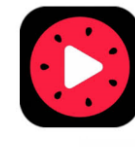


JVET-N0272

CE2-5.4: PARAMETER-BASED AFFINE MODEL INHERITANCE

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Parameter-based affine model inheritance

- Store affine parameters instead of three CPMVs, the top-left coordinate and the block dimensions.
 - *Each parameter is stored as an 8-bit signed integer. So $2 \times 4 \times 8 = 64$ bits are required to be store affine parameters in each 8×8 block inside a CTU.*
- When the current CU applies affine-inheritance merge mode
 - *affine parameters are directly copied from the neighbouring 4×4 block B to be inherited.*
 - *The MV of each sub-block in the current CU is derived with the center position of B as the base position, and the MV of block B (denoted as MVB) as the base MV*
- Redundant parameter calculations are removed.

Comparison on storage/computation

	In-CTU buffer Size	Derivation of CPMVs for affine inheritance merge	Derivation of affine parameters for affine inheritance merge	Derivation of affine parameters for affine inheritance inter
VTM-4.0	7689 bits	1	2	2
Proposed	2112 bits	0	0	1
Proposed/VTM-4.0	27.5%	0%	0%	50%

Simulations results on VTM-4.0

	RA					LB				
	Y	U	V	EncT	DecT	Y	U	V	EncT	DecT
Class A1	0.00%	-0.07%	-0.05%	100%	100%					
Class A2	0.04%	-0.01%	0.07%	99%	99%					
Class B	0.01%	-0.06%	0.02%	100%	100%	-0.02%	-0.25%	-0.19%	99%	98%
Class C	0.02%	-0.01%	-0.01%	100%	101%	-0.01%	0.30%	-0.01%	100%	103%
Class E						0.06%	0.11%	-0.23%	101%	100%
Overall	0.02%	-0.04%	0.01%	100%	100%	0.00%	0.02%	-0.14%	100%	100%
Class D	-0.01%	-0.07%	0.00%	100%	103%	-0.01%	0.24%	-0.78%	101%	100%
Class F	0.02%	0.09%	0.01%	101%	100%	0.07%	-0.12%	0.29%	100%	98%

Conclusion

- With the proposed method, the In-CTU memory size is saved by 75%. Meanwhile, some sophisticated steps are removed. It is suggested adopting this technology to VVC.