

# TotalMedia

## File Transcoding solution

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TotalMedia File transcoding solution offers robust performance and leverages AI-enhanced video processing capabilities. With GPU acceleration, it delivers high-speed transcoding, supports a wide range of file formats, reduces video bandwidth and enables automatic batch transcoding. The solution incorporates advanced deep learning video enhancement algorithms, including super resolution, intelligent frame interpolation, frame rate conversion, video quality enhancement, HDR conversion and video restoration, enhancing the overall video transcoding quality and production efficiency.

Utilizing intelligent video file slicing based on the cluster configuration, the transcoding and processing tasks are executed concurrently, resulting in completed hours of video content within minutes.

## Core advantages

### Multi-format support

Support delivery format like AVC/H.264, HEVC/H.265, MPEG-2, and also XAVC, ProRes and other popular non-linear editing formats to improve the efficiency of various services.

### AI Improved quality

AI based algorithms to improve the video resolution, frame rate and picture quality, enhance the overall visual experience.

### Flexible deployment methods

Support on premises server cluster deployment, and also virtual machine cluster deployment on cloud, with or without GPU acceleration to meet a variety of business needs.

## Workflow Diagram



### Details enhancement

With the AI improved super resolution, the SD resolution can be up-converted to HD resolution, and HD resolution to 4K resolution, improving the resolution and also enhancing the image details.

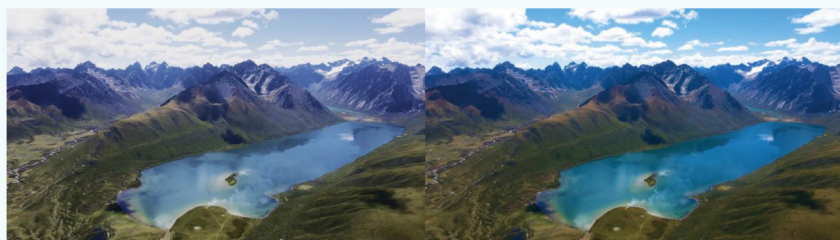


Before

After

### Color enhancement

With the quality improvement technology, the brightness, contrast and saturation of the original video can be adjusted intelligently to get more vivid color.



Before

After

### Frame interpolation

GAN based video frame interpolation refers to adjacent frames in video sequence which have similar spatial and time features, and generates intermediate frames while keeps the moving objects integrity, to ensure a more smooth playback especially for Sports content.



### Intelligent movie restoration

It's a combination of algorithms with film grain denoising, scratch removal, color bias correction, color enhancement and other technologies. It can intelligently identify the video defects such as film grain, mosquito noise, edge ring noise, block effect, fuzzy text, dull color, etc., and make the old video looks newer.



Before

After

### Content adaptive encoding

Intelligent encoding framework supported by deep learning, is adaptive to a variety of scenes, and re-allocates bits depending on different scene content and selects coding parameters. It ensures similar quality, while get the optimal bitrate and save the bandwidth.

### 4K/8K Ultra HD HDR technology

Leading in 4K/8K content deliver, supports mainstream UHD codec formats, BT.2020 wide color gamut, 10bit quantization, 60 fps of broadcasting level quality, support HLG, PQ and dynamic HDR formats, and support high quality conversion between HDR and SDR. Meanwhile, powered by Sim4K deep learning super resolution algorithm, low resolution sources can be improved to near UHD quality, greatly enriching 4K/8K contents.

### Intelligent resource scheduling

With real-time monitoring of equipment and system resources, through real-time analysis of CPU, Memory, GPU, Storage, Fan, combined with the current transcoding task and transcoding queue task priority, to ensure the maximum use of resources and the most efficient output.

### Multi-format support

It can support transcoding of both NLE and OTT formats, including support for MPEG 2, ProRes, DNxHD/D-NxHR, XAVC, DV formats, and support H.264, H.265, AV1 and AVS3 formats. In addition, it also supports the import of multiple camera recording formats, and the automatic title extraction from Blue-ray/DVD/AVCHD/P2 directory structure.

### Open interface

Support Restful API interface, can invoke and manage transcoding tasks through the easy to use interface, conveniently enable user's service.

# TotalMedia

## File Technical Specifications

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### Output support

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#### Video format:

MPEG2, H.263, MPEG4, AVC/H.264, HEVC/H.265, ProRes, DNxHD, DNxHR, XAVC

#### Audio format:

AAC-LC/AAC-HEV 1/AAC-HEV 2, MPEP-layer2, MPEG-layer 3, WMA, AMR, Vorbis, PCM, WAV, FLAC, DTS-HD, Dolby Digital (Optional), Dolby Digital Plus (Optional)

#### Container:

MP4, TS, PS, AVI, ASF, MOV, FLV, MKV, 3GP, MXF

#### Sectional output:

- Common Media Application Format (CMAF)
- Apple HTTP Adaptive Streaming (HLS)
- Dynamic Adaptive Streaming over HTTP (MPEG-DASH)
- Microsoft Smooth Streaming (MSS)

#### Management

- Web based UI
- Transcoding task management
- Transcoding template management
- User management
- Operation log management
- REST API
- SNMP
- System monitoring

### Audio and video processing

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- Resolution Adjustment
- CBR,VBR,ABR,CQ and CRF
- MBAFF & PAFF
- Deinterlace
- Two-pass Encoding
- Variable GOP Support
- Scene Detection
- Time-lapse
- Video Cropping
- Rec.2020 Color
- HDR format Conversion
- Brightness,Contrast,Saturation & Hue Adjustment
- De-blocking
- De-noise
- Anti-aliasing
- De-haze
- Sharpen
- AI Super Resolution
- AI Frame Intepolation
- AI Color Enhancement
- Volume Gain Adjustment
- Audio Enhancement(Channels Copy/Mixing/\* De-noise etc.)

### Other functions

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- Automated scanning of the folders
- Plug-in subtitles
- Multi-video splicing
- Insert the static, dynamic pictures
- Generate pictures
- Dynamic text
- Support DRM
- Support watermark