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Title: EE2-related: PDPC-skip scheme for angular intra modes

Status: Input document to JVET

Purpose: Proposal

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Source: vivo

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Abstract

In current ECM-2.0 PDPC is applied to calculate the prediction samples for the angular prediction modes smaller than or equal to mode 18 (Horizontal), and the modes greater than mode 55 (Vertical). This contribution presents a PDPC skip scheme, which makes use of the results of texture analysis in DIMD method to decide whether skip PDPC or not. In this way, some of the PDPC process will be skipped. Thus, the computational complexity can be reduced at both encoder and decoder sides. For method1 the skipping rate comes up to 26.68% in our simulation, with the average BD-rate loss Y 0.02%, U 0.06% and V 0.06% on average. For method2 the skipping rate comes up to 10.24% in our simulation, the complexity of 99% (AI) at the decoder, with the average BD-rate loss Y 0.02%, U 0.01% and V 0.05% on average. For method3 the skipping rate comes up to 38.03% in our simulation. On top of the ECM-2.0 [1], the simulation results show the complexity of 99% (AI) at the decoder, with the average BD-rate loss Y 0.06%, U 0.12% and V 0.14% on average.

Introduction

Current PDPC is applied to planar, DC, and angular intra prediction modes. For angular intra prediction modes, PDPC process is different between horizontal/vertical modes and non-horizontal/non-vertical modes.

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CARD

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MEETING NOTES

[JVET-X0072](#) EE2-related: PDPC-skip scheme for angular intra modes [J. Zhang, C. Zhou, Z. Lv (vivo)]

In current ECM-2.0 PDPC is applied to calculate the prediction samples for the angular prediction modes smaller than or equal to mode 18 (Horizontal), and the modes greater than mode 55 (Vertical). This contribution presents a PDPC skip scheme, which makes use of the results of texture analysis in DIMD method to decide whether skip PDPC or not. In this way, some of the PDPC process will be skipped. Thus, the computational complexity can be reduced at both encoder and decoder sides. For method1 the skipping rate comes up to 26.68% in our simulation, with the average BD-rate loss Y 0.02%, U 0.06% and V 0.06% on average. For method2 the skipping rate comes up to 10.24% in our simulation, the complexity of 99% (AI) at the decoder, with the average BD-rate loss Y 0.02%, U 0.01% and V 0.05% on average. For method3 the skipping rate comes up to 38.03% in our simulation. On top of the ECM-2.0, the simulation results show the complexity of 99% (AI) at the decoder, with the average BD-rate loss Y 0.06%, U 0.12% and V 0.14% on average.

PDPC is not of concern in terms of complexity. In fact, the proposal would even slightly increase the worst-case complexity due to the additional process to decide about PDPC usage. Benefit in terms of compression only for screen content, whereas minor loss is observed for camera captured content, while the reduction in decoder runtime is marginal.

No action was taken on this.

CITATION

Jinrong Zhang, Chuan Zhou, Zhuoyi Lv, "EE2-related: PDPC-skip scheme for angular intra modes", JVET-X0072, 25th Meeting: by teleconference, October 2021.

REFERENCES

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2. [E. Mora, A. Nasrallah, M. Abdoli, M. Raulet, "CE3: Decoder-side Intra Mode Derivation \(tests 3.1.1, 3.1.2, 3.1.3 and 3.1.4\)", JVET-M0094, 13th Meeting: Marrakech, January 2019.](#)
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