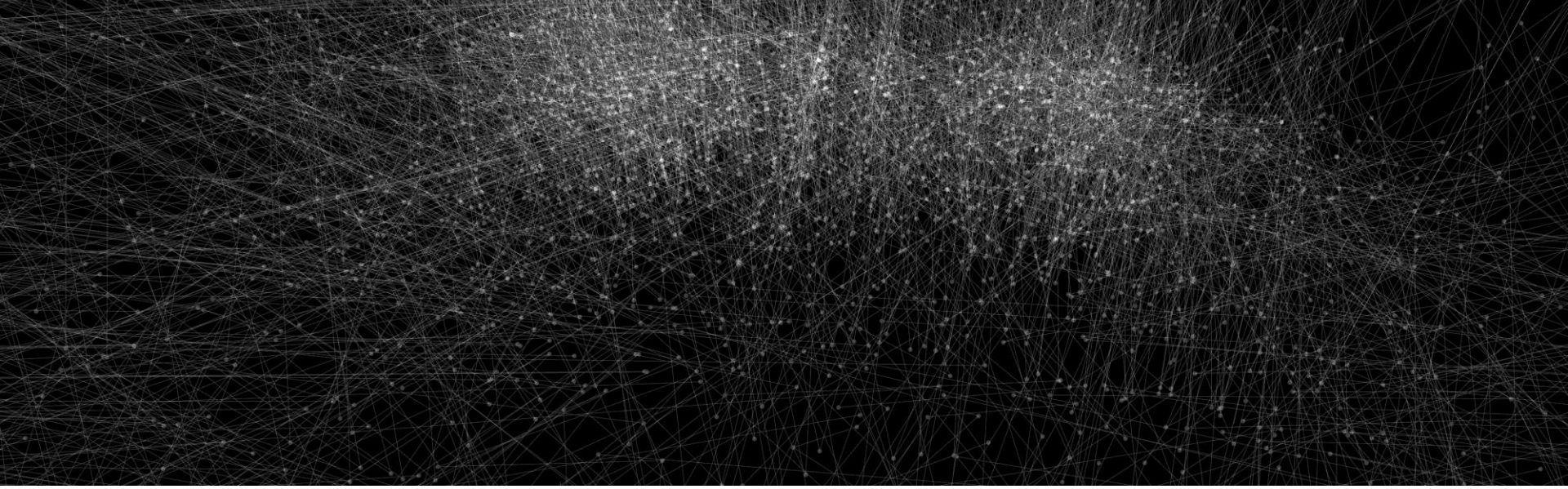


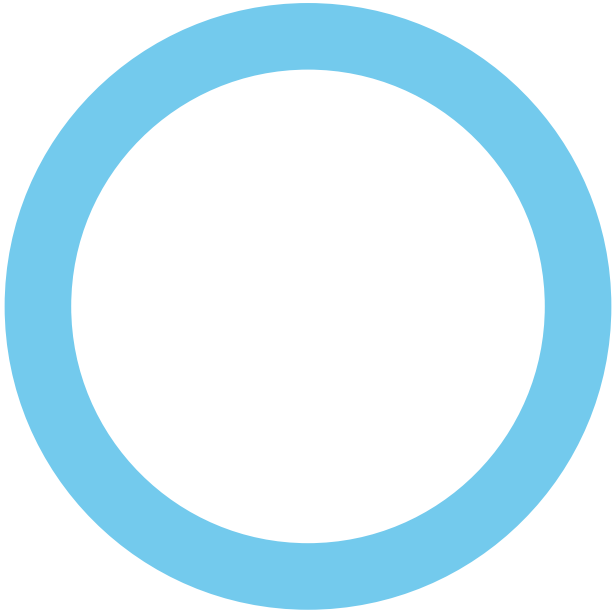
spin digital

HIGH PERFORMANCE VIDEO CODECS

Spin Digital Video Technologies GmbH

Specialists on video codecs

Spin-off of the Technical University of Berlin



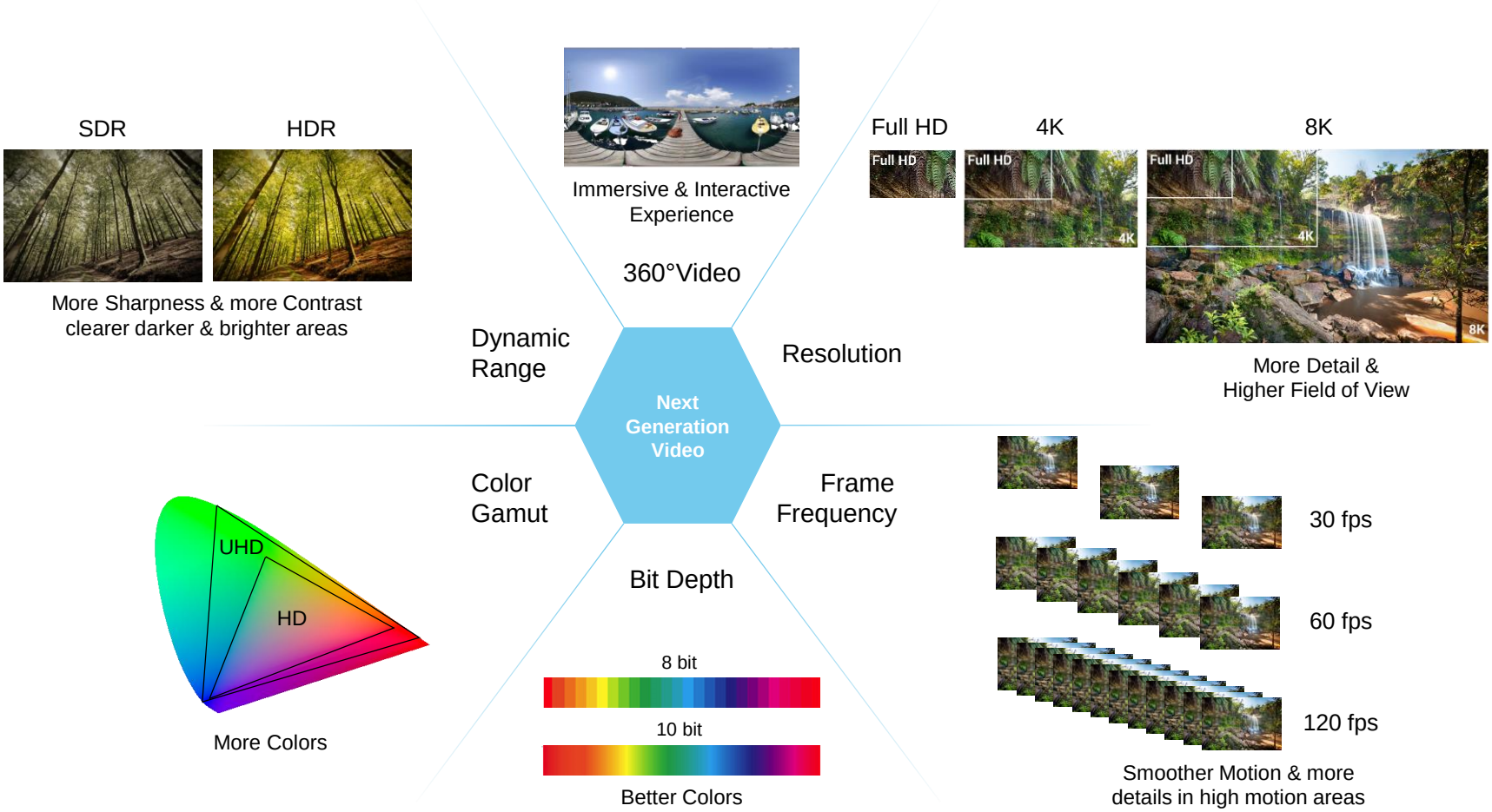
In-house developed software IP & products

Based in Germany

Innovative B2B company with decades of accumulative research experience

>80% of employees are video codec engineers

Next Generation Video

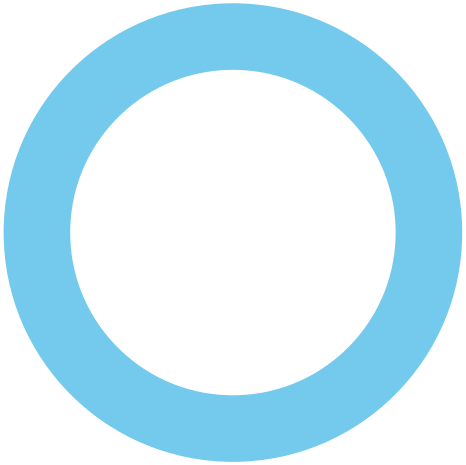


Technology & Market Trends

Broadcast & VoD

- UHD: 4K HDR started in 2017
- UHD Phase B - 4Kp120 (2018/2019)
- Japan 8K: already started test broadcast (2016), commercial broadcast (2018), full launch (2020 Tokyo Olympics)

EBU Ultra HD FORUM NHK Japan Broadcasting Corporation



Large Screen Display

- 8K is the next gen standard format for dome projection: Zeiss, SkyScan
- Giant videowalls and media servers: 7thSense, Stumpfl

ZEISS stumpfl 7th Sense

VR

- Next Gen VR needs at least 8K, 12K is emerging, and 16K has been proposed
- 4K & 8K VR cameras in the market
- 12K VR camera coming soon

