

AHG10/Non-CE9: Derivation process of reference indices for temporal merging candidates

JCTVC-H199

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1. Overview

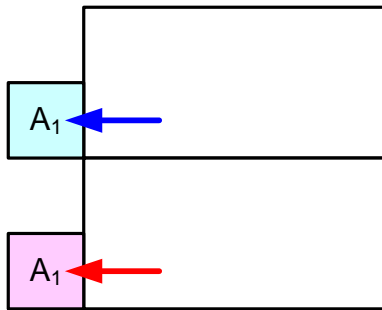
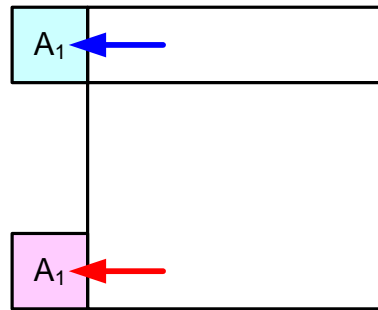
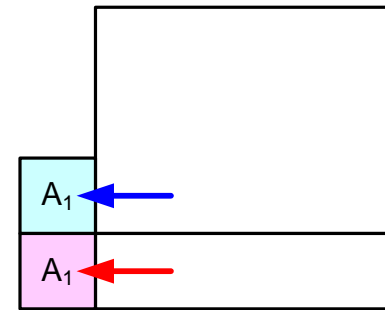
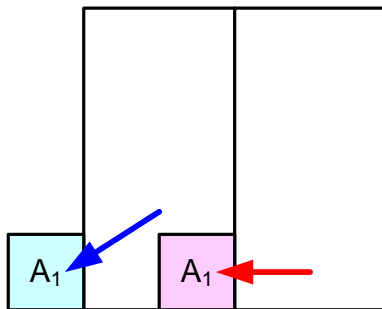
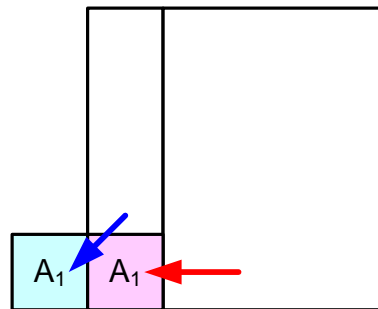
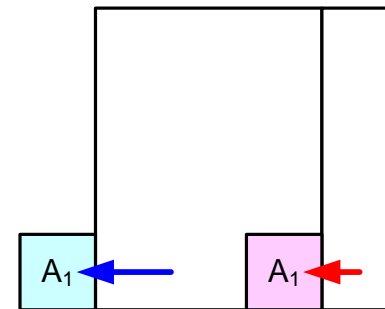
Overview

- Proposed technique
 - Derivation process of RefIdx for temporal merging candidates without spatial dependency for CU level parallel processing
- Related proposals
 - JCTVC-H0092, H0214 and H0278
- Cross-check
 - JCTVC-H0218 by Panasonic
- Simulation results
 - Proposal 1 & 2: No coding loss for all settings
 - Proposal 3: 0.1% loss for LD, no coding loss for RA

