

The background is a solid green color with a repeating pattern of white line-art icons. These icons include various nautical items like anchors, lifebuoys, and compasses, as well as outdoor and travel-related items like a backpack, a tent, a bird, and a sun. The icons are scattered across the entire slide.

MEDIATEK

JVET-P0159

CE5-related: DMVR deblocking by inheriting neighbouring boundary strength values

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Overall Summary

- Proposed to apply luma deblocking to the CU coded with DMVR
 - Method 1
 - Inherit the bS value from the left or top CB boundaries
 - Method 2 (based on Method 1)
 - Set bS to 0 if unrefined motion vector (MV) is similar to previous merging candidates

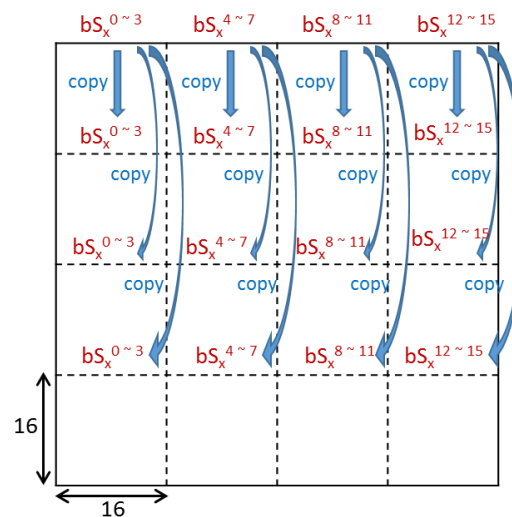
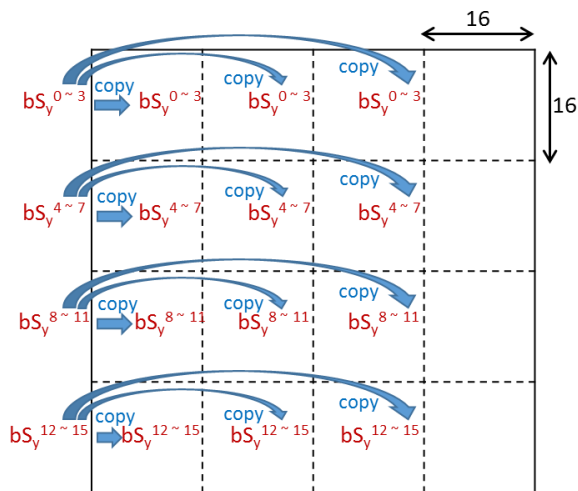
Over VTM6.0	RA, ALF-on					RA, ALF-off				
	Y	U	V	EncT	DecT	Y	U	V	EncT	DecT
Method 1	0.09%	0.00%	0.02%	101%	102%	0.10%	-0.01%	-0.01%	99%	104%
Method 2	0.06%	0.00%	0.05%	101%	102%	0.06%	-0.01%	0.00%	99%	103%

Method 1

- 1) The deblocking grid is changed to **16x16 basis**
- 2) If both sides of the edge have all-zero residual, **the bS for luma is inherited** from the top or left CB boundaries.

Otherwise (i.e., at least one side has nonzero residual), bS for luma is set to 1

- The bS value is set to 1 if the inherited bS value is greater than 1



Method 2

- Based on Method 1, and adds one more constraint as follows:
 - When both sides of the edge coincided with internal PB or TB boundaries have all-zero residual, **the bS is set to 0** if the unrefined MV difference between the current selected merging candidate and any of the previous merging candidates in the same merging candidate list is **smaller than 16 (in unit of 1/16 luma sample)**

