Joint Video Experts Team (JVET) of ITU-T SG 16 WP 3 and ISO/IEC JTC 1/SC 29/WG 11
25th Meeting, by teleconference, 12-21 January 2022

Document: JVET-X0010-v1
MPEG: m57971

Title: **JVET AHG report: Encoding algorithm optimization (AHG10)**

Status: Input document to JVET

Purpose: Proposal

Author(s) or Contact(s):
Philippe de Lagrange | philippe.delagrange@interdigital.com
Rickard Sjöberg | rickard.sjoberg@ericsson.com
Alexis M. Tourapis | alexismt@apple.com
Jens-Rainer Ohm | ohm@ient.rwth-aachen.de | submitter

Source: P. de Lagrange, R. Sjöberg, A. Tourapis

HEADER EXCERPT FROM SOURCE DOCUMENT

Abstract

This document summarizes the activities of AHG10: Encoding algorithm optimization, between the 23rd meeting (teleconference, 7-16 July 2021) and the 24th meeting (teleconference, 6-15 October 2021).

Mandates

At the 23rd meeting of the ITU-T/ISO/IEC Joint Video Experts Team (JVET), an ad hoc group on Encoding algorithm optimization was established with the following mandates:

Study the impact of using techniques such as tool adaptation and configuration, and perceptually optimized adaptive quantization for encoder optimization.

Study the impact of non-normative techniques of pre processing for the benefit of encoder optimization.

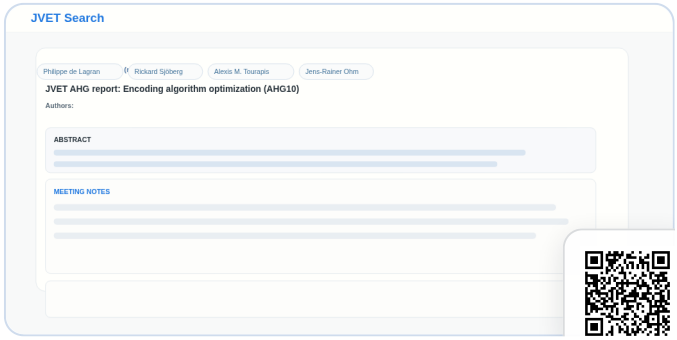
Built from JVET-X0010-r1.docx

LINKS

CARD

JVET-X0010

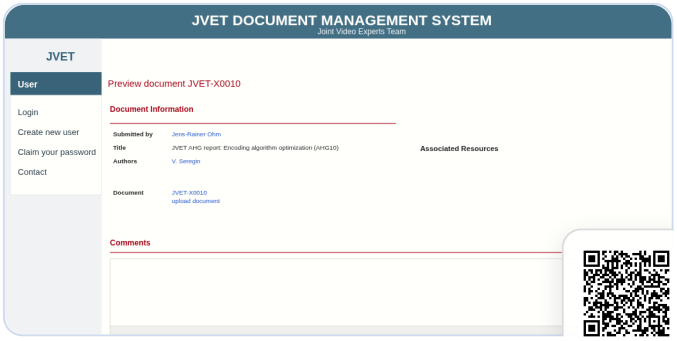
http://vexpertise.stbit.ru/documents/JVET-X0010



SOURCE

external source

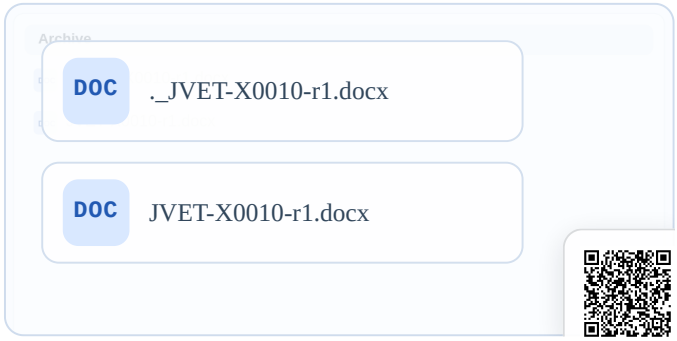
https://jvet-experts.org/doc_end_user/current_document.php?id=11155



ARCHIVE

archive v1

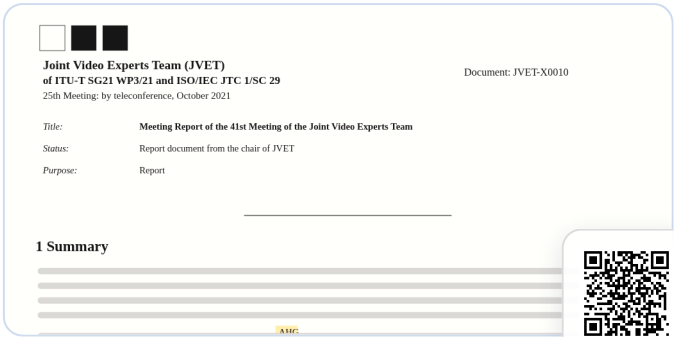
https://jvet-experts.org/doc_end_user/documents/24_Teleconference/wg11/JVET-X0010-v1.zip



MEETING NOTES

external meeting notes

http://vexpertise.stbit.ru/meeting-notes/source/meeting_24_x



MEETING NOTES

JVET-X0010 JVET AHG report: Encoding algorithm optimization (AHG10) [P. de Lagrange, R. Sjöberg, A. Tourapis]

This document summarizes the activities of AHG10: Encoding algorithm optimization, between the 23rd meeting (teleconference, 7-16 July 2021) and the 24th meeting (teleconference, 6-15 October 2021).