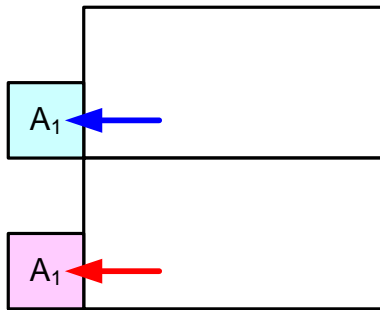
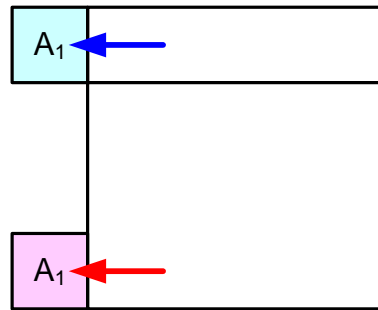
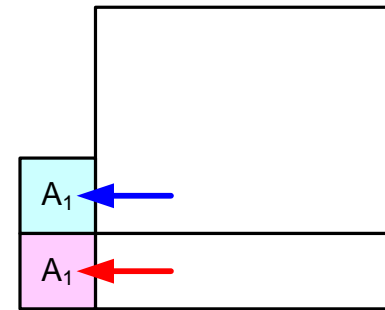
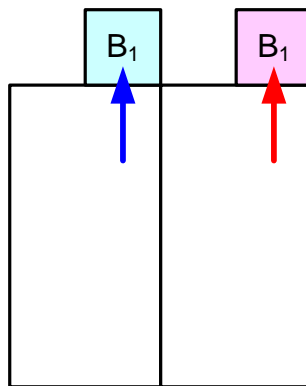
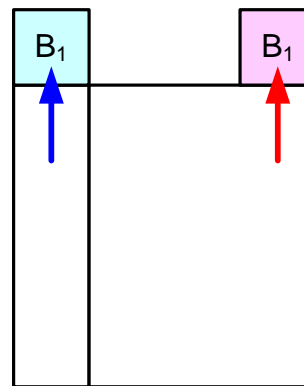
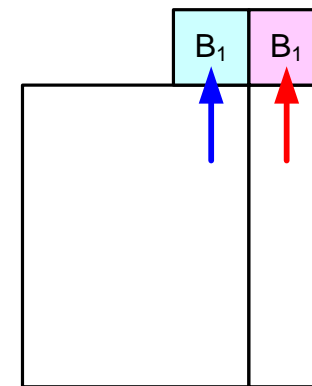


