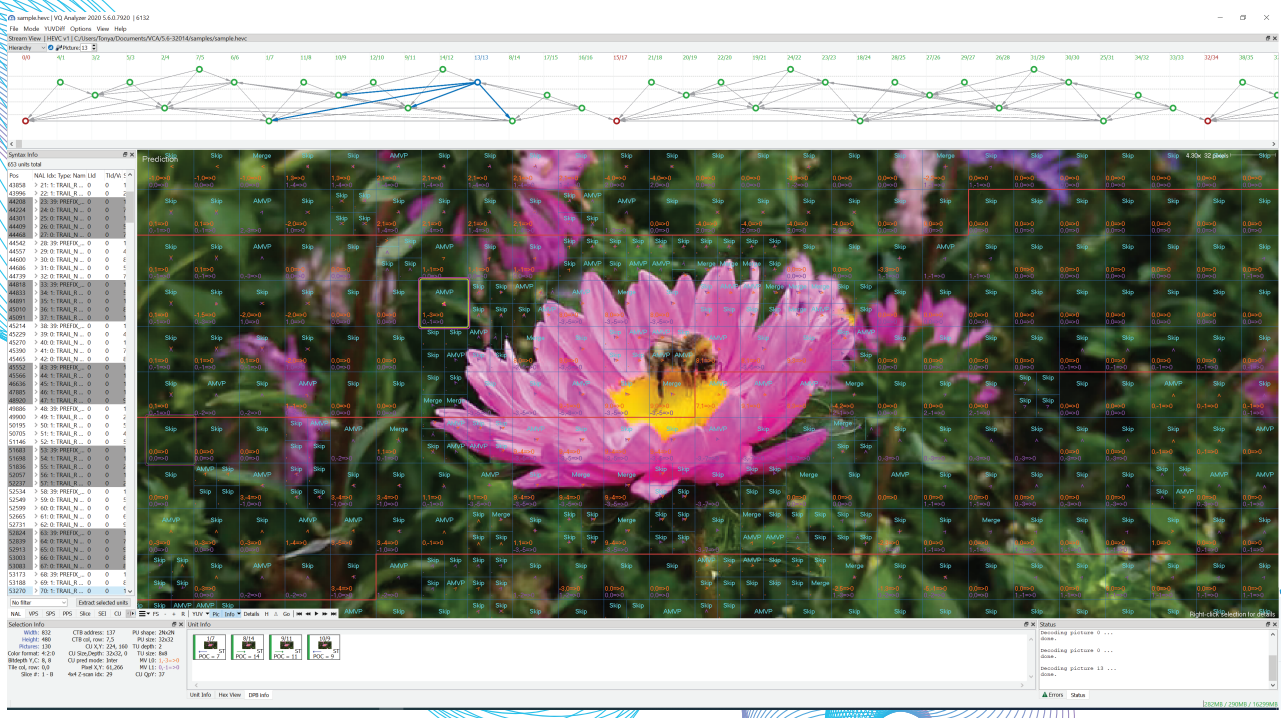
VQ Analyzer

Solutions for Video Professionals

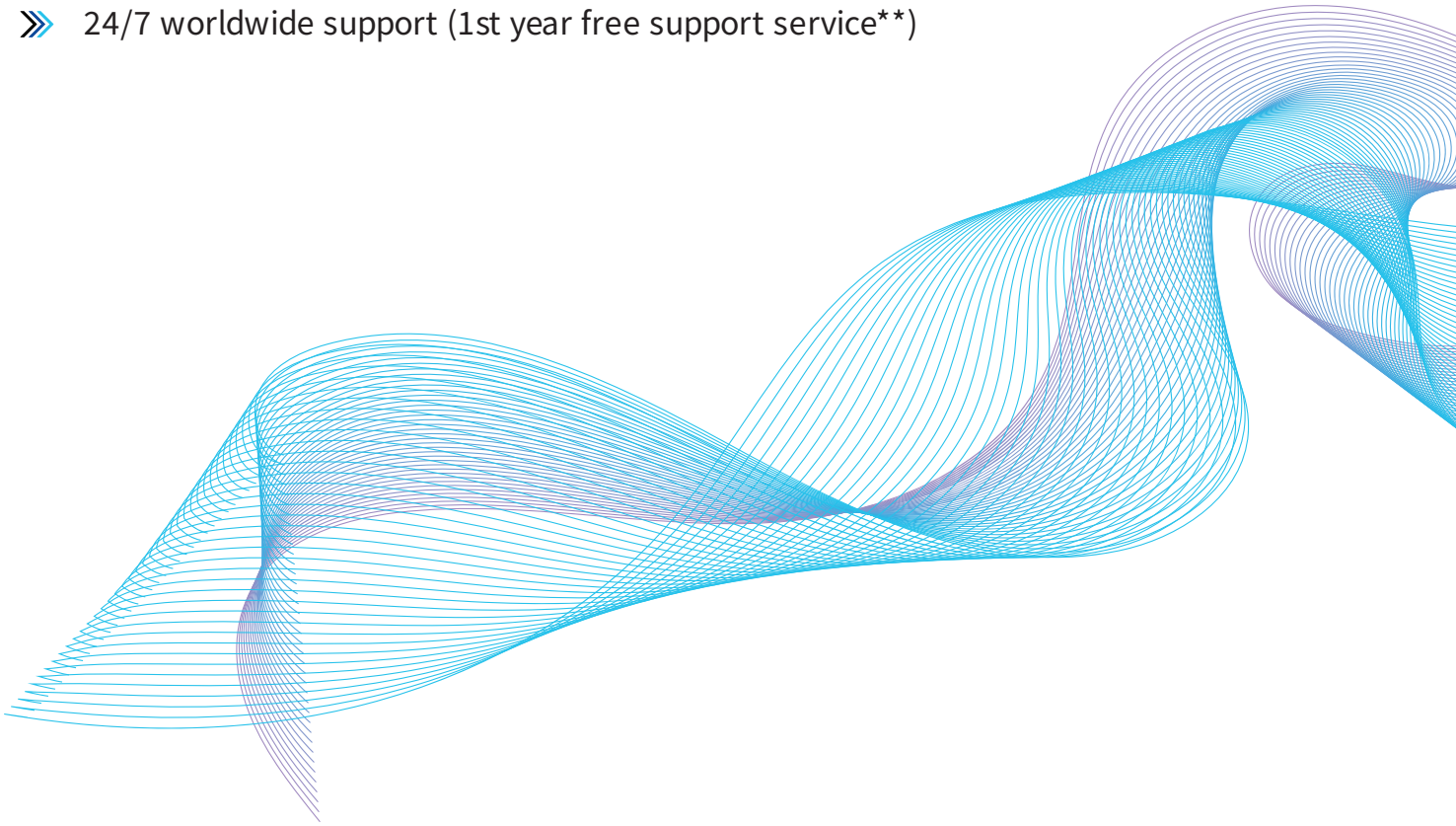
#INSPECT
#DEBUG
#IMPROVE

VQ Analyzer is a video bitstream analysis tool designed to inspect each essential step of the decoding process graphically and numerically. Its detailed statistics helps to view, prioritize and target optimization. Due to VQ Analyzer's extensive visualization ability, it can be a great source and reference tool for studying any video codec standards, such as HEVC/H.265, VP9, AVC/H.264, MPEG2, AV1, and VVC. We offer flexible and bespoke solutions to our customers, among them a set of necessary codecs, a monthly or annual subscription, and a perpetual license. VQ Analyzer allows codec developers and validation engineers to reduce time and cost of developing next-generation high-quality and efficient video decoders and encoders.



Advantages

- Syntax Information for specs in each stream with every syntax element name acquiring real value
- Dual View mode with 2 in-sync streams allowing actions on the left-sided stream being replicated in the right-sided stream and Delta function showing the difference
- Load Debug YUV with multiple functions – calculating objective metrics, evaluating distortion of compressed video relative to the original uncompressed, and comparing with previous revision of encoder
- GUI for manual inspection and console mode for batch execution
- Detailed video analysis
- Compliance Validation/Error Reporting
- Frequent updates according to new standards and customers' requirements
- Flexibility with purchasing license - perpetual, annual or monthly* subscription
- Speed and stability of functioning; error resilience in streams
- Price competitiveness
- 24/7 worldwide support (1st year free support service**)



* not available for all standards

** available with purchase of perpetual license

Key features

VQ Analyzer can reconstruct the whole story of bit transformation to final picture. Start with picture partitioning structure and coding flow (tiles, slices, subpictures) and follow with CTU partitioning with recurrent splits. It will successfully answer all your questions: What is a prediction type? How conditions were derived – from top or left? Which prediction line was selected? What was the formula for transformation? Rounding control, SAO, ALF, Deblocking weights, edges and strengths are visually and numerically displayed to get to the nuts of efficiency (or inefficiency).