ARRI JAUNT VR

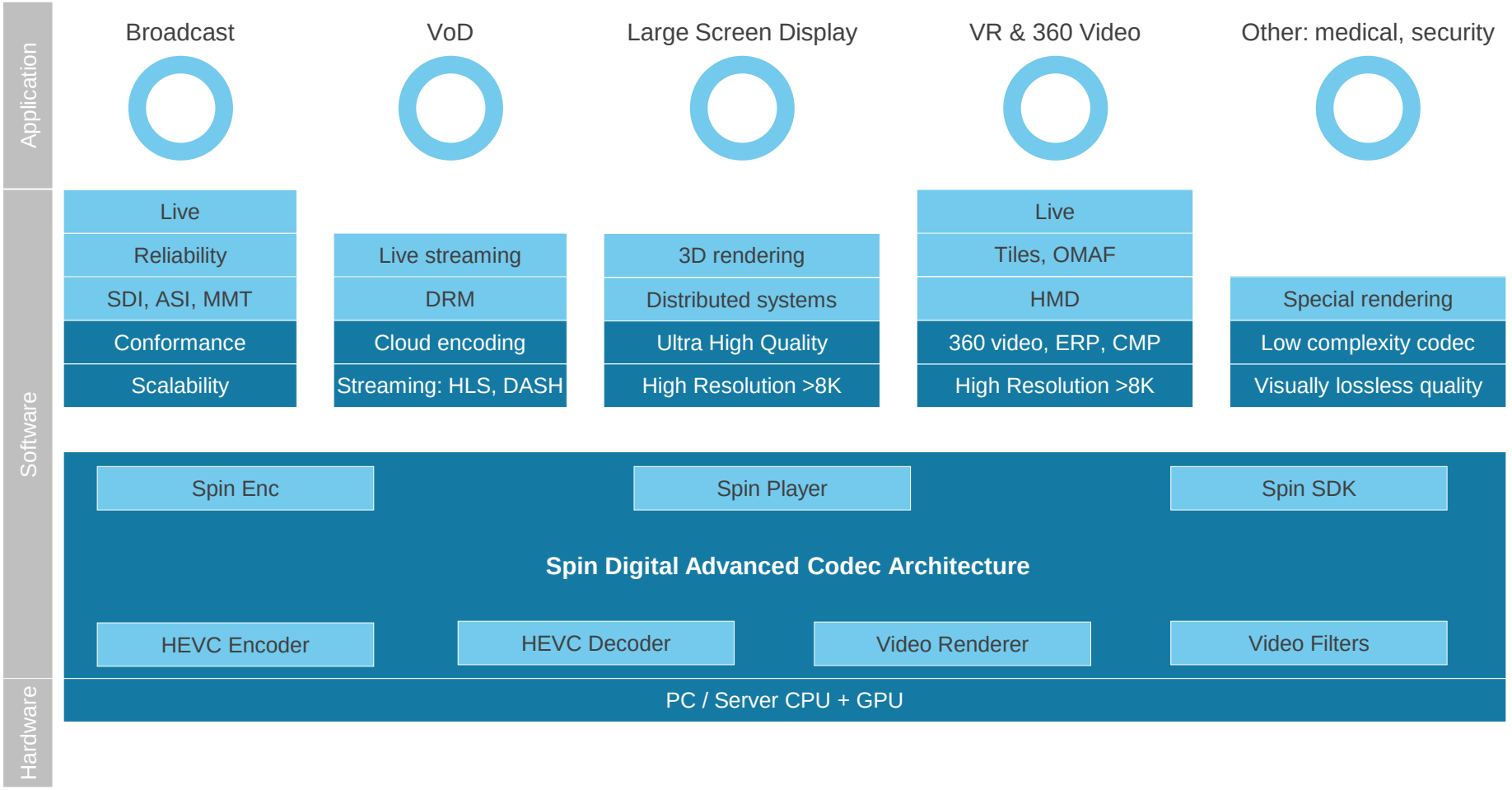
Post-Production

- Creative Studios
- Post-production tools

mistika VR

Product Development

Horizontal integration with vertical extensions to the core technology for each market segment

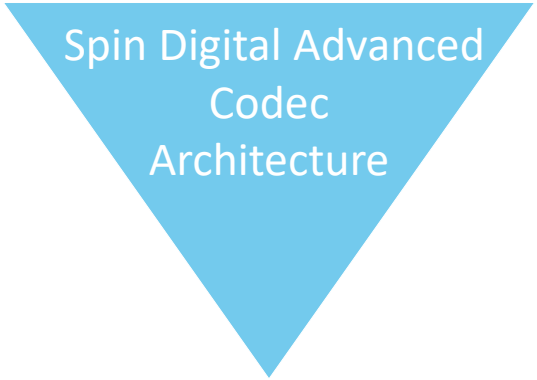


Core Innovation

Achieve maximum efficiency by combining expertise in all 3 areas, and years of advanced research
Very hard to replicate

Video Codec Technology

- Video codec experts
- Scientific contributions: several publications in the most prestigious journals
  - IEEE Transactions on Circuits and Systems for Video Technology
  - IEEE Transactions on Multimedia



Computer Architecture

- Media Computing Experts
- Multi-threading optimization
- Optimized SIMD library for modern CPU architectures
- Memory architecture optimization

Software Engineering

- Software Design Experts
- Very well designed software architecture
- Feature rich API
  - Easy to use
  - Powerful
  - Mid-level abstraction