2. Algorithm

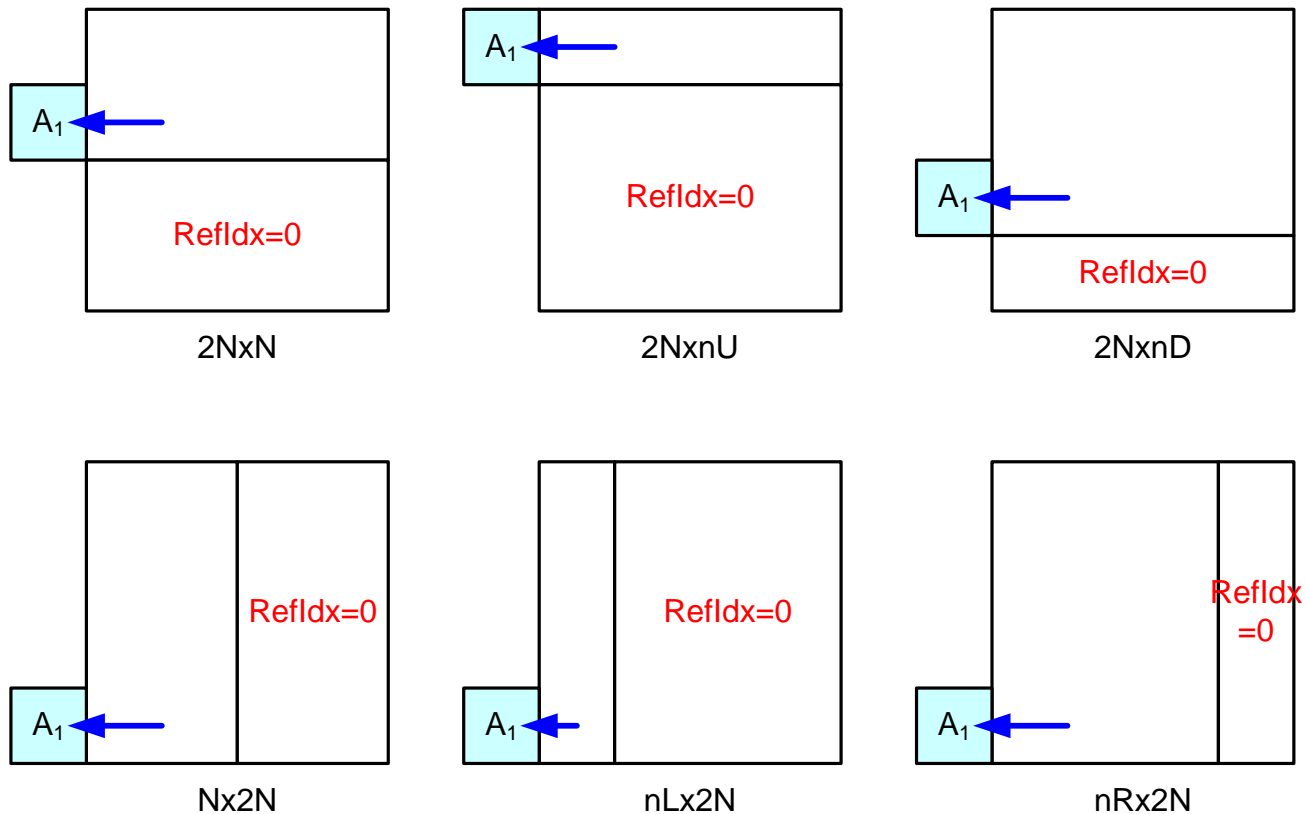
Referred block on HM5.0


 $2N \times N$

 $2N \times nU$

 $2N \times nD$

 $N \times 2N$

 $nL \times 2N$

 $nR \times 2N$

Referred block on Proposal 1

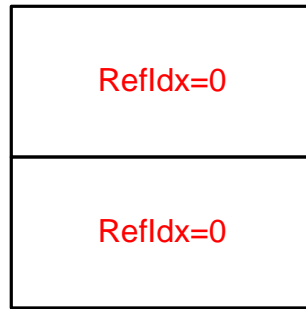
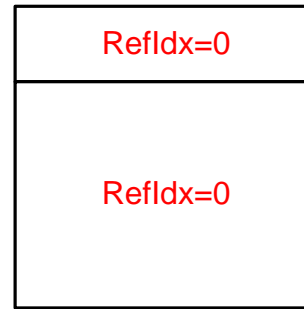
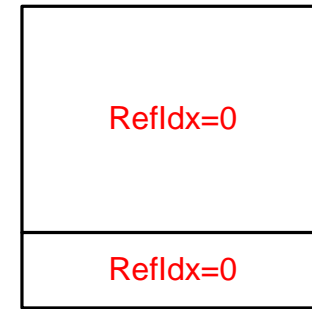
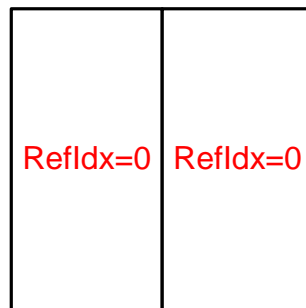
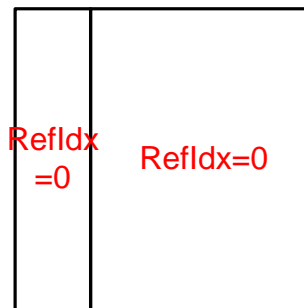
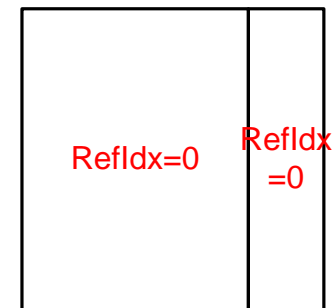
 $2N \times N$  $2N \times nU$  $2N \times nD$  $N \times 2N$  $nL \times 2N$  $nR \times 2N$

