

TU size based dQP

(JCTVC-G550)

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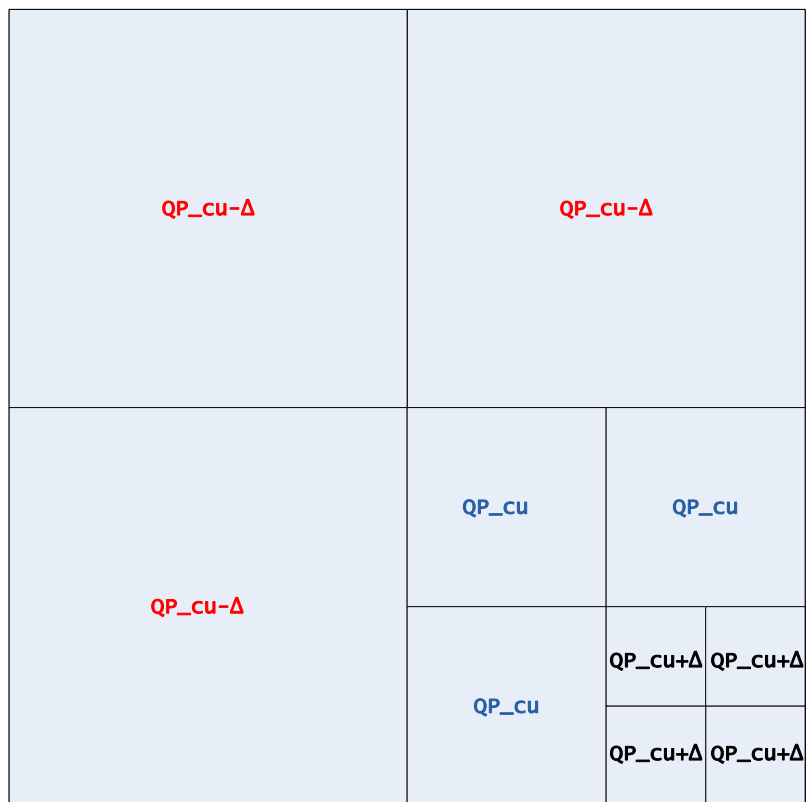
Summary

- ❖ Implicit signaling of dQP based on transform size (TU based dQP)
- ❖ The static areas have more possibility to be reference rather than moving region.
- ❖ Relative higher QP is applied for small transform block size.
- ❖ Coding efficiency and no complexity increase.
 - 0.0%/0.2%/0.1% for RA_HE, -0.1%/+0.1%/0.0% for RA_LC,
 - -0.3%/0.4%/0.4% for LD_HE, -0.5%/+0.4%/0.3% for RA_LC,
- ❖ Cross-check
 - JCTVC-G925 By Qualcomm

Algorithm description

CU = 64

$QP_{cu} = QP + dQP$



	4x4	8x8	16x16	32x32
Implicit dQP	$2 \times \Delta$	Δ	0	$-\Delta$

Experimental results

- ❖ Common condition test
 - No complexity increase

	Random Access HE			Random Access LC		
	Y	U	V	Y	U	V
Class A	0.1%	1.5%	1.3%	0.2%	1.6%	1.5%
Class B	0.1%	0.5%	0.2%	0.1%	0.4%	0.2%
Class C	-0.2%	-0.4%	-0.3%	-0.4%	-0.6%	-0.8%
Class D	-0.1%	-0.8%	-1.0%	-0.3%	-0.9%	-0.9%
Class E						
Overall	0.0%	0.2%	0.1%	-0.1%	0.1%	0.0%
	0.1%	0.4%	0.2%	-0.2%	0.2%	0.1%
Enc Time[%]	100%			99%		
Dec Time[%]	100%			100%		

Average absolute
bit difference

2.3%

2.6%

	Low delay B HE			Low delay B LC		
	Y	U	V	Y	U	V
Class A						
Class B	0.1%	0.9%	1.2%	-0.1%	1.2%	1.5%
Class C	-0.5%	-0.3%	-0.2%	-0.9%	-0.2%	-0.5%
Class D	-0.5%	-0.1%	-0.6%	-0.8%	0.4%	-0.1%
Class E	-0.1%	1.4%	1.2%	-0.2%	-0.4%	-0.3%
Overall	-0.3%	0.4%	0.4%	-0.5%	0.4%	0.3%
	-0.3%	0.4%	0.4%	-0.5%	0.5%	0.5%
Enc Time[%]	100%			100%		
Dec Time[%]	100%			101%		

Average absolute
bit difference

2.2%

2.8%

Conclusions

- ❖ Implicit signaling dQP based on TU size (no dQP in TU level in HM only CU level)
- ❖ Coding efficiency impact:
 - -0.0%/0.2%/0.1% for RA_HE, -0.1%/+0.1%/0.0% for RA_LC,
 - -0.3%/0.4%/0.4% for LD_HE, -0.5%/+0.4%/0.3% for RA_LC,
- ❖ We recommend the proposed scheme to be adopted into next HM