

CE5/CE8: Deblocking Filter for BDPCM coded block (JVET-P0571)

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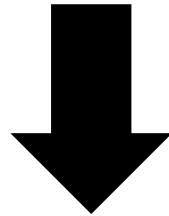
Summary

- Background and problem statement
 - There is a mismatch between Spec and SW for boundary strength calculation process.
 - Current bS is derived as non-zero if one of the blocks is non-BDPCM coded block.
- Proposed method
 - Method 1 : Fix SW to align with specification for bS derivation related with BDPCM
 - Method 2 : Unify deblock filtering behavior for BDPCM, PLT and lossless coded block without additional bS decision process as HEVC.
- Experimental results (ClassF, TGM) with VTM 6.0 anchor
 - Method 1 : (0.00%, 0.00%) for AI, (0.00%, -0.02%) for RA and (0.04%, 0.09%) for LDB
 - Method 2 : (0.01%, -0.03%) for AI, (0.01%, -0.03%) for RA and (0.00%, -0.07%) for LDB
- Thanks to MediaTek for cross-check.

Method 1

- Fix SW aligned with Spec.

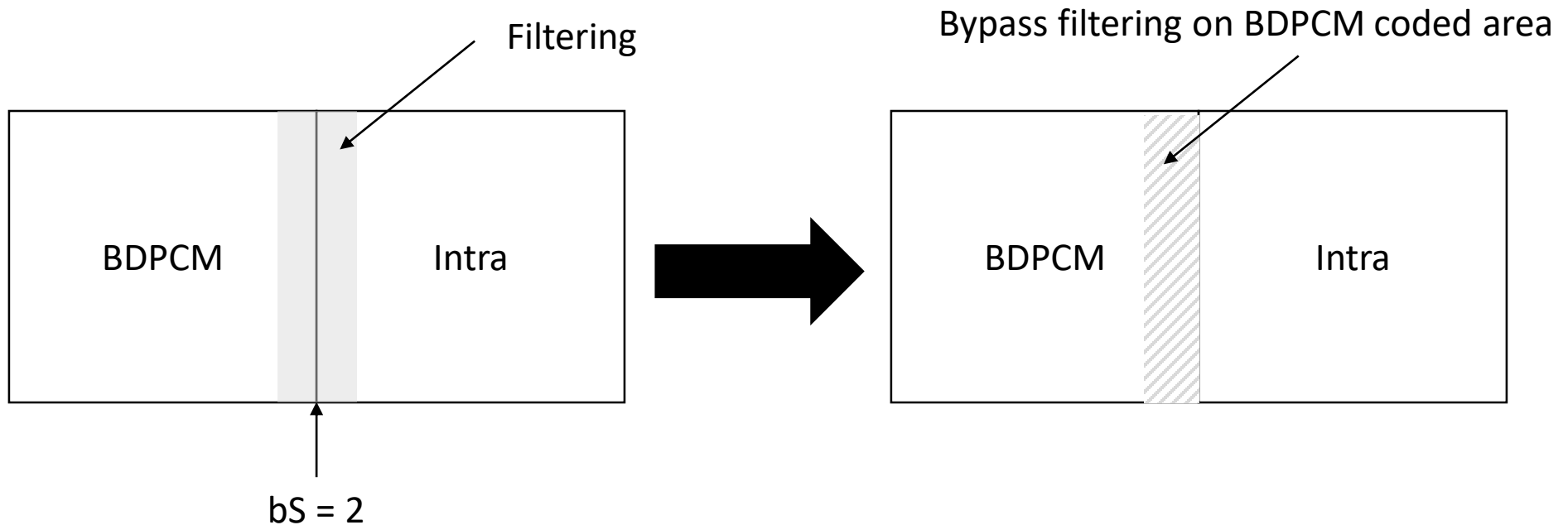
```
if( ( MODE_INTRA == cuP.predMode && cuP.bdpcmMode ) && ( MODE_INTRA == cuQ.predMode &&
cuQ.bdpcmMode ) )
{
    return 0;
}
```



```
if( ( MODE_INTRA == cuP.predMode && cuP.bdpcmMode ) && ( MODE_INTRA == cuQ.predMode &&
cuQ.bdpcmMode ) )
{
    return (BsSet(0, COMPONENT_Y) + BsSet(2, COMPONENT_Cb) + BsSet(2, COMPONENT_Cr));
}
```

Method 2

- The bS is derived to non-zero when one of the blocks is non-BDPCM coded.
- To keep detail inside BDPCM coded block, bypass filtering on BDPCM coded area.
- Unify deblock filtering for Bdpbcm with lossless and PLT without addition bS operation as HEVC.



Experimental result

- Method 1.

	Random access Main10				
	Over VTM-6.0				
	Y	U	V	EncT	DecT
Class F	0.00%	0.01%	-0.01%	96%	98%
Class SCC	-0.02%	0.00%	0.01%	99%	101%

	Low delay Main10				
	Over VTM-6.0				
	Y	U	V	EncT	DecT
Class F	0.04%	0.08%	0.70%	99%	102%
Class SCC	0.09%	0.09%	0.03%	99%	101%

Experimental result

- Method 2.

	All intra Main10				
	Over VTM-6.0				
	Y	U	V	EncT	DecT
Class F	0.01%	0.01%	0.00%	98%	100%
Class SCC	-0.03%	0.00%	-0.01%	100%	103%

	Random access Main10				
	Over VTM-6.0				
	Y	U	V	EncT	DecT
Class F	0.01%	-0.06%	-0.05%	97%	99%
Class SCC	-0.03%	-0.05%	-0.03%	100%	104%

	Low delay Main10				
	Over VTM-6.0				
	Y	U	V	EncT	DecT
Class F	0.00%	0.29%	0.35%	100%	102%
Class SCC	-0.07%	-0.04%	-0.09%	99%	102%

Conclusion

- It is suggested to adopt method 2 in next VTM software.