Products

spin enc

spin player

spin sdk

Leading performance and compression efficiency encoder

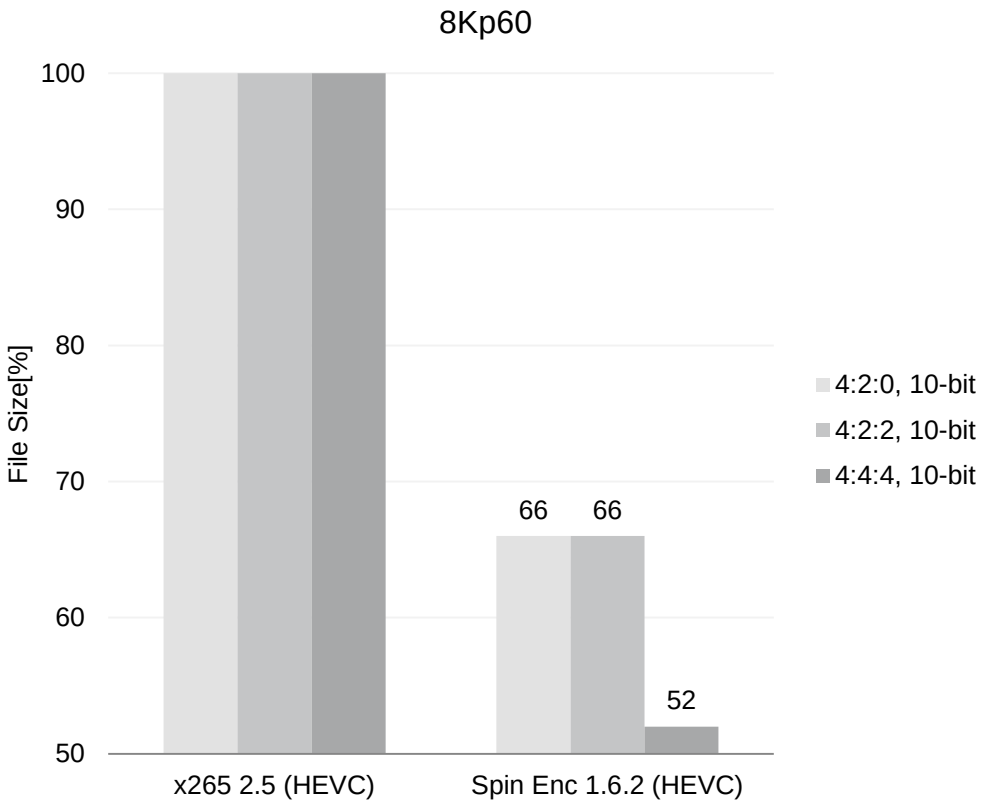
Full-featured media player for 4K, 8K, and 16K

High performance HEVC/H.265 decoder and video renderer SDK

spin enc

HEVC Encoder

Relative video file size for same objective quality and encoding speed



Download Brochure

Higher compression & quality than leading open source encoders

Support for 4K, 8K and 16K

Fast offline compression

Ready for HDR and WCG

Product Highlights

- Fast offline encoding software solution
- Ready for 8K and beyond
- Significantly better compression and quality than competing encoders
- Enables WCG and HDR with up to 12-bit video
- Support for HDR metadata
- Versatile high precision pre-processing filters
- Preserves color resolution with 4:2:2, 4:4:4, and RGB formats
- Support for 360° video projection formats

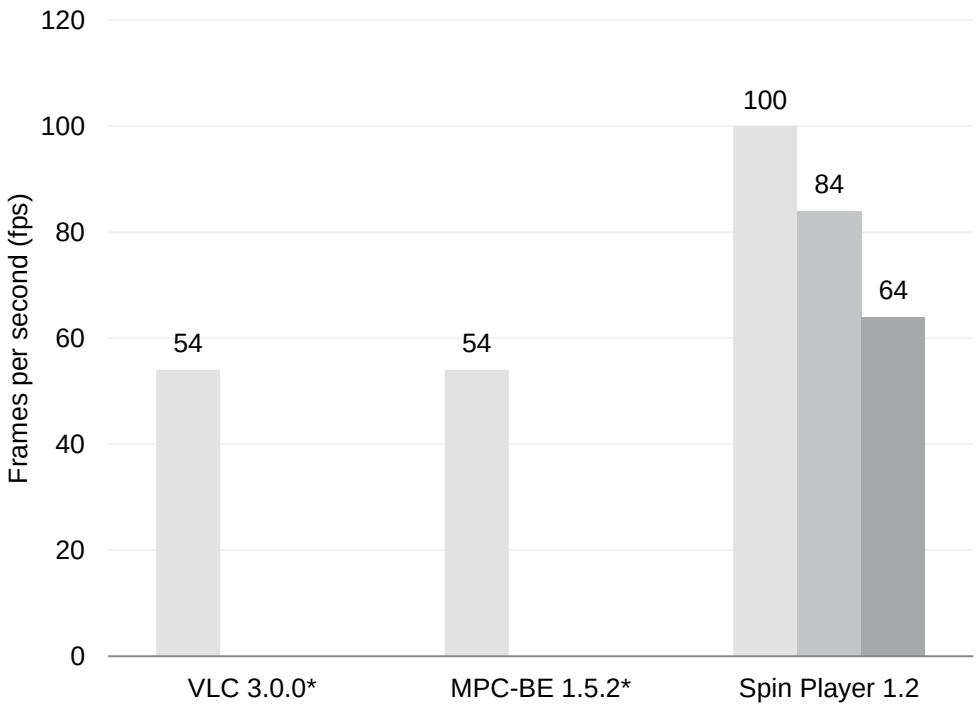
HEVC/H.265 Encoder Package

- Encoder: standalone HEVC/H.265 encoder
- Transcoder: HEVC/H.265 decoder and encoder integrated in FFmpeg
- SDK: encoder plugin for Ffmpeg (Libavcodec)

spin player

HEVC Media Player

Performance comparison of Media Players



CPU: Intel Core i9-7960X @ 2.80 GHz (16 cores)
GPU: NVIDIA GeForce GTX 1060 6GB
* GPU-based HEVC hardware decoder
OS: Windows 10, 64-bit
Video: Unigine Superpostion Benchmark 8K

Download Brochure

Media player for 4K, 8K, and 16K

Based on HEVC software solution

Product Highlights

- Pure software solution
- Ready for up to 16K playback
- Professional video formats: 4:2:2 and 4:4:4
- 10-bit, HDR, and WCG support
- Next generation audio: 22.2 surround sound
- 360° video playback
- Easy-to-use graphical user interface
- SDI and GPU rendering

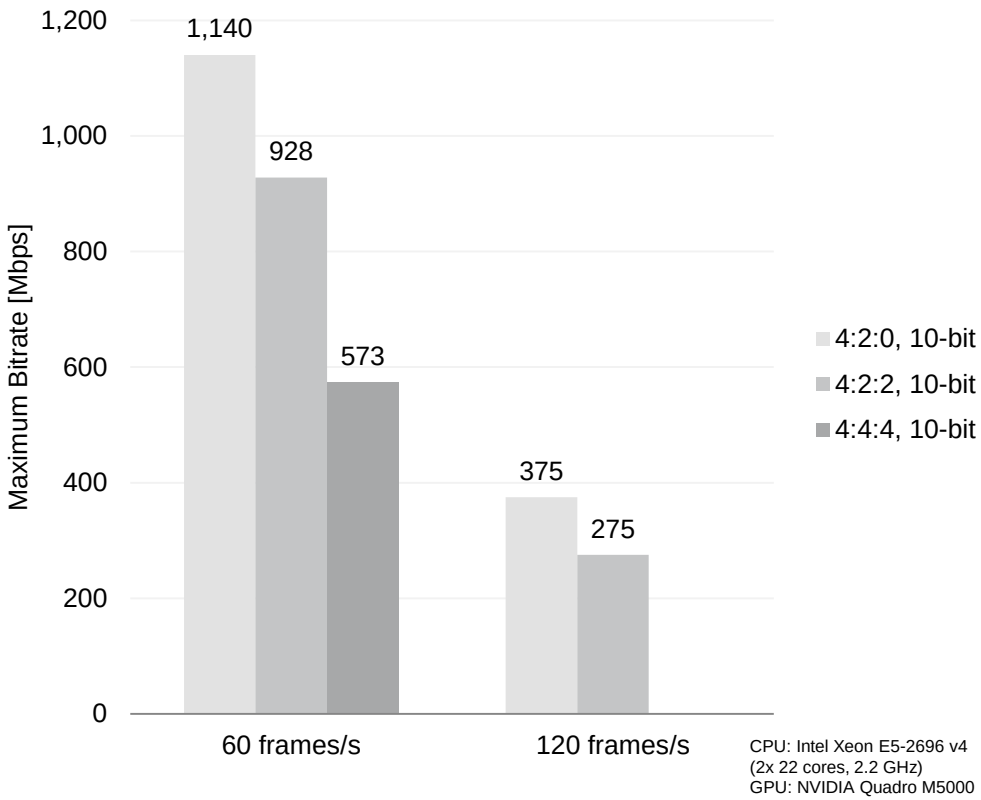
HEVC/H.265 Media Player Package

- Full-featured media player based on Media Player Classic BE
- Integrated Spin Digital HEVC/H.265 decoder
- Integrated Spin Digital DirectX 12 video render engine

spin sdk

HEVC Decoder & Renderer SDK

Maximum achievable bitrate for HEVC decoding and video rendering using state-of-the-art PC technologies



Download Brochure

Ultra high performance HEVC decoder

Next generation video rendering

Real-time 16Kp60 playback

Product Highlights

- Pure software solution
- Powerful and efficient API
- Unified API for Windows and Linux
- High quality video formats: 4:2:2, 4:4:4, up to 12-bit
- Real-time HEVC/H.265 decoding up to 16K
- 10-bit rendering and HDR support
- Flexible I/O with multiple GPU and SDI devices

HEVC/H.265 SDK Package

- C/C++ libraries
- API reference documentation (HTML, PDF)
- Application code examples
- Command line toolbox

Licensing

END USER

End User

- Free evaluation
- Single user
- Floating LAN

INTEGRATOR

Integrator

- SDK
- Royalty based

CLOUD

Cloud/Server

- Usage based
- Unit based

EU Projects: DDD60

High Quality VR for Film & TV Industry Professionals

- Duration: 18 months, Nov 2016 - June 2018
- Funding: European Commission - Horizon 2020
- Budget: 880.000 €
- www.ddd60.eu
- Partners:

Sheffield Doc Fest 9–14 June 2017

TAMPERE FILM FESTIVAL 8th TO 12th MARCH 2017

Sunny Side of the Doc

spin digital

MARCHÉ DU FILM FESTIVAL DE CANNES

reelport

EU Projects: Immersify

Audiovisual Technologies for Next Generation Immersive Media

- Duration: 30 months, Oct 2017 – March 2020
- Funding: European Commission - Horizon 2020
- Budget: 2.5 million €
- www.immersify.eu
- Partners:

PSNC

ARS ELECTRONICA FUTURELAB

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MARCHÉ DU FILM FESTIVAL DE CANNES

NORRKÖPING VISUALIZATION CENTER

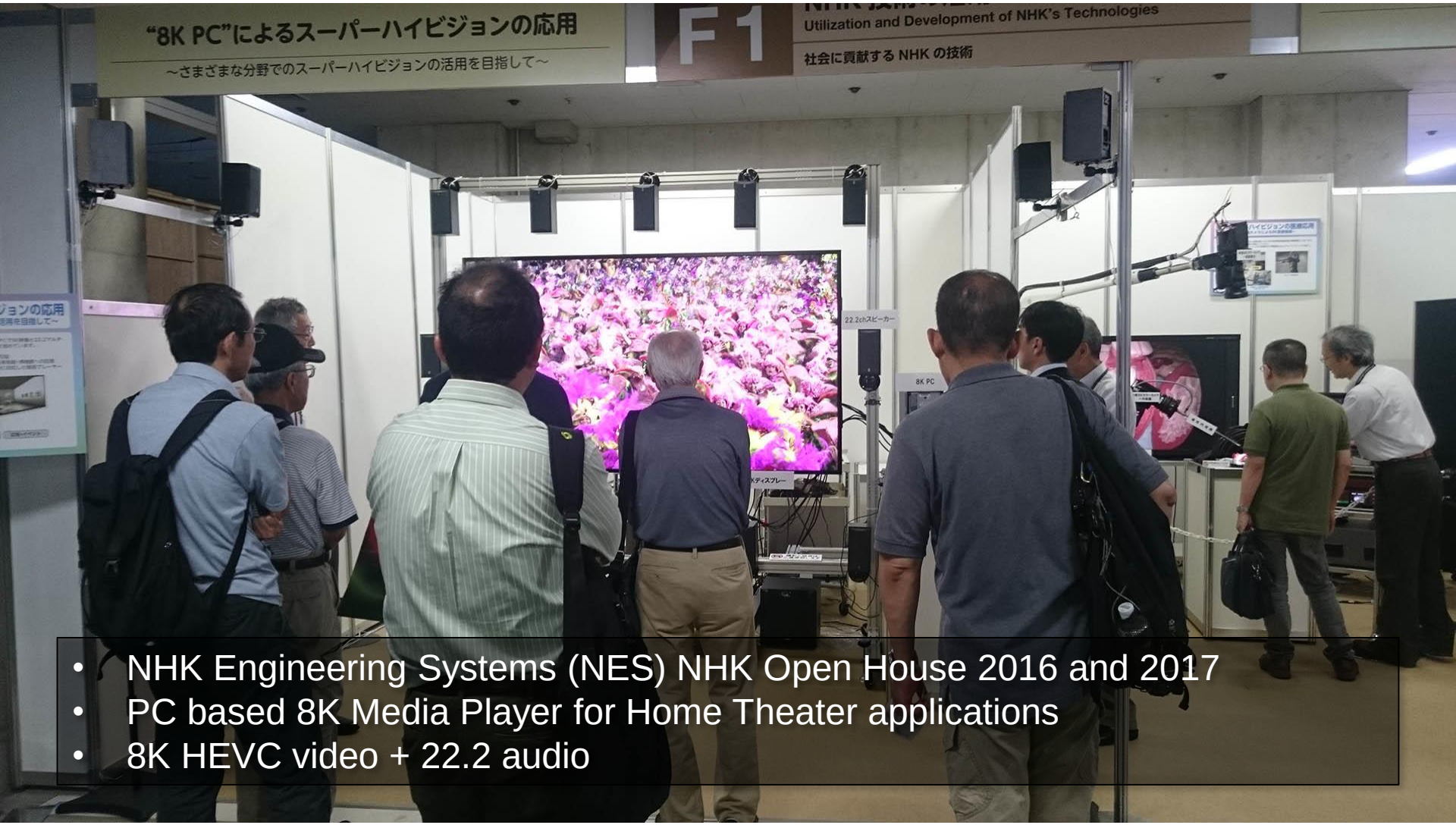
Deep Space 8K

- Ars Electronica (Linz, Austria) Deep Space 8K
- 8K HEVC SDK for immersive media players
- 8Kx16k projection surface
- Interactive applications

8K Player in 8K Video Walls

- PSNC (Poznan, Poland) 8K Media Laboratory
- 8K videowall (12 projectors, back-projection system, ~150 inches

PC-Based 8K Media Player: NES

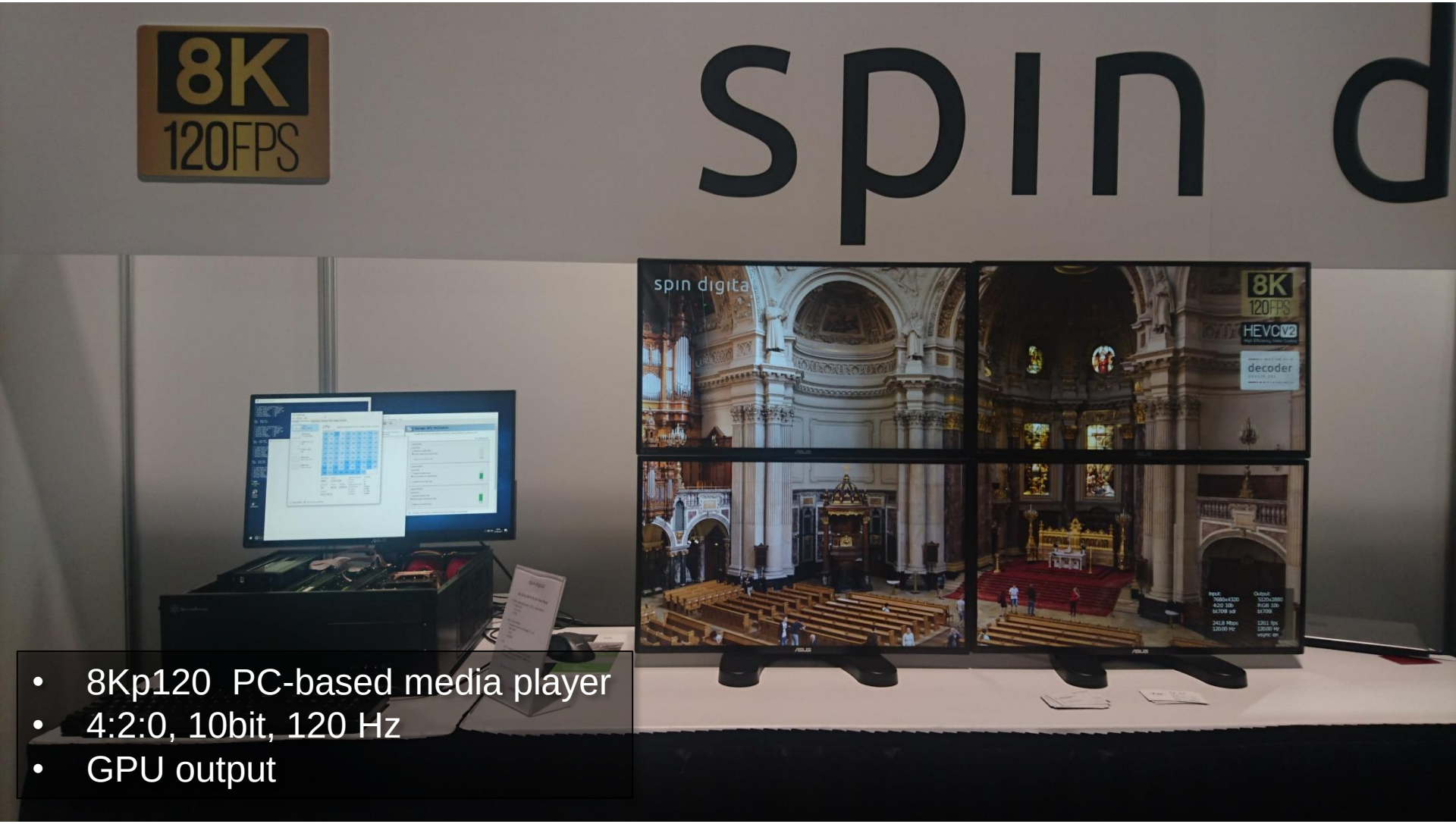


- NHK Engineering Systems (NES) NHK Open House 2016 and 2017
- PC based 8K Media Player for Home Theater applications
- 8K HEVC video + 22.2 audio

8K Media Player: Intel

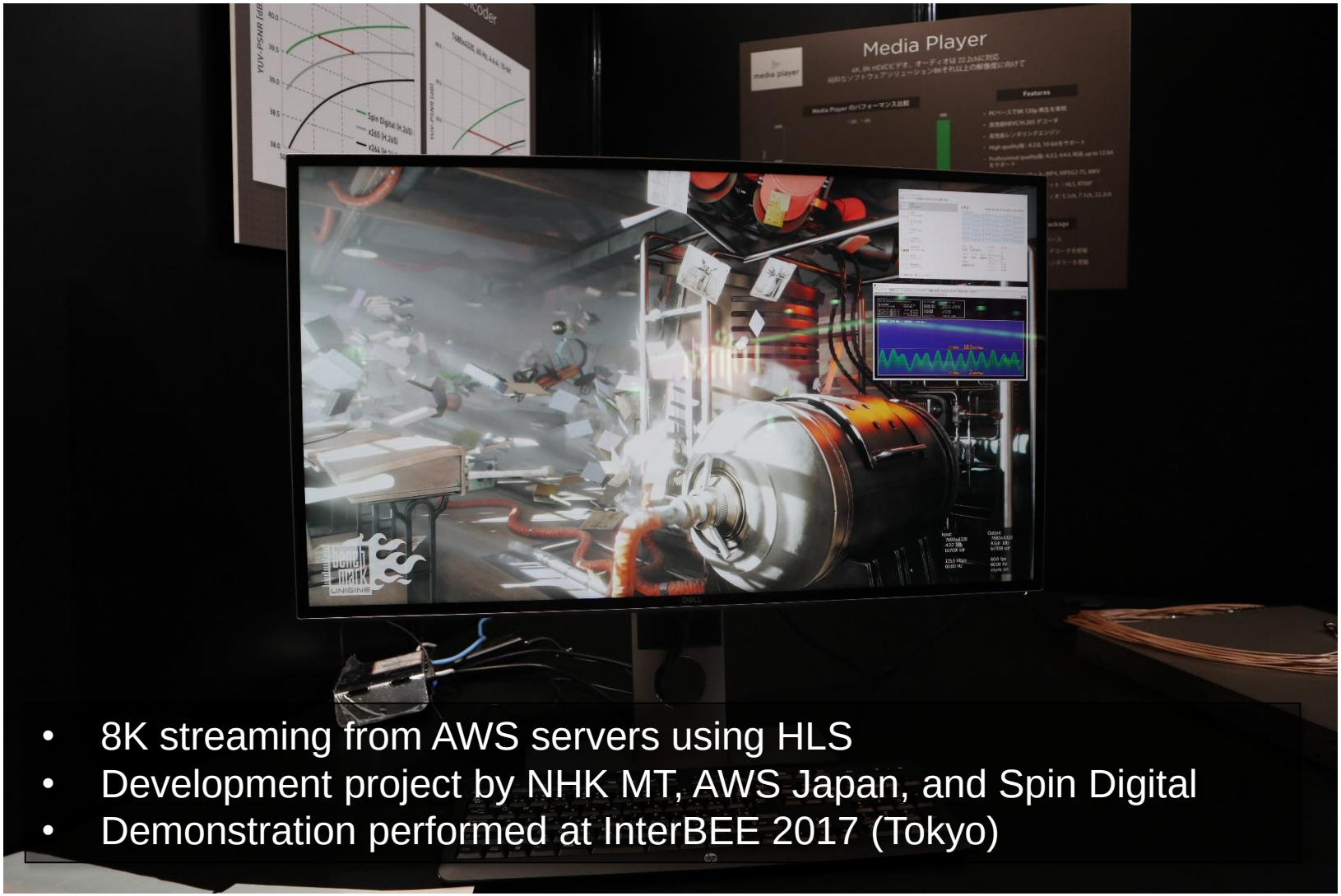
- Demonstrations at NAB and IBC
- 8K PC-based media player using Intel Xeon Processors

8K 120 fps High Frame Rate: NAB 2017

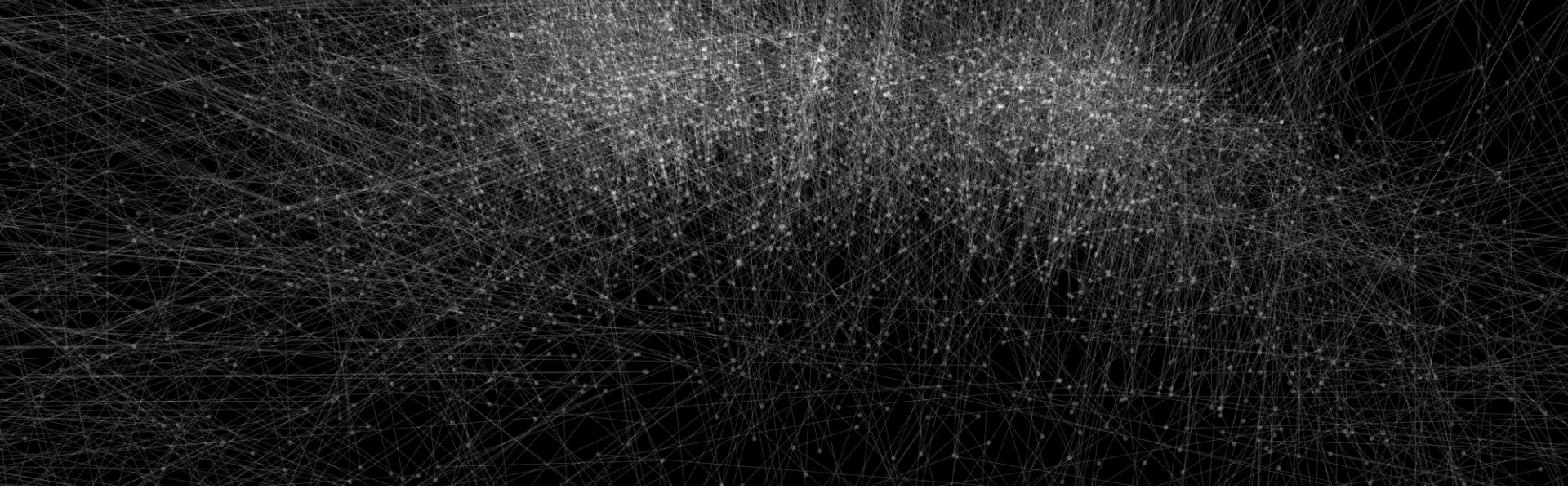


- 8Kp120 PC-based media player
- 4:2:0, 10bit, 120 Hz
- GPU output

8K Cloud Streaming: NHK MT



- 8K streaming from AWS servers using HLS
- Development project by NHK MT, AWS Japan, and Spin Digital
- Demonstration performed at InterBEE 2017 (Tokyo)



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HIGH PERFORMANCE VIDEO CODECS