Mandates

At the 23rd meeting of the ITU-T/ISO/IEC Joint Video Experts Team (JVET), an ad hoc group on Encoding algorithm optimization was established with the following mandates:

- Study the impact of using techniques such as tool adaptation and configuration, and perceptually optimized adaptive quantization for encoder optimization.
- Study the impact of non-normative techniques of pre processing for the benefit of encoder optimization.
- Study encoding techniques of optimization for objective quality metrics and their relationship to subjective quality.
- Study optimized encoding for reference picture resampling and scalability modes in VTM.
- Consider neural network-based encoding optimization technologies for video coding standards.
- Investigate other methods of improving objective and/or subjective quality, including adaptive coding structures and multi-pass encoding.
- Study methods of rate control and rate-distortion optimization and their impact on performance, subjective and objective quality.
- Study the potential of defining software configuration settings optimized for subjective quality, and coordinate such efforts with AHG3.

The regular JVET e-mail reflector was used for discussions (jvet@lists.rwth-aachen.de). No e-mail related to AHG10 activity was sent to the JVET reflector during the AHG period.

Overview of input documents related to the AHG

The following input documents were identified to be related to this AHG:

CITATION

P. de Lagrange, R. Sjöberg, A. Tourapis, "JVET AHG report: Encoding algorithm optimization (AHG10)", JVET-X0010, 25th Meeting: by teleconference, October 2021.

REFERENCES

1. P. Wennersten, R. Sjöberg, J. Enhorn, "AHG10: Encoder-only GOP-based temporal filter", JVET-O0549, 15th Meeting: Gothenburg, SE, July 2019.
2. P. Wennersten, C. Hollmann, J. Ström, "[AHG10] GOP-based temporal filter improvements", JVET-V0056, 22nd Meeting: by teleconference, April 2021.
3. F. Wang, L. Xu, Z. Xie, Y. Yu, H. Yu, D. Wang, "AHG8: on coding of last significant coefficient position for high bit depth and high bit rate extensions", JVET-V0121, 22nd Meeting: by teleconference, April 2021.
4. F. Wang, L. Xu, Z. Xie, Y. Yu, H. Yu, D. Wang, "CE-1.1: coding of last significant coefficient position for high bit depth and high bit rate extensions", JVET-W0046, 23rd Meeting: by teleconference, July 2021.
5. K. Zhang, L. Zhang, Z. Deng, N. Zhang, Y. Wang, "EE2-1.3/EE2-1.4: Unsymmetric partitioning methods in video coding", JVET-W0086, 23rd Meeting: by teleconference, July 2021.
6. S. Fang, J. Guo, Z. Huang, J. Liu, S. Xu, L. Yu, J. Chen, R.-L. Liao, Y. Ye, "Ali266: an optimized VVC software encoder implementation", JVET-W0127, 23rd Meeting: by teleconference, July 2021.
7. L.-F. Chen, X. Li, S. Liu, "AHG10: Fast skip of TT split partitioning on top of VTM-14.0 and ECM reference software", JVET-X0061, 25th Meeting: by teleconference, October 2021.
8. H. Zhang, X. Li, S. Liu, "AHG10: Deblocking filter setting for VTM", JVET-X0063, 25th Meeting: by teleconference, October 2021.
9. X. Dong, S. Fang, Z. Huang, J. Liu, S. Xu, R. Yang, L. Yu, J. Chen, R.-L. Liao, Y. Ye, "Update on the progress of the optimized VVC encoder implementation, Ali266", JVET-X0104, 25th Meeting: by teleconference, October 2021.
10. K. Andersson, J. Enhorn, P. Wennersten, "AHG10: Suggestion to enable GOP-based temporal filtering for low-delay configurations in CTC for HM and VTM", JVET-X0116, 25th Meeting: by teleconference, October 2021.
11. A. Browne, S. Keating, K. Sharman, "AHG8 and AHG10: On derivation of sh_reverse_last_sig_coeff_flag and sh_ts_residual_coding_rice_idx_minus1", JVET-X0137, 25th Meeting: by teleconference, October 2021.
12. A. Zare, A. Aminlou, A. Hallapuro, M. Hannuksela, "AHG10: VTM Encoder Changes for ALF Usage with Subpicture", JVET-X0143, 25th Meeting: by teleconference, October 2021.