

Improve Video Processing with Deep Stream Analysis and Debug

Intel® Video Pro Analyzer 2016

Video Analysis Software Tools



Intel® Video Pro Analyzer is part of the Intel® Media Server Studio product family.

Streaming Results You Can Count On

Intel® Video Pro Analyzer (Intel® VPA) is a suite of advanced, expert-grade video analysis software tools for HEVC, VP9, AVC, and MPEG-2 video coding standards. It allows:

- Deep inspection, test, and debug over the entire HEVC, VP9, AVC, or MPEG-2 decode and encode process
- Bitrate/HRD analysis
- Statistics analysis and extraction
- Analysis of bitstreams for HEVC, VP9, AVC, and MPEG-2
- Innovation for the next-generation color gamut supporting Ultra HD content

Support is available for Microsoft Windows*, Linux*, and OS X*.

Build Industry Compliant Video Products Faster

Intel VPA helps video pros, developers, and validation engineers save time and money developing next-generation, standards-compliant products. Easy to use, Intel VPA has advanced features that enable developers to graphically analyze coding flow, heat maps, motion vectors, prediction processes, and more. This removes entire steps and iterations in the overhead for developing and testing new encoders, building new video players, and comparing the performance of implemented next-gen video solutions.

Once a bitstream is loaded, the tool lets users inspect each step of the decode process, both visually and numerically, and explore the structure of the coded image. This data can easily be used when debugging a particular encoder or decoder, or when researching the inner workings of next-generation codecs.

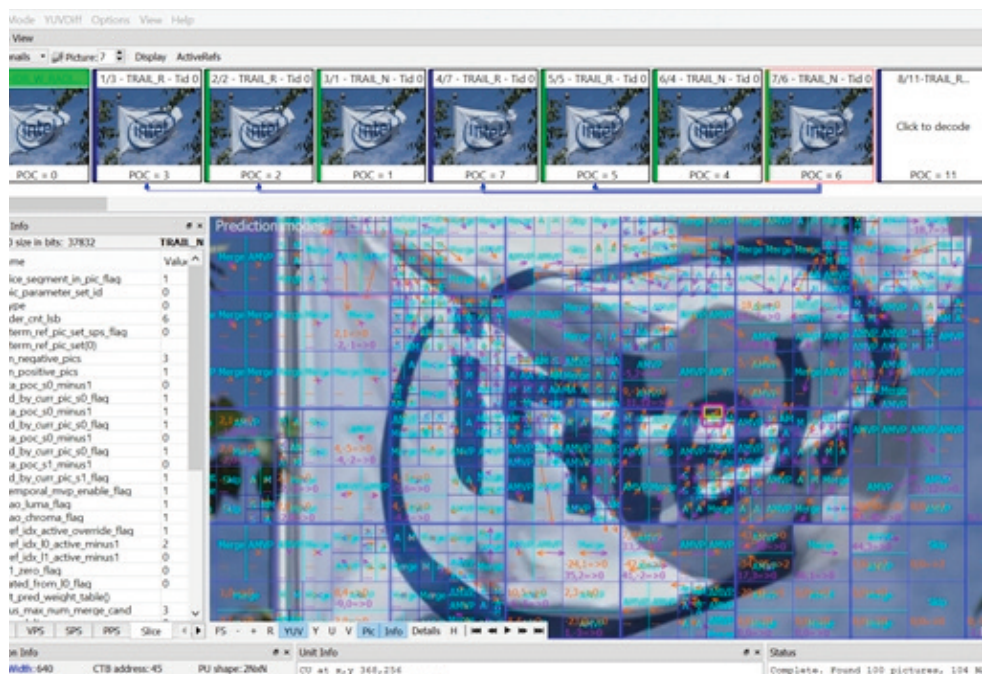


Figure 1. The console instantly communicates inter-frame dependencies and syntax details and offers nine frame-level visualizations.

