



THU DO
Multimedia

Sigma Encoding On-Demand

SIGMA SOLUTION BY THU DO MULTIMEDIA

Sigma Encoding On-Demand

Allows you to achieve the highest possible quality at the lowest bit rates

Encoding technology

- GPU accelerated transcoding
- Full integration of x264 H.264 and x265 HEVC

- Deploy in almost any environment: on bare-metal servers, virtual environment, or the private/ public cloud.

KEY FEATURES

- Automated watch folder workflow
- Multi Ingest and Output target
- Pseudo-live from VOD transcoded file
- Support Multi-DRM configurations
- Support HLS, DASH (all versions)
- Automated quality control
- Intelligent scalability and load balancing and HA
- Management graphical user interface (GUI) for workflow and monitoring
- Complete application programming interface (API)



Providing Solutions Transcoding VOD

Automation workflow

*Advanced Processing for watch folder
Trigger*

- "Watch file VOD to transcode": automating the transcoding of video-on-demand (VOD) files as they are added to a designated watch folder.
- Continuously monitors the folder, applying transcoding rules to convert videos into various formats and resolutions, ensuring compatibility with different devices and network conditions, and enabling seamless playback.
- Extract or generate metadata to enhance cataloging and user experience.
- After transcoding, files are typically moved to a storage or content delivery network for distribution, and preparation for diverse playback scenarios.

High Availability

Offer a number of mechanisms that ensure high availability:

- Load balancing features Built-in 1+1 redundancy maintains the current job list even in the event of a Controller loss.
- Smart balancing for optimized resource usage

Per-Title Encoding

Video optimization technique

- Customizes encoding settings for each video, improving quality and reducing data usage by tailoring the settings to the content's complexity.
- Enhances the viewer experience and minimizes unnecessary data transmission, making it efficient for video streaming.

BENEFIT



Storage Save



Transmission Savings/
CDN Saving



Lower Buffering



Saving Encoding
Time



Improved Quality

Specifications

Input and Output

Input protocol	AWS s3, ftp, cifs, nfs, any protocol that can be mounted on Linux operating system
Input file types	A/V files: MPEG 2 TS (MPTS and SPTS), MPEG 2 PS (.ts, .mpg, .mpeg, ps, .vob), MPEG 4 (.mp4, .m4v, .f4v), MXF OP1-a, Quicktime (.mov, .mp4)
Input audio and video codecs (decode)	Video: MPEG-2 SD/HD, MPEG-4/AVC (H.264) SD/HD, HEVC 8/10 bits SD/HD/UHD (H.265), IMX, XDCAM (HD & EX), HDV, DV, XAVC, AVC-Intra, ProRes, DVCPro HD SD/HD, JPEG2000, v210 HDR Ingest: PQ10, HDR10, HLG10, HLG10 backward compatible Audio: MPEG 1 Layer II, AC3, E-AC3, AAC, HE AAC and HE ACC v2
Output file format	MPEG 4 and Flash (.mp4) MPEG 2 TS (.ts)

Pre-Processing

File processing	Progressive ingest, partial file processing
Aspect ratio	WSS; AFD; Video Index
Metadata and VBI	IA 608/708 Closed Caption; DVB Subtitling, Teletext
Enhancement filters	Video: De-interlacing, cropping, letter boxing, stretching, 3:2 pull down, 6:4 pull down Audio: Loudness Control, audio gain adjustment, mute

Video Encoding

	H.264	HEVC	MPEG-2
Video encoding	Baseline/Main/High to HD resolutions 3 encoding presets (ultra-fast, fast, high quality)	8/10 bits to UHD resolutions 3 encoding presets (ultra-fast, fast, high quality)	MPEG-2 Main to HD resolutions 2 encoding presets (high quality, fast)
Rate control	CBR/VBR multi-bitrate with GOP alignment for adaptive bitrate formats	CBR/VBR multi-bitrate with GOP alignment for adaptive bitrate formats	CBR multi-bitrate with GOP alignment for adaptive bitrate formats
Data rate	From 20 kbps to 50 Mbps	From 128 kbps to 120 Mbps	From 256 kbps to 40 Mbps
Resolutions	Ranging from 80x64 to 1920x1080 (1080p) From 50/60 fps to sub-framerate Custom resolutions	Ranging from 80x64 to 4096x2160 From 50/60 fps to sub-framerate Custom resolutions	Ranging from 96x96 to 1920x1080 (1080p)
Multi-stream output	Multi-profile output including mix of H.264 and HEVC, interlace and progressive encodings		

Specifications

Audio Encoding

Audio channels per service	As per licensed authorizations
Audio encoding	MPEG-4/MPEG-2 AAC, HE-AAC v1 and v2, MPEG-1 Layer II, MPEG-2 Layer II Dolby Digital (AC-3), Dolby Digital Plus (E-AC3) 5.1-ch or stereo
Pass-through	MPEG-1 Layer II, MPEG-2 Layer II, Dolby Digital (AC-3), Dolby Digital Plus (E-AC3) 5.1-ch or stereo, Dolby Atmos
Data rate	From 32 kbps to 384 kbps

Post Processing

HDR	PQ10, HDR10, HLG10, HLG10 backward compatible, passthrough and conversions supported Tone mapping (HDR to SDR) and Inverse tone mapping (SDR to HDR)
Subtitle	EIA 608/708 closed caption, DVB Subtitling, Teletext
Metadata	SCTE-35 pass-through (in-band), SCTE-35 cue point creation (out-of-band)
Dynamic ad insertion	Dynamic ad insertion workflow support from CMS metadata provisioning: assets are conditioned for pre/mid/post roll and cue point metadata are inserted
Logo Insertion	Insert an image from the file (png, jpg)

Monitoring and Control

Access	Web UI, API, User profiles and rights management
Alarms	Web UI, SNMP Traps
Control	REST API: Job management, Service configuration, Statistics
Monitoring and logs	Encoding farm jobs monitoring, service jobs, job logs
Reports and stats	Encoding farm reports: Date range selection, token usage, jobs processed, encoded duration and volumes, Export data to CSV , Service stats
Reliability	High availability with Sigma load balancing (1+1 active - active) Save/Restore configuration

Specifications

Automated Workflow

Watch folder trigger	Ability to trigger is continuously monitored by the system for any new or updated video files.
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Deployment Models

Software only	Guaranteed performance on with top-end intel CPU
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Hosted Balancing

Load balancing is hosted on the encoder server	No additional load balancing servers required
Manage pools	Manage pools of encoders from SaaS Cloud-base portal

External Interfaces

Interface to Sigma On-Demand Encoding	REST API for CRUD job management
Interface to SaaS Cloud base(CMS)	REST API to SaaS cloud-base Sigma Media VOD

Encoding Configuration Management

Format type	JSON Create, download, remove pre-set
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Encoding Job Management

Encoding job distribution	Encoding job status notification by REST, Webhook , Partial encoding Interface with CMS
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