JCT3V-B0095:
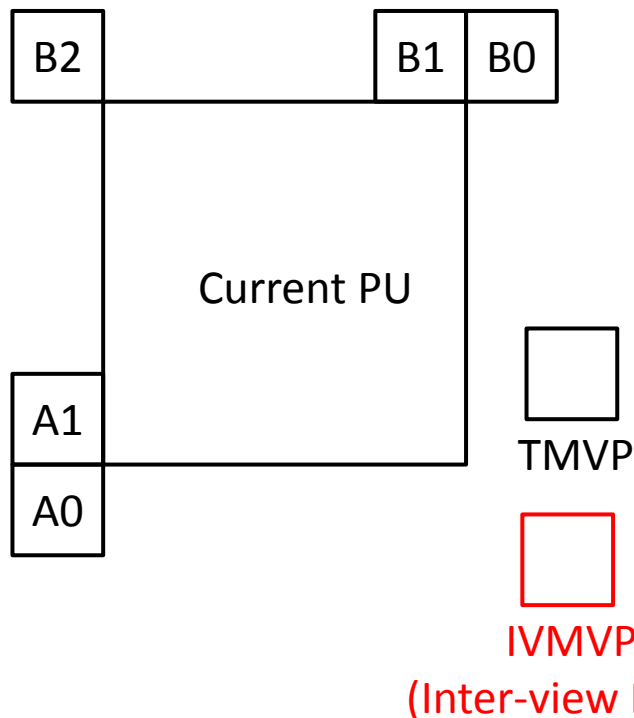# Adaptive inter-view MVP candidate position for merging candidate list construction

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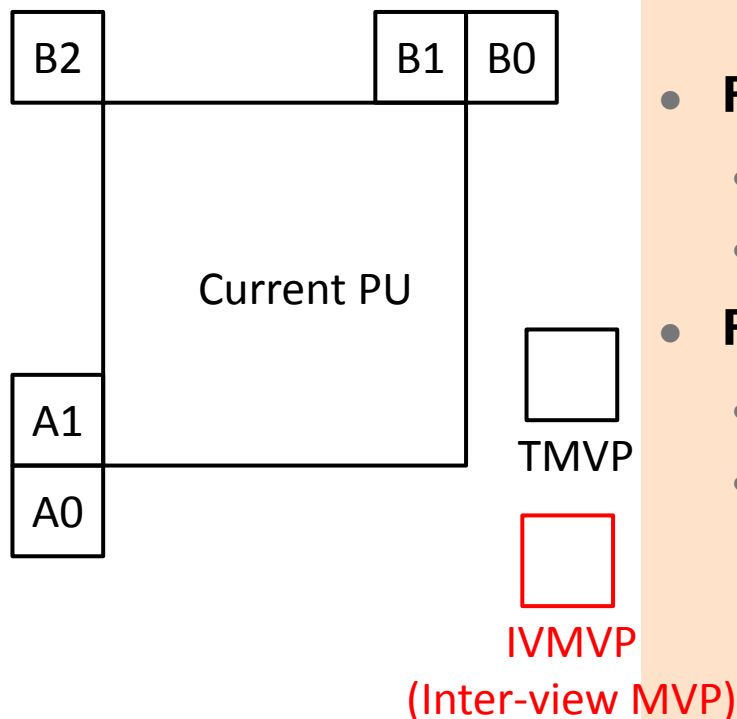
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Merging candidate list construction in 3D-HTM

```
B2          B1  B0


      Current PU


A1
              TMVP
A0
              IVMVP
         (Inter-view MVP)
```

- **Merging candidate list construction in HEVC**
  - A1 -> B1 -> B0 -> A0 -> B2 -> TMVP
- **Merging candidate list construction in 3D-HTM**
  - IVMVP -> A1 -> B1 -> B0 -> A0 -> B2 -> TMVP
  - IVMVP(Inter-view MVP) candidate is inserted in the 1st position
- Observation
  - IVMVP might be a kind of disparity vector(DV) or temporal motion vector(MV)
    - different coding efficiency for the DV or MV case
  - Benefic if adaptive position of IVMVP according to the two cases

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Proposed method

B2   B1   B0

Current PU

A1

A0

TMVP

IVMVP
(Inter-view MVP)

- **Adaptive position of IVMVP in the list**
  - **IVMVP is inserted to different position depending on whether it is a kind of MV or DV**
- **For MV-based IVMVP**
  - `IVMVP -> A1 -> B1 -> B0 -> A0 -> B2 -> TMVP`
  - **Same as HTM4.0**
- **For DV-based IVMVP**
  - `A1 -> B1 -> B0 -> A0 -> IVMVP -> B2 -> TMVP`
  - **DV-based IVMVP is inserted to the 5th position in list**

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Experimental results

- Tested: 1st position for MV-based IVMVP, 5th position for DV-based IVMVP

- Reference: 3D-HTM4.0.1

- Crosschecked by INRIA in JCT3V-B0099

	video 0	video 1	video 2	video only	synthesized only	coded & synthesized	enc time	dec time	ren time
Balloons	0.0%	-0.2%	-0.2%	-0.1%	-0.1%	-0.1%	99.8%	99.8%	100.3%
Kendo	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%	99.9%	99.3%	98.8%
Newspapercc	0.0%	-0.5%	-0.5%	-0.2%	-0.2%	-0.2%	100.1%	100.4%	99.2%
GhostTownFly	0.0%	0.1%	-0.1%	0.0%	0.0%	0.0%	99.8%	103.2%	97.8%
PoznanHall2	0.0%	0.0%	-0.2%	-0.1%	-0.1%	-0.1%	99.6%	99.5%	98.5%
PoznanStreet	0.0%	-0.9%	-0.9%	-0.3%	-0.3%	-0.3%	99.8%	97.1%	99.4%
UndoDancer	0.0%	-0.1%	0.1%	0.0%	0.0%	0.0%	100.3%	101.3%	99.4%
1024x768	0.0%	-0.2%	-0.1%	-0.1%	-0.1%	-0.1%	99.9%	99.8%	99.4%
1920x1088	0.0%	-0.2%	-0.3%	-0.1%	-0.1%	-0.1%	99.9%	100.3%	98.8%
average	0.00%	-0.23%	-0.21%	-0.10%	-0.10%	-0.10%	99.9%	100.1%	99.0%

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Recommendation

- **The proposed method**
  - Different position is assigned for IVMVP depending on whether it is a DV or MV
  - Improved coding efficiency, 0.2% for both texture views
- **It is recommended to adopt the proposal**

Thank you!

Additional tests: Comparison of coding efficiency for different position of DV-based IVMVP in list

Position of DV-based IVMVP in list	video 0	video 1	video 2	video only	synthesized only	coded & synthesized
1st position in list	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2nd position in list	0.00%	0.13%	0.26%	0.06%	0.05%	0.05%
3rd position in list	0.00%	-0.23%	-0.15%	-0.08%	-0.04%	-0.06%
4th position in list	0.00%	-0.21%	-0.10%	-0.07%	-0.07%	-0.07%
5th position in list	0.00%	-0.23%	-0.21%	-0.10%	-0.10%	-0.10%
6th position in list	0.00%	-0.23%	-0.17%	-0.09%	-0.07%	-0.07%

Note:

1. MV-based IVMVP is fixed to the 1st position in list
2. DV-based IVMVP is inserted to a different position in list

A1 -> B1 -> B0 -> A0 -> B2 -> TMVP

1st   2nd   3rd   4th   5th   6th

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