Title:	JCT-VC AHG report: Support for range extensions (AHG 12)	
Status:	Input Document to JCT-VC	
Purpose:	Ad-hoc group report	
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Source:	AHG 12	

Abstract

This report summarizes the activities of Ad Hoc Group 12 on support for range extentions between the 9th and 10th JCT-VC meetings.

Mandates

The ad hoc group was mandated to:

- Examine modifications to the technical design that provide an increase in picture fidelity and support for non-4:2:0 or non-8-bit picture formats

- Study aspects of the technical design and software that need modification to support non-4:2:0 chroma formats.

- Study aspects of the current technical design and software that need modification to support bit-depths beyond 8 bit.

- Assist and advise in the work of removing any implicit assumptions of 8-bit depth and 4:2:0 formatting from the WD current draft and software (where feasible, without introducing technical design changes).

Contributions

A number of documents have been contributed, covering a number of areas:

- Non-8-bit coding [1]

- Non-4:2:0 coding by extension of current design [2, 3, 4, 5]

- Non-4:2:0 coding using new methods [6, 7, 8]

- Deriving 4:2:0 from 4:4:4 [9]

- Test sequences [10]

Recommendations

It is recommended to:

- Present the above documents

- Seek to define a timeline for range extensions

References

[1] P. Andrivon and P. Bordes, "AHG12: On beyond 8 bit-depth support in HEVC." document JCTVC-J0079, July 2012.

[2] P. Andrivon and P. Bordes, "AHG12: Non-4:2:0 formats syntax modifications." document JCTVC-J0078, July 2012.

[3] P. Silcock, K. Sharman, N. Saunders, and J. Gamei, "AHG12: Extension of HM7 to Support Additional Chroma Formats." document JCTVC-J0191, July 2012.

[4] K. Kawamura, T. Yoshino, and S. Naito, "AHG12: 4:2:2/4:4:4 chroma format extension for HEVC Version 2." document JCTVC-J0357, July 2012.

[5] K. Kawamura, T. Yoshino, H. Kato, and S. Naito, "Chroma intra prediction based on residual luma samples in 4:2:2 chroma format." document JCTVC-J0358, July 2012.

[6] P. Zhang, T. Lin, X. Chen, S. Wang, and K. Zhou, "BD-rate performance vs. dictionary size and hash-table memory size in Dual-coder Mixed Chroma-sampling-rate (DMC) coding for 4:4:4 screen content." document JCTVC-J0352, July 2012.

[7] X. Chen, T. Lin, P. Zhang, S. Wang, and K. Zhou, "R-D cost based effectiveness analysis of Dual-coder Mixed Chroma-sampling-rate (DMC) coding for 4:4:4 screen content." document JCTVC-J0353, July 2012.

[8] T. Lin, P. Zhang, S. Wang, K. Zhou, and X. Chen, "Syntax and semantics of Dual-coder Mixed Chroma-sampling-rate (DMC) coding for 4:4:4 screen content." document JCTVC-J0233, July 2012.

[9] W. Dai, M. Krishnan, and P. Topiwala, "Integer Color Transforms and Resampling Filters for HEVC Applications." document JCTVC-J0127, July 2012.

[10] K. Sugimoto and S. Sekiguchi, "AHG12: 4:4:4 test sequences for professional extension development." document JCTVC-J0197, July 2012.