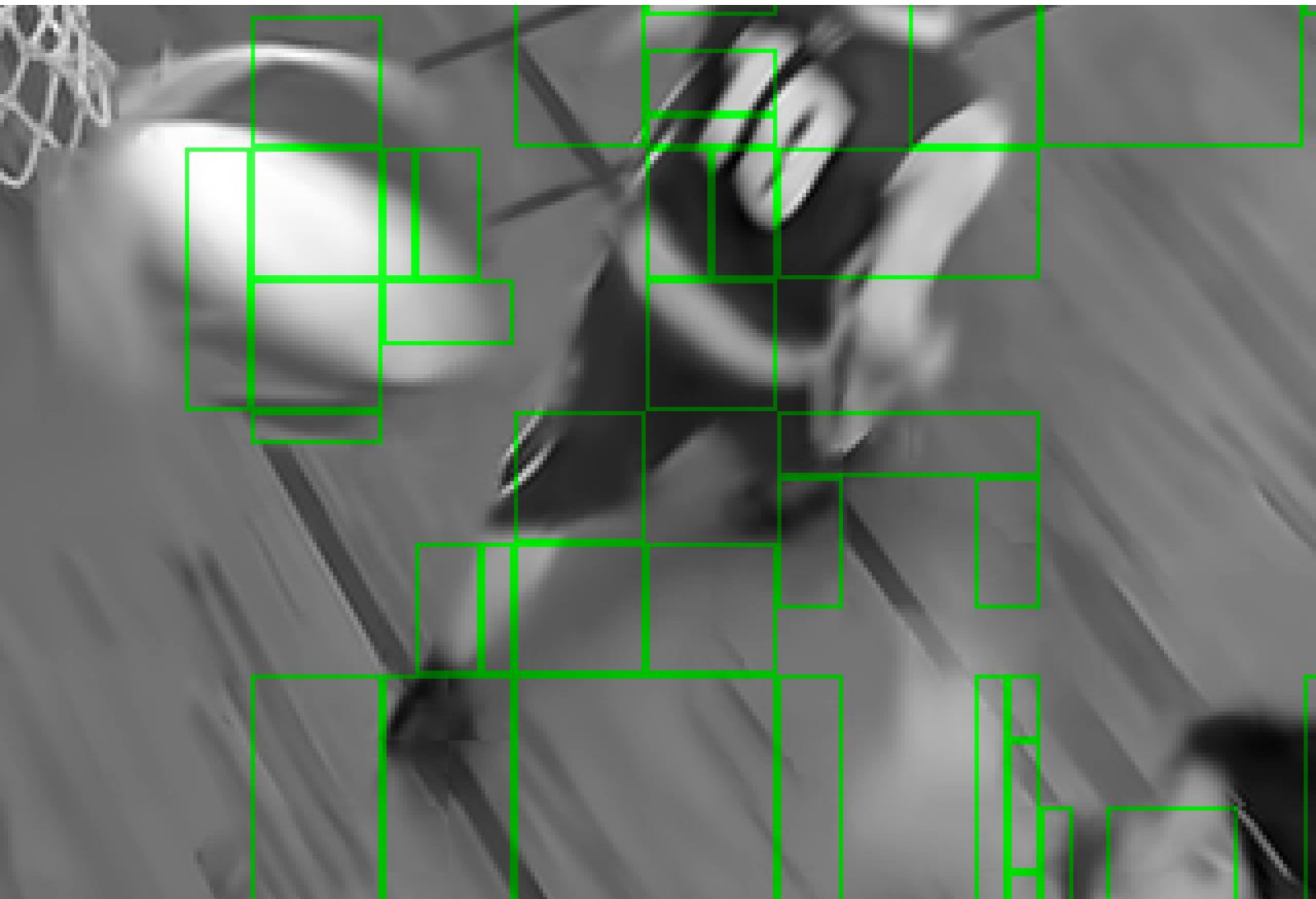
VTM6.0, RA, QP=37, #9 decoded picture of BaseketballDrill test sequence



VTM6.0 + Method 2, RA, QP=37, #9 decoded picture of BasketballDrill test sequence



VTM6.0, RA, QP=37, #9 decoded picture of BasketballDrill test sequence
DMVR coded CBs are marked in green



