



# **TE5-5.2.1: Inter-layer motion vector prediction**

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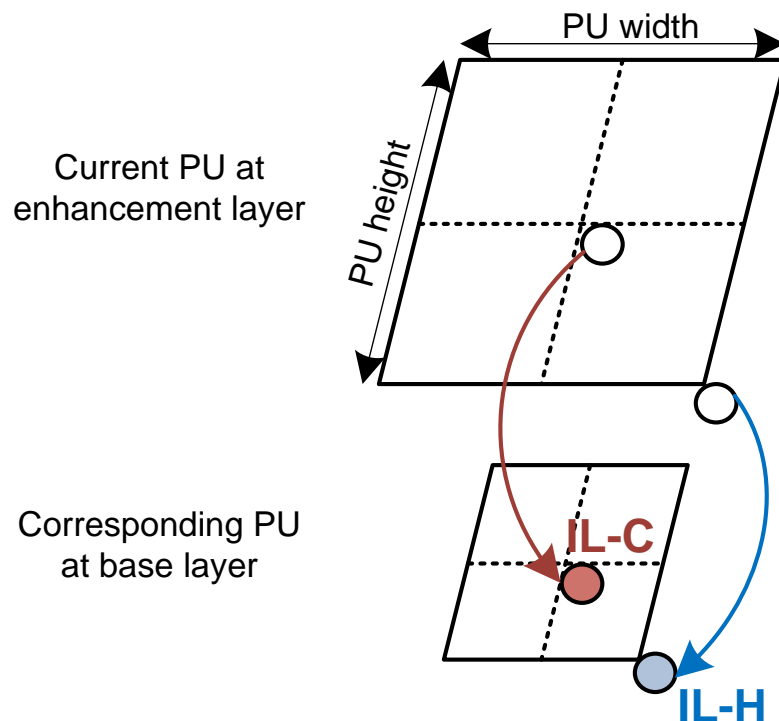
# Overall Summary

- Propose to put the base-layer (BL) motion data into the merging candidate list and AMVP (namely Inter) candidate list
  - BL center MV as the 1<sup>st</sup> candidate in Merging candidate list
  - BL H (bottom-right) MV as the 4<sup>th</sup> candidate in Merging candidate list
  - BL center MV as the 1<sup>st</sup> candidate in AMVP candidate list
  - Pruning with BL MV candidate except temporal candidate
  - Uncompressed motion field is used to derive BL MV
- Simulation results reportedly show 1.5-3.1% bit rate reduction
- The encoding time is reduced by 3-6%, the decoding time is unchanged

	RA-2x	RA-1.5x	RA-SNR	LP-2x	LP-1.5x	LP-SNR
BD-rate	-2.8%	-2.7%	-3.1%	-1.7%	-1.5%	-2.5%

# Inter-layer merging candidate list

- Insert two BL MVs into EL merging candidate list
  - IL-C MV as the 1<sup>st</sup> candidate in Merging candidate list
  - IL-H MV as the 4<sup>th</sup> candidate in Merging candidate list
- IL-H candidate or any spatial candidate is removed if it is the same as the IL-C candidate

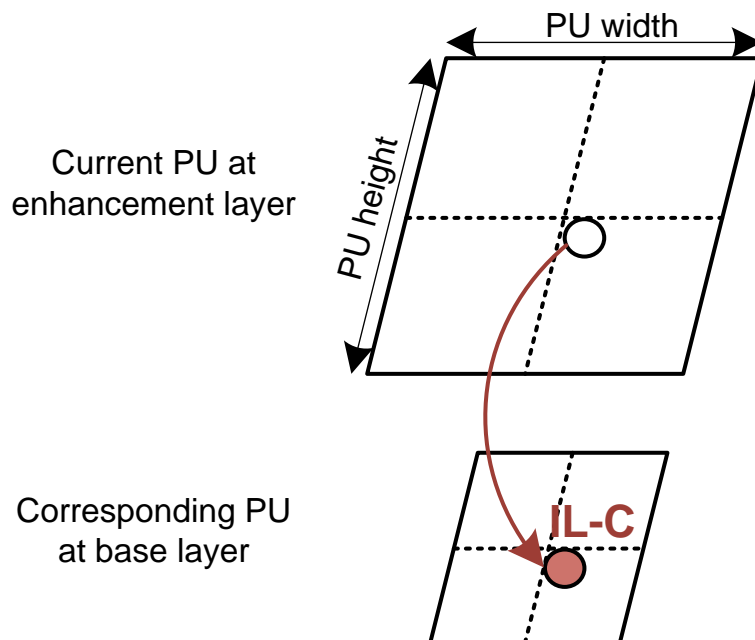


## Proposed Merging Cand. List

- IL-C
- A1
- B1
- IL-H
- if( $N < 4$ ), B0
- if( $N < 4$ ), A0
- if( $N < 4$ ), B2
- Temporal
- first pruning
- if( $N < \text{Max.}$ ), Combined bi-prediction candidates
- if( $N < \text{Max.}$ ), Zero MV candidates

# Inter-layer AMVP candidate list

- Insert one BL MV into EL AMVP candidate list
  - IL-C MV as the 1<sup>st</sup> candidate in AMVP candidate list
- Spatial candidate is removed if it is the same as the IL-C candidate



Proposed AMVP Cand. List	
-	IL-C
-	A
-	B
-	Temporal
-	first pruning
-	if( $N < \text{Max.}$ ), Zero MV candidates

# Using uncompressed BL motion data

- In SMuC-0.1.1, the BL motion data are compressed before the EL picture coding
- In this contribution, uncompressed BL motion data are used for deriving EL AMVP and merging candidates
- The motion data compression is performed after EL picture is coded

# Simulation Results

- Anchor: SMuC-0.1.1
- The combined results (Test C) reportedly show 1.5-3.1% bit rate reduction
  - The encoding time is reduced by 3-6%
- Thank Canon for cross-verification (JCTVC-L0394).

	Uncom. BL MV	IL- MRG	IL- AMVP	RA- 2x	RA- 1.5x	RA- SNR	LDP- 2x	LDP- 1.5x	LDP- SNR
Test A	O	O		-2.7%	-2.6%	-3.0%	-1.6%	-1.4%	-2.4%
Test B	O		O	-1.5%	-1.5%	-1.5%	-1.0%	-0.8%	-1.1%
Test C	O	O	O	-2.8%	-2.7%	-3.1%	-1.7%	-1.5%	-2.5%
Test D		O	O	-1.8%	-2.2%	-2.7%	-0.8%	-1.1%	-2.0%

# Conclusions

- In this contribution, the BL motion data are put into the merging candidate list and AMVP candidate list
  - BL center MV as the 1<sup>st</sup> candidate in Merging candidate list
  - BL H-pos MV as the 4<sup>th</sup> candidate in Merging candidate list
  - BL center MV as the 1<sup>st</sup> candidate in AMVP candidate list
  - Pruning with BL MV candidate except temporal candidate
  - Uncompressed motion field is used to derive BL MV
- The combined results reportedly show 1.5-3.1% bit rate reduction
  - The encoding time is reduced by 3-6%
  - The decoding time is unchanged