Referred block on Proposal 2

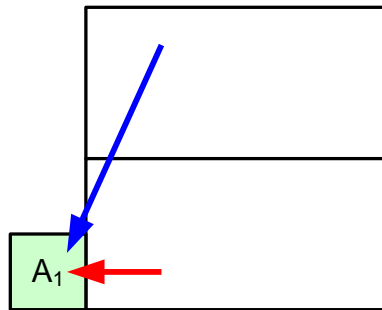
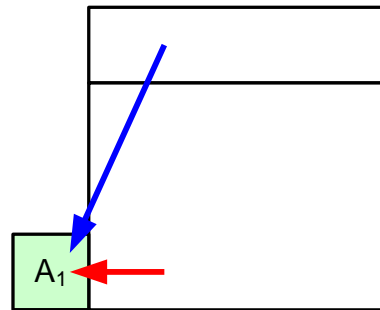
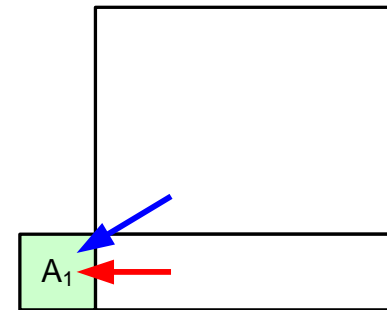
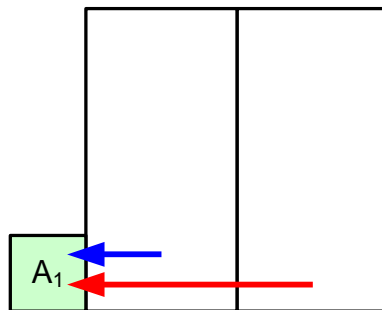
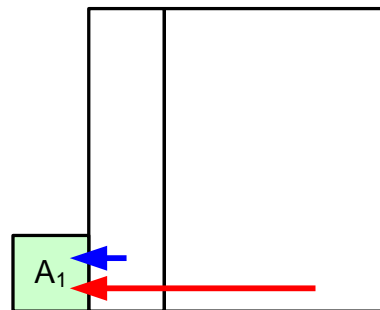
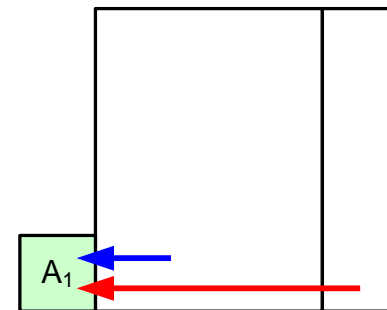


the same method as JCTVC-G0278

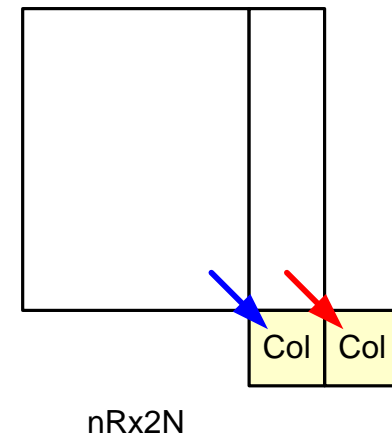
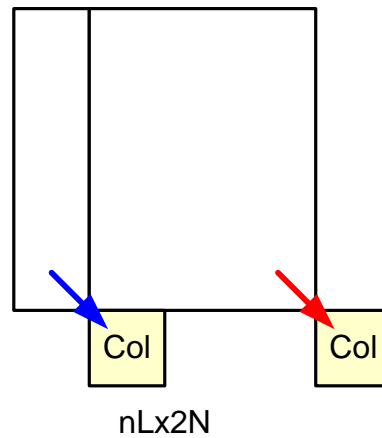
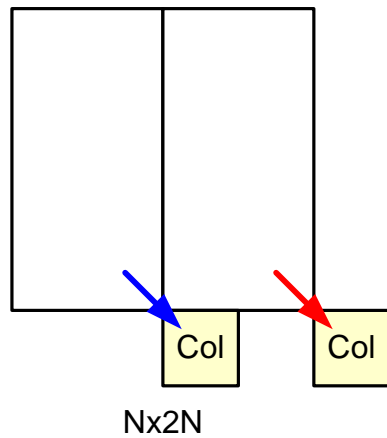
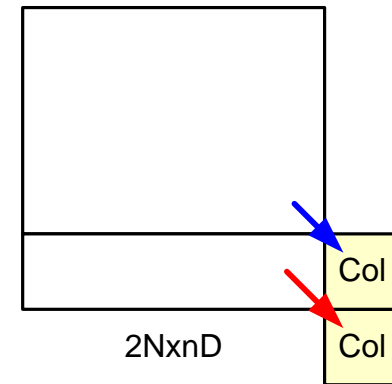
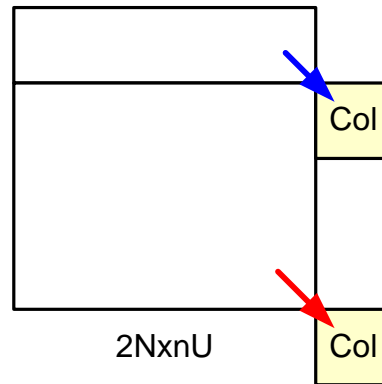
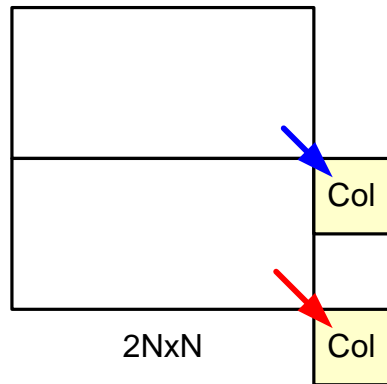
Proposal 3