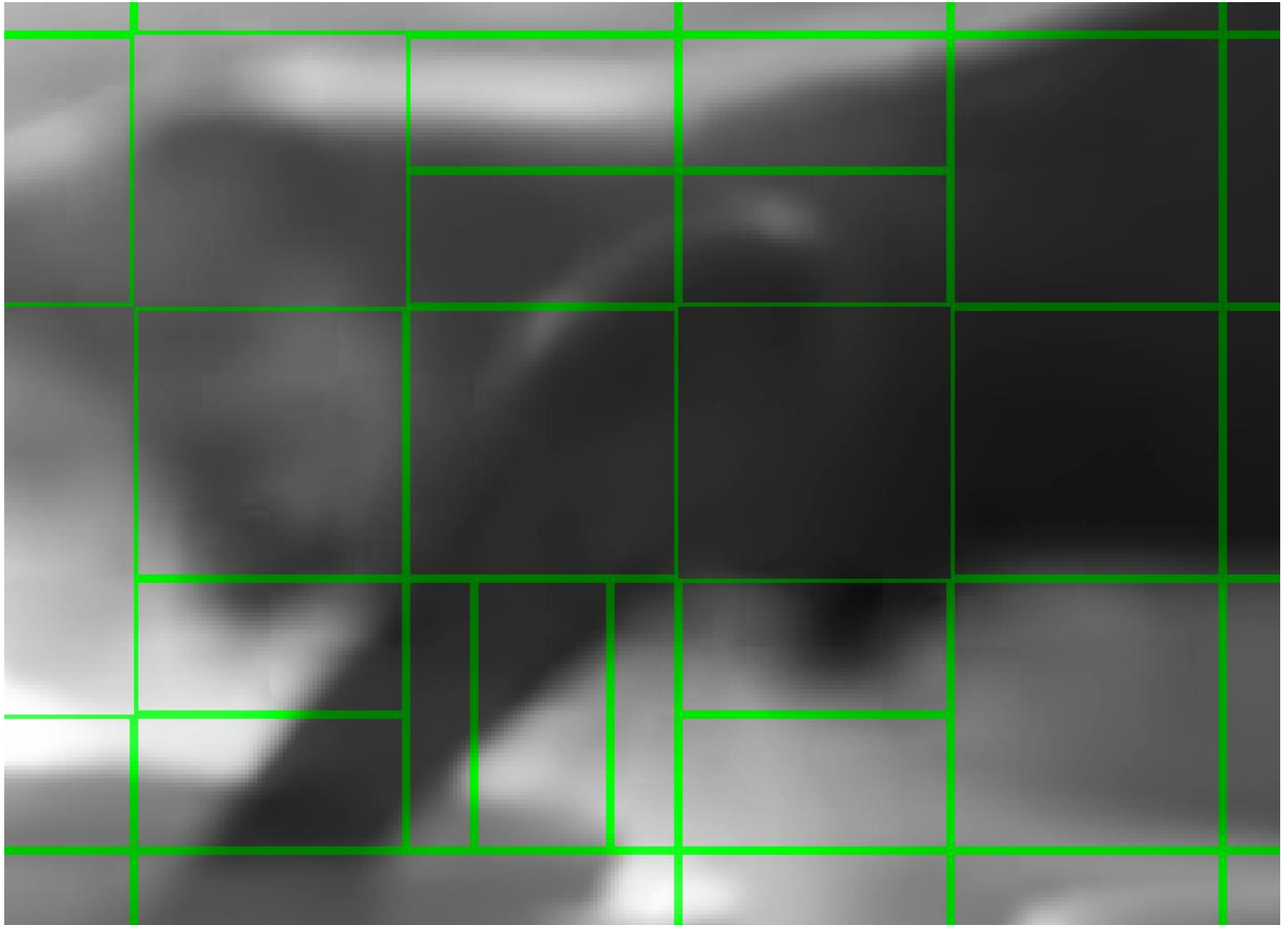
VTM6.0, RA, QP=37, #39 decoded picture of FoodMarket test sequence



VTM6.0 + Method 2, RA, QP=37, #39 decoded picture of FoodMarket test sequence



VTM6.0, RA, QP=37, #39 decoded picture of FoodMarket test sequence
DMVR coded CBs are marked in green



Detailed Results

- Method 1: DMVR deblocking by inheriting the bS values from the left or top CB boundaries

	Random access Main10					Random access Main10				
	Over VTM-6.0					Over VTM-6.0 with ALF switch off				
	Y	U	V	EncT	DecT	Y	U	V	EncT	DecT
Class A1	-0.02%	-0.06%	0.02%	101%	103%	0.00%	0.07%	0.02%	100%	103%
Class A2	0.17%	0.00%	0.02%	101%	104%	0.18%	-0.04%	0.01%	99%	105%
Class B	0.11%	0.05%	0.02%	101%	102%	0.11%	-0.01%	-0.02%	99%	102%
Class C	0.09%	0.00%	0.02%	101%	101%	0.10%	-0.05%	-0.05%	100%	105%
Class E										
Overall	0.09%	0.00%	0.02%	101%	102%	0.10%	-0.01%	-0.01%	99%	104%
Class D	0.06%	0.00%	0.00%	101%	101%	0.04%	0.03%	0.01%	101%	103%
Class F	0.07%	0.00%	-0.02%	100%	104%	0.09%	0.00%	0.02%	99%	102%

- Method 2: Method 1 + set bS to 0 if unrefined motion vector (MV) is similar to previous merging candidates

	Random access Main10					Random access Main10				
	Over VTM-6.0					Over VTM-6.0 with ALF switch off				
	Y	U	V	EncT	DecT	Y	U	V	EncT	DecT
Class A1	-0.01%	-0.02%	0.03%	101%	103%	-0.01%	0.06%	0.01%	100%	106%
Class A2	0.13%	-0.01%	0.03%	101%	103%	0.11%	0.00%	0.01%	99%	104%
Class B	0.06%	0.07%	0.08%	101%	102%	0.08%	-0.03%	0.01%	99%	102%
Class C	0.05%	-0.04%	0.03%	101%	101%	0.06%	-0.04%	-0.03%	99%	103%
Class E										
Overall	0.06%	0.00%	0.05%	101%	102%	0.06%	-0.01%	0.00%	99%	103%
Class D	0.02%	0.01%	0.04%	101%	101%	0.02%	0.02%	-0.01%	100%	99%
Class F	0.07%	0.01%	-0.01%	100%	103%	0.07%	-0.02%	0.03%	100%	103%

Summary

- Proposed methods for DMVR deblocking by inheriting bS values from left or top CB boundaries
- Subjective analysis shows that when compared to the anchor (VTM6.0), the proposed methods improve the subjective quality of coded sequences
- It is suggested to adopt this technique to the VVC draft specification and the VTM reference software