  
Audio Enhancement(Channels Copy/Mixing/De-Noise etc.)  
Audio Filling  
Multiple Audio Tracks  
Audio Only Encoding

### DRM

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- Microsoft PlayReady
- Google Widevine
- Apple FairPlay

### Captions

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#### In

- DVB-sub
- Teletext

#### Out:

- TTML
- WebVTT

### Configuration and management

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- Equipment redundancy (1 + 1, N + 1, N + M)
- API interface support
- SNMP
- Cluster unified control
- Task management
- Channel management
- Parameter template
- IPv4/IPv6 network
- Routing configuration
- Sound alarm
- Clock synchronization
- System monitoring
- System log
- System alarm
- System safety
- Authorization management
- IP delay
- Batch process
- Emergency switch
- The Web graphical interface
- PTP for ST 2059-2
- NMOS