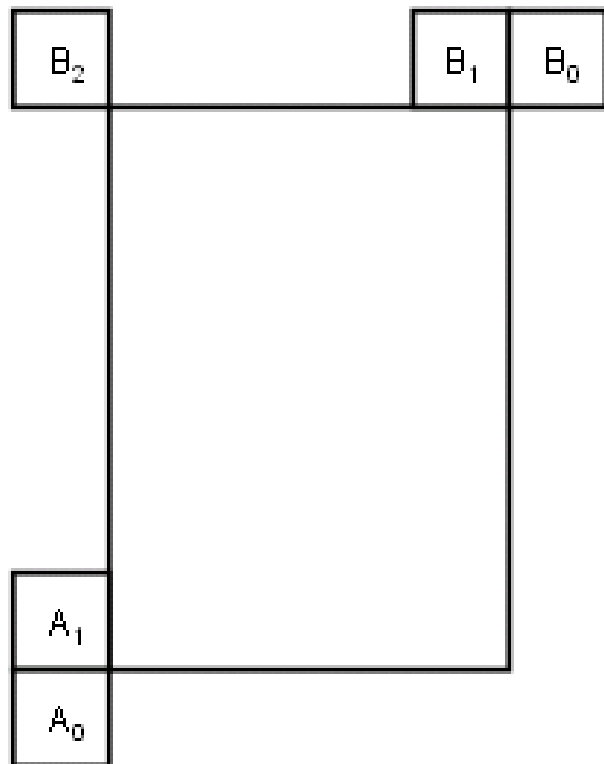


JCTVC-J0145: Simplification on spatial AMVP candidate derivation

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Spatial AMVP candidate derivation in HM7



- AMVP candidates
 - 2 spatial AMVP candidates
 - 1 temporal AMVP candidate
- Spatial AMVP derivation
 - 5 neighboring positions are used
 - A_0 , A_1 , B_0 , B_1 , B_2
 - Both scaled and non-scaled MV candidates are derived based on these neighboring positions.

Simplification on Spatial AMVP derivation

Non-scaled MV candidate A
derivation based on A0, A1



If the non-scaled MV candidate A is
not available, scaled MV candidate
A derivation based on A0, A1



Non-scaled MV candidate B
derivation based on B0, B1, B2



If the candidate A is not available,
scaled MV candidate B derivation
based on B0, B1, B2

Spatial AMVP derivation in HM7

Non-scaled MV candidate A
derivation based on A0, A1



~~If the non-scaled MV candidate A is
not available, scaled MV candidate
A derivation based on A0, A1~~



Non-scaled MV candidate B
derivation based on B0, B1, B2



If the **candidate B** is not available,
scaled MV candidate B derivation
based on **A1, B1, B2**

Proposed

Coding efficiency: proposal vs. HM7.0

| | Random Access Main | | | Random Access HE10 | | |
|----------------|--------------------|--------------|-------------|--------------------|-------------|-------------|
| | Y | U | V | Y | U | V |
| Class A | 0.0% | -0.3% | -0.1% | 0.1% | 0.0% | 0.2% |
| Class B | 0.0% | 0.0% | 0.1% | 0.0% | 0.0% | 0.0% |
| Class C | 0.0% | 0.0% | 0.1% | 0.0% | 0.0% | 0.0% |
| Class D | 0.0% | 0.0% | 0.1% | 0.0% | 0.0% | -0.2% |
| Class E | | | | | | |
| Overall | 0.0% | -0.1% | 0.0% | 0.0% | 0.0% | 0.0% |
| | 0.0% | -0.1% | 0.0% | 0.0% | 0.0% | 0.0% |
| Class F | 0.1% | 0.1% | 0.1% | 0.1% | 0.1% | 0.1% |
| Enc Time[%] | 100% | | | 100% | | |
| Dec Time[%] | 100% | | | 100% | | |

| | Low delay B Main | | | Low delay B HE10 | | |
|----------------|------------------|-------------|-------------|------------------|--------------|--------------|
| | Y | U | V | Y | U | V |
| Class A | | | | | | |
| Class B | 0.0% | 0.0% | 0.0% | -0.1% | -0.1% | -0.2% |
| Class C | 0.0% | 0.1% | -0.1% | 0.0% | -0.2% | -0.1% |
| Class D | -0.1% | 0.1% | 0.5% | -0.1% | -0.1% | -0.1% |
| Class E | -0.1% | -0.2% | -0.5% | 0.1% | -0.3% | -0.2% |
| Overall | -0.1% | 0.0% | 0.0% | 0.0% | -0.2% | -0.1% |
| | -0.1% | 0.0% | 0.0% | 0.0% | -0.1% | 0.0% |
| Class F | -0.1% | 0.4% | -0.1% | 0.0% | 0.4% | 0.8% |
| Enc Time[%] | 100% | | | 100% | | |
| Dec Time[%] | 102% | | | 99% | | |

Recommendation

- The proposed method
 - The steps for scaled MV candidate derivation are combined such that non-scaled MV candidates are always checked before scaled MV candidates
 - Neighboring positions for scaled MV candidate derivation is reduced from 5 to 3
 - Specification text is largely simplified
 - No coding efficiency loss
- It is recommended to adopt the proposal

Thank you

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Additional test for the proposal with 5 neighboring positions used in scaled MV derivation

| | Random Access Main | | | Random Access HE10 | | |
|----------------|--------------------|-------------|-------------|--------------------|-------------|-------------|
| | Y | U | V | Y | U | V |
| Class A | 0.0% | -0.2% | 0.0% | 0.0% | -0.1% | 0.3% |
| Class B | 0.0% | 0.1% | 0.1% | 0.0% | 0.0% | -0.1% |
| Class C | 0.0% | 0.0% | 0.1% | 0.0% | 0.1% | -0.1% |
| Class D | 0.0% | 0.0% | 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% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Class F | 0.1% | 0.1% | 0.1% | 0.0% | 0.1% | 0.1% |
| Enc Time[%] | 100% | | | 100% | | |
| Dec Time[%] | 100% | | | 99% | | |

| | Low delay B Main | | | Low delay B HE10 | | |
|----------------|------------------|--------------|-------------|------------------|-------------|-------------|
| | Y | U | V | Y | U | V |
| Class A | | | | | | |
| Class B | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.2% |
| Class C | 0.0% | 0.0% | 0.0% | -0.1% | 0.0% | 0.0% |
| Class D | -0.1% | -0.2% | 0.2% | -0.1% | 0.3% | -0.2% |
| Class E | -0.1% | -0.4% | -0.1% | 0.1% | 0.0% | -0.1% |
| Overall | 0.0% | -0.1% | 0.0% | 0.0% | 0.1% | 0.0% |
| | 0.0% | -0.1% | 0.0% | 0.0% | 0.1% | 0.0% |
| Class F | 0.1% | 0.3% | 0.3% | 0.1% | 0.1% | 0.5% |
| Enc Time[%] | 100% | | | 100% | | |
| Dec Time[%] | 101% | | | 98% | | |