 $2N \times N$  $2N \times n_U$  $2N \times n_D$  $N \times 2N$  $n_L \times 2N$  $n_R \times 2N$

Referred block on JCTVC-H0092

 $2N \times N$  $2N \times n_U$  $2N \times n_D$  $N \times 2N$  $n_L \times 2N$  $n_R \times 2N$

Referred block on JCTVC-H0214



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3. Experiments

Results of Proposal 1

- No coding loss for all settings
- Crosscheck: JCTVC-H0218 by Panasonic

	Random Access HE			Random Access LC			Random Access HE-10		
	Y	U	V	Y	U	V	Y	U	V
Class A (8bit)	0.0%	0.1%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%
Class B	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Class C	0.0%	0.0%	0.1%	0.0%	-0.1%	0.0%			
Class D	0.0%	-0.1%	-0.1%	0.0%	0.0%	0.0%			
Class E									
Overall	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Class F	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%			
Enc Time[%]		100%			100%			100%	
Dec Time[%]		100%			102%			100%	

	Low delay B HE			Low delay B LC		
	Y	U	V	Y	U	V
Class A						
Class B	0.0%	-0.1%	0.2%	0.0%	-0.3%	-0.1%
Class C	0.0%	-0.1%	0.1%	0.0%	-0.1%	0.0%
Class D	0.0%	-0.2%	0.0%	0.0%	0.8%	0.1%
Class E	0.0%	-0.6%	-0.1%	0.1%	-0.3%	0.5%
Overall	0.0%	-0.2%	0.1%	0.0%	0.0%	0.1%
	0.0%	-0.2%	0.1%	0.0%	0.0%	0.1%
Class F	-0.1%	0.0%	-0.3%	0.0%	-0.3%	-0.6%
Enc Time[%]		101%			101%	
Dec Time[%]		101%			100%	

Results of Proposal 2

- No coding loss for all settings
- Crosscheck: JCTVC-H0218 by Panasonic

	Random Access HE			Random Access LC			Random Access HE-10		
	Y	U	V	Y	U	V	Y	U	V
Class A (8bit)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.2%
Class B	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Class C	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
Class D	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%			
Class E									
Overall	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%
	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%
Class F	-0.1%	-0.1%	-0.1%	0.0%	0.0%	0.0%			
Enc Time[%]	100%			100%			100%		
Dec Time[%]	100%			100%			100%		

	Low delay B HE			Low delay B LC		
	Y	U	V	Y	U	V
Class A						
Class B	0.0%	0.1%	0.6%	0.0%	0.0%	0.4%
Class C	0.0%	-0.1%	-0.1%	0.0%	0.1%	0.1%
Class D	0.1%	-0.2%	0.2%	0.0%	0.7%	0.3%
Class E	0.0%	0.3%	0.0%	0.0%	-0.5%	0.3%
Overall	0.0%	0.0%	0.2%	0.0%	0.1%	0.3%
	0.0%	0.0%	0.2%	0.0%	0.2%	0.2%
Class F	-0.2%	-0.3%	-0.2%	0.0%	0.1%	-0.4%
Enc Time[%]	100%			100%		
Dec Time[%]	101%			99%		