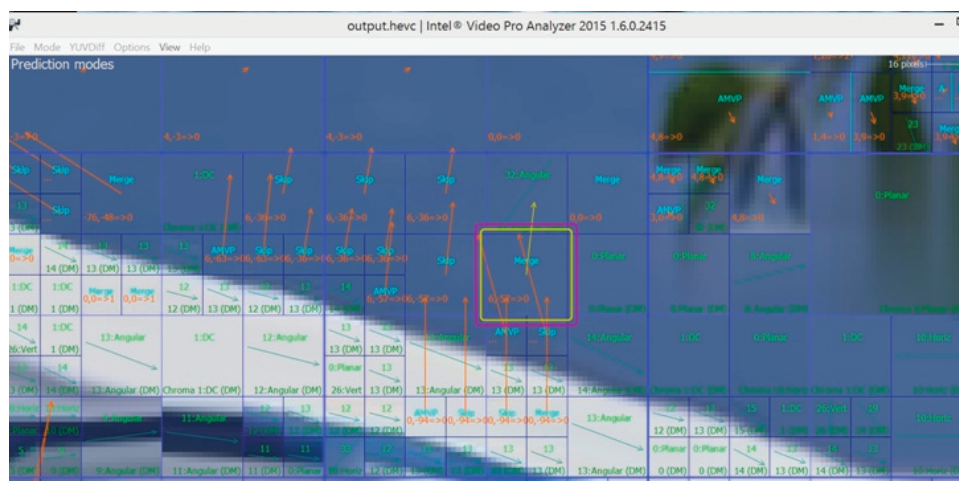


Figure 2. Prediction modes and inter-frame dependencies are instantly visualized. Color coding designates each of the prediction types.

Increase Video Throughput/Performance with HEVC and VP9 Bitstreams

With bandwidth a major cost to network streaming and infrastructure, the use of next-gen codecs like HEVC and VP9 is essential to producing efficient, quality-driven video encoding or decoding, streaming, content delivery, and broadcast. With Intel VPA, users have the power to deeply investigate the complex next-generation coding pipeline with unprecedented visualization. And, since the prior generation (2016 edition), Intel VPA has fast-tracked enhancements increasing HEVC parsing speeds by an average of 30%.

Debug Encoders, Reduce Costs

Intel VPA can debug certain quality and functional failures in transcoding pipelines, potentially saving months of man-hours on important video projects. Quickly find bitstream and coding mode decision errors, conduct side-by-side stream comparisons, and debug broken streams early in the development process for high-quality encoders.

Key Features

Video Pro Analyzer supported features include:

- **Codecs:** HEVC (H.265), VP9, AVC (H.264), and MPEG-2 standards
- **Containers:** Elementary streams and MP2-TS, MP4, MKV
- **Full-Frame Visualization Features:** Coding Flow, Coding Unit, Superblock, Motion Vectors, Transform Unit, Prediction Unit, Prediction Information, Reconstruction Information, Residual Information, Deblocking Edges, SAO Information, Frame References
- **Video Quality Caliper:** Provides efficient, sequence-level inspection of encoded or decoded video streams. Supports video quality metrics PSNR, SSM, and MWDVQM. (View an [Introduction](#) or [Advanced Features](#).)
- **Debug and Develop High-Quality Encoders:** Quickly find bitstream and coding mode decision errors, conduct side-by-side stream comparisons, and debug broken streams in developing high-quality encoders.

