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CE8 Subtest 2: Adaptation between Pixel-based and Region-based Filter Selection

Ching-Yeh Chen, Chih-Ming Fu, Chia-Yang Tsai, Yu-Wen Huang, and Shawmin Lei

Presented by Yu-Wen Huang
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Overall Summary

- Adaptation between pixel-based and region-based filter selection at slice level
  - Region-based filter selection
    - Divide one picture into 16 roughly-equal-size regions
    - Aligned with LCU boundaries
    - One filter for each region
  - Only add one flag in the slice header

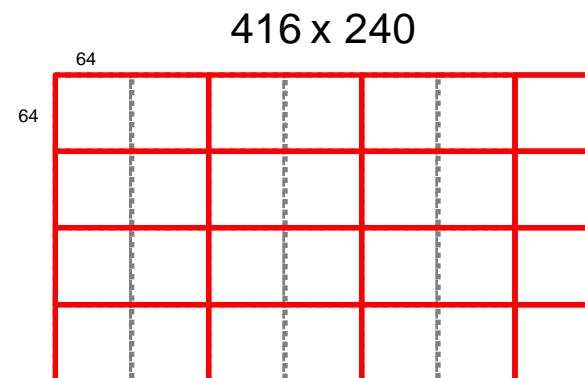- Better coding efficiency with less decoding time

Anchor: JCTVC-D600	HE-AI	HE-RA	HE-LD
BD-Rate	0.0%	-0.2%	-0.4%
Encoding Time	102%	101%	101%
Decoding Time	99%	96%	97%

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Outline

- Algorithm description

- Simulation results

- Conclusions

Region-based Filter Selection

- Divide one picture into 16 regions
  - Regions are roughly equal in size
  - Regions are LCU-aligned
  - Regions can be merged

- All pixels of a region share one filter

- No pixel classification, less complexity, less filter switch, less power consumption

- The only syntax change is to add one flag in the slice header to switch between filter selection methods

- No change in filter shapes or sizes

- Add one encoding pass to the original multiple passes
  - Can be processed in parallel with the original passes

416 x 240

64

64

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Simulation Results

- JCTVC-D600 anchor

- Not only better coding efficiency but also less decoding time

	HE-AI	HE-RA	HE-LD
BD-Rate (%)	0.0	-0.2	-0.4
Enc. Time (%)	102	101	101
Dec. Time (%)	99	96	97

		HE-AI	HE-RA	HE-LD
Class A	Traffic	0.0	-0.1	
	PeopleOnStreet	0.0	0.1	
	Nebuta	0.0	-0.1	
	SteamLocomotive	0.1	0.0	
Class B	Kimono	0.2	0.0	0.2
	ParkScene	0.0	-0.1	-0.2
	Cactus	0.0	-0.4	-1.1
	BasketballDrive	0.0	-0.4	-0.7
	BQTerrace	0.0	-0.4	-0.6
Class C	BasketballDrill	-0.3	-0.8	-1.2
	BQMall	0.0	-0.2	-0.4
	PartyScene	0.0	-0.1	-0.4
	RaceHorses	0.0	0.0	-0.1
Class D	BasketballPass	0.0	0.0	-0.1
	BQSquare	0.0	0.0	0.0
	BlowingBubble	0.0	-0.1	-0.1
	RaceHorses	0.0	0.0	-0.1
Class E	Vidyo1	0.0		-1.1
	Vidyo3	0.0		-0.7
	Vidyo4	0.0		-0.4

Conclusions

- Adaptation between pixel-based and region-based filter selection at slice level
  - Provide better coding efficiency and lower decoding time in comparison with the anchor

Anchor: JCTVC-D600	HE-AI	HE-RA	HE-LD
BD-Rate	0.0%	-0.2%	-0.4%
Encoding Time	102%	101%	101%
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Thank you