Results of Proposal 3

■ 0.1% loss for LD, no coding loss for RA

	Random Access HE			Random Access LC			Random Access HE-10		
	Y	U	V	Y	U	V	Y	U	V
Class A (8bit)	0.0%	0.0%	-0.2%	0.0%	0.0%	-0.1%	0.0%	-0.1%	0.1%
Class B	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Class C	0.0%	-0.1%	-0.1%	0.0%	0.0%	-0.1%			
Class D	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%			
Class E									
Overall	0.0%	-0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
	0.0%	-0.1%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.1%
Class F	-0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%			
Enc Time[%]	100%			100%			100%		
Dec Time[%]	100%			102%			100%		

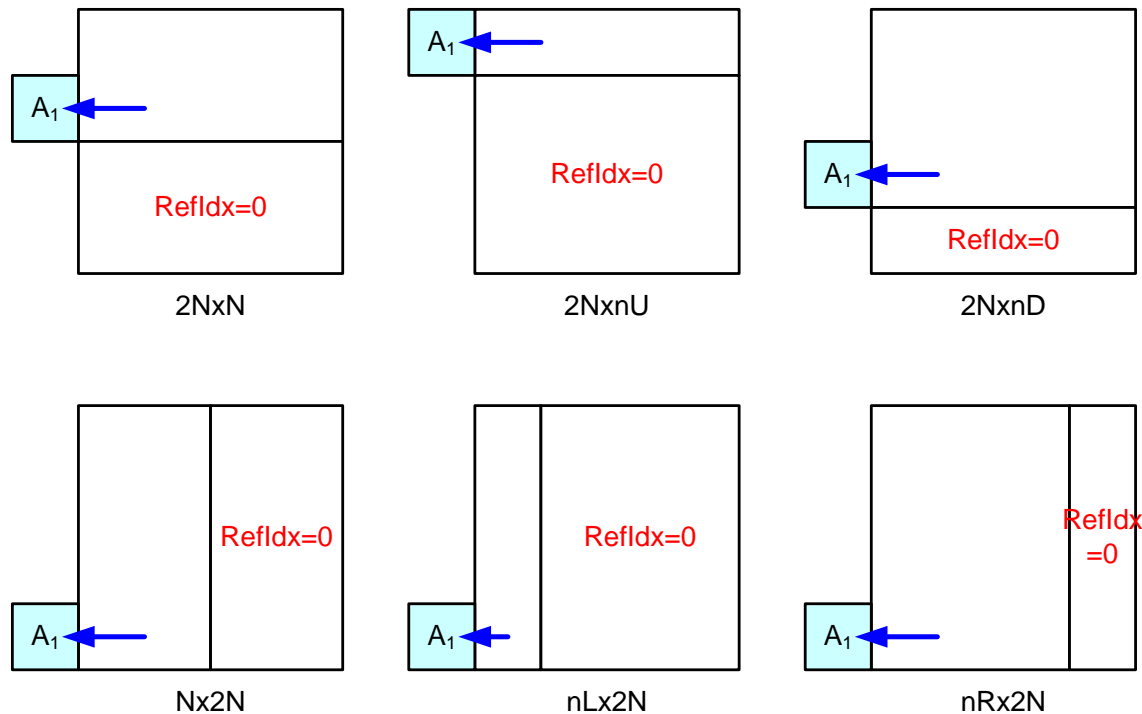
	Low delay B HE			Low delay B LC		
	Y	U	V	Y	U	V
Class A						
Class B	0.0%	0.6%	0.8%	0.0%	0.3%	0.5%
Class C	0.1%	0.1%	0.2%	0.0%	0.3%	0.2%
Class D	0.2%	0.5%	1.1%	0.1%	1.0%	0.8%
Class E	0.2%	0.6%	0.4%	0.1%	0.4%	0.7%
Overall	0.1%	0.4%	0.7%	0.1%	0.5%	0.6%
	0.1%	0.4%	0.6%	0.1%	0.5%	0.6%
Class F	-0.2%	-0.1%	-0.5%	-0.1%	-0.7%	-0.4%
Enc Time[%]	100%			100%		
Dec Time[%]	102%			101%		



4. Conclusion

Recommendation

- Derivation process of RefIdx for temporal merging candidates without spatial dependency for CU level parallel processing is adopted to the CD and next HM
- Especially, Proposal 2



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