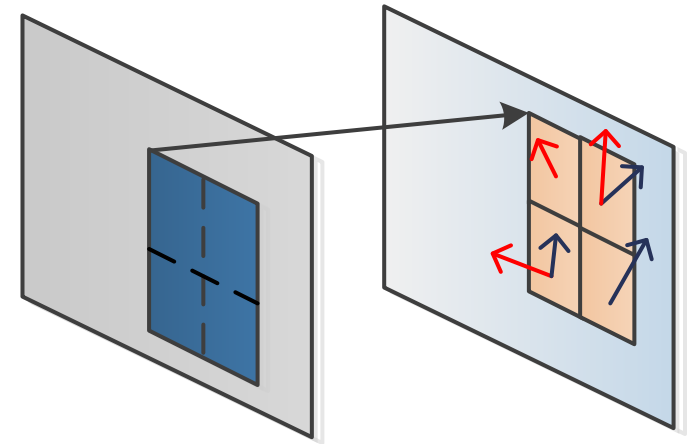


VCEG-AZ10 – Extension of Advanced Temporal Motion Vector Predictor

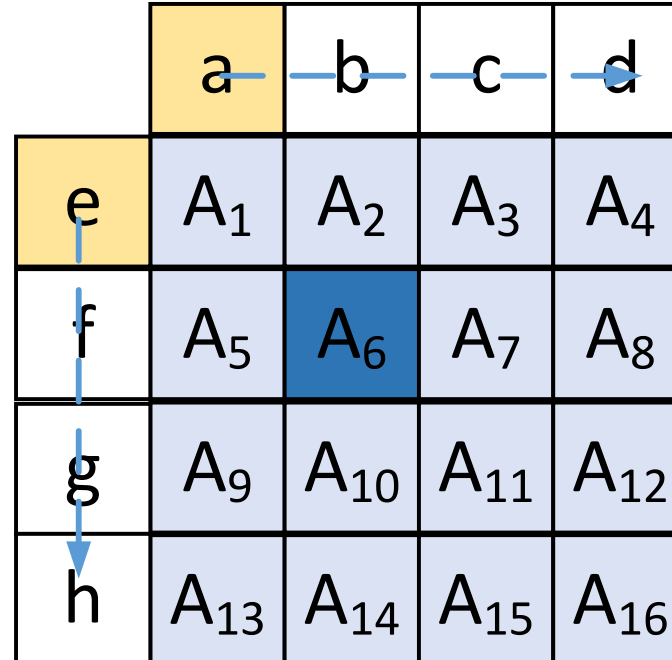
Advanced Temporal Motion Vector Prediction (ATMVP)

- A reference picture (*source picture*) and the *temporal vector* are determined by the motion information of the spatial neighboring blocks of the current PU.
- For each sub-PU (4x4) corresponding sub-PU in the *source picture* is found by adding to the coordinate of the current sub-PU the temporal vector. The motion information of the corresponding block (the center pixel) is used to derive the motion information for the sub-PU.
 - Motion vector of the center sub-PU is used as representative mv.
- Number of merge candidates increase to 6.
- 4x8 for bi-prediction enabled and mv compression disabled.



Enhanced ATMVP

- The PUs are split into square $N \times N$ sub-PUs (in this contribution N is set to 4). The motion vectors of the sub-PUs are derived recursively.
- The motion vectors are set to average of up to 3 motion vectors:
 - Up to two motion vectors from the spatial neighbors, and
 - Temporal motion vector predictor.



Results for ATMVP and eATMVP

| | Random Access Main | | | Random Access Main10 | | |
|----------------|--------------------|-------|-------|----------------------|-------|-------|
| | Y | U | V | Y | U | V |
| Class A | -1.8% | -1.7% | -1.9% | -1.7% | -2.4% | -2.4% |
| Class B | -1.6% | -1.3% | -1.5% | -1.6% | -1.2% | -1.4% |
| Class C | -1.5% | -1.5% | -1.7% | -1.4% | -1.4% | -1.5% |
| Class D | -1.5% | -1.4% | -1.6% | -1.5% | -1.5% | -1.9% |
| Class E | | | | | | |
| Overall | -1.6% | -1.5% | -1.6% | -1.6% | -1.6% | -1.8% |
| | -1.6% | -1.5% | -1.7% | -1.6% | -1.6% | -1.8% |
| Class F | -0.5% | -0.7% | -0.7% | -0.5% | -0.7% | -0.6% |

| | Low delay B Main | | | Low delay B Main10 | | |
|----------------|------------------|-------|-------|--------------------|-------|-------|
| | Y | U | V | Y | U | V |
| Class A | | | | | | |
| Class B | -1.1% | -0.7% | -0.7% | -1.1% | -1.0% | -1.4% |
| Class C | -1.3% | -1.5% | -1.4% | -1.3% | -1.3% | -1.2% |
| Class D | -1.4% | -1.1% | -1.3% | -1.3% | -1.3% | -1.0% |
| Class E | -3.5% | -2.9% | -3.9% | -3.6% | -4.1% | -4.0% |
| Overall | -1.7% | -1.4% | -1.6% | -1.7% | -1.7% | -1.7% |
| | -1.7% | -1.5% | -1.6% | -1.7% | -1.8% | -1.7% |
| Class F | -0.6% | -0.8% | -1.3% | -0.5% | -0.8