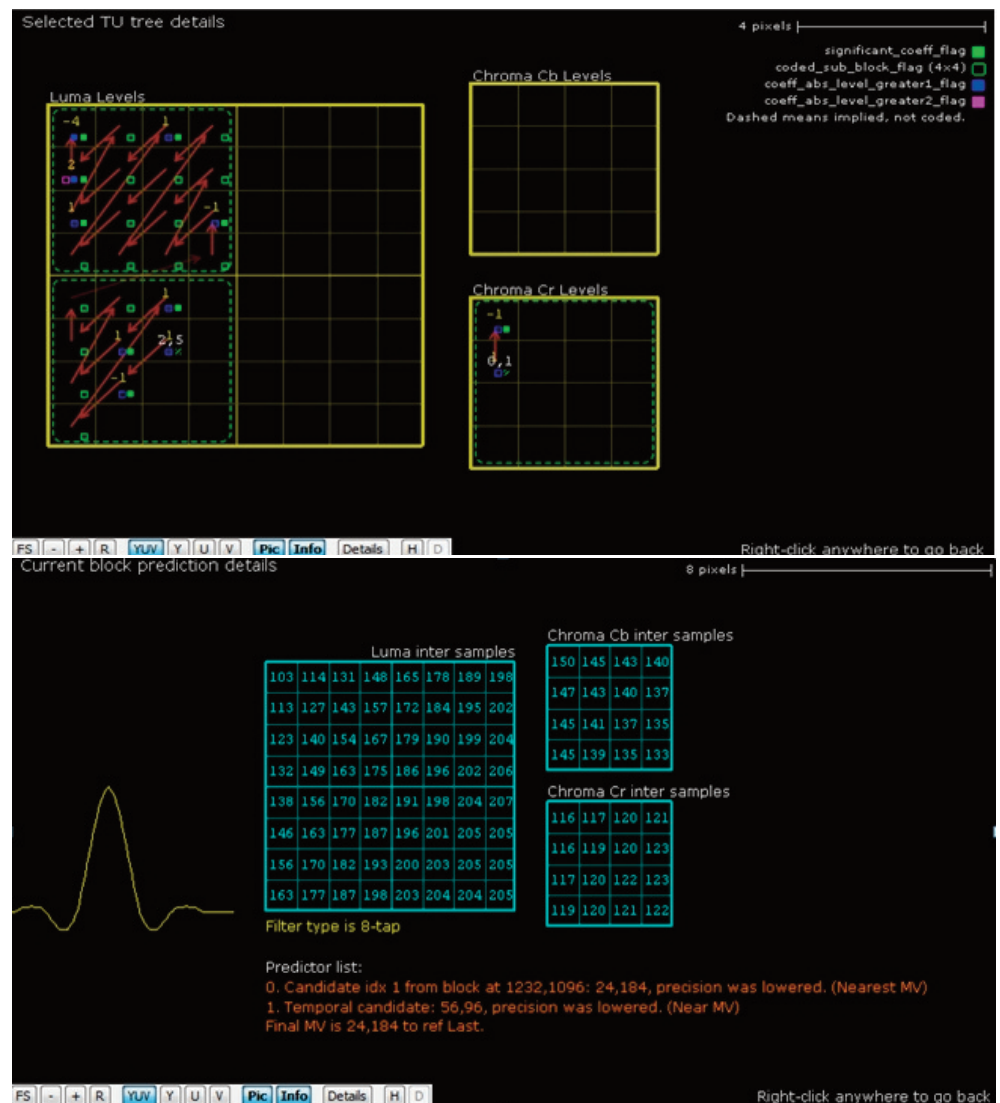


Figure 3. Right click on any transform unit (top) or prediction unit (bottom) and discover the underlying coefficients and the in-flight details of each of the complicated processing pipelines.

- **High Dynamic Range (HDR) Video/BT2020 (10-bit):** Get the next-generation color gamut supporting Ultra HD content, covering more than 75% of all visible colors. Innovate ahead of the industry for a superior viewing experience.
- **Detailed Views:** Reconstructed, Predicted, Residual, Deblocked/SAO, and Decoded Pixels. GUI provides the ability to undock windows for easy, side-by-side comparisons. Tool tips provide descriptions of syntax elements.
- **Visual Maps:** Heat map (bit per pel), efficiency map (bools per bit), reference indexes, QPs, block types, simple motion flow
- **Other Key Features:** Compare with a reference, HRD buffer fullness, picture statistics (weighted by pixel or bit), probability areas and trees with counts, updates, and adaptation, Entropy Engine State, Syntax Elements, Inter/Intra Prediction and Filtered Samples Views, Motion Vector Predictor Lists, Coefficients (pre- and post-quant and post-transform scan order)
- **Support:** Documentation, a user forum, and technical support help get developers up and running (Intel® Premier Support)

Explore More Media Tools from Intel

Intel® Media Server Studio >

Create innovative, enterprise-grade media solutions that deliver fast, high-density media transcoding, speed the transition to HEVC and 4K, and reduce costs.

Intel® Stress Bitstreams and Encoder >

Ensure robustness of HEVC/VP9 decoders

Intel® INDE >

Cross-platform toolsuite for developing media apps, 4K Raw video and photo processing, and more.



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