Bitstream

- Thumbnails Filmstrip with Frame Type and picture preview
- Bars Filmstrip with Frame type and size
- Frame reference dependency and hierarchy
- Extracting NAL units and sub stream
- Spec compliance verification
- HRD and VBV buffer visualization
- Displaying PSNR/SSIM metrics per frame on a timeline graph

Frame

- Dedicated view for each stage of frame processing (Prediction, Transform, Reconstruction, each in-loop filter, final pixels)
- Extracting intermediate pictures to a file
- DPB state for the frame
- Graphically Analyze Coding Flow
- Visual Overlays : Heat Map, QP Map, Efficiency Map and many other
- Display PSNR/SSIM metrics as block based heat map

Block

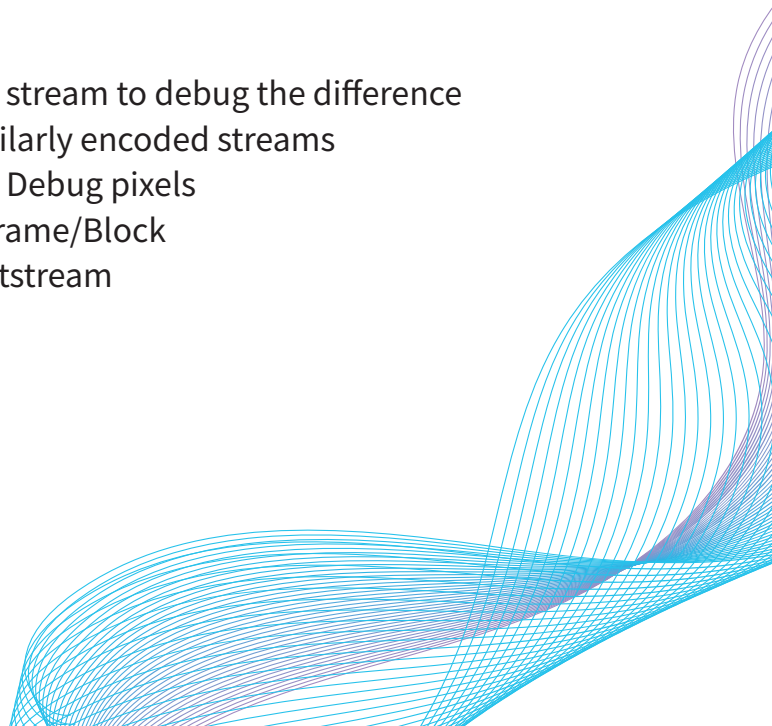
- Detailed information for selected block in Selection Info
- Detailed view for a selected block in each processing stage with values (coefficients, directions, interpolated values) and actions

Syntax and Statistics

- Quotation from spec for each syntax element
- Whole bit stream & each separate frame statistics
- Extract syntax and statistical data to a file

Debug

- Load an original uncompressed or decoded stream to debug the difference
- Dual view to synchronize actions over 2 similarly encoded streams
- Find first difference between Reference and Debug pixels
- View of bits in bitstream for Selected NAL/Frame/Block
  Detect, classify, display and navigate to a bitstream
  error or level incompliance



Technical characteristics

SUPPORTED VIDEO FORMAT

- HEVC: v.1 (ISO/IEC 23008-2 MPEG-H Part 2 or ITU-T H.265) , 8/10-bit
- HEVC: v.2 RExt extension, 8/10/12-bit
- HEVC SCC: according to SCM 8.5
- SHVC: according to SHM-12.1
- AV1: acc3f97753f67e0ce7290b98b7bb71152fe5e264
- VP9: Profile 0,1,2,3, 8/10/12-bit
- AVC: H.264/AVC, ISO/IEC 14496-10, MPEG-4 Part 10, High profile,
- 8/10-bit
- MPEG2: (ISO/IEC 13818-2 Part 2), 8-bit
- VVC: H.266/VVC, based on VTM 11.0
- Containers: mkv, webm, mp4, mpeg2 ps/ts, avi, mmt
- Colors: BT601, BT709, BT2020

SYSTEM REQUIREMENTS

Software:

- Microsoft: Windows 7+, 32 bit/64 bit
- MacOS: 10.12+
- Ubuntu, Linux: 16.04+
- SLES: 12+
- CenOS: 7.4+

Hardware:

- 1GB RAM minimum,
- 4GB recommended
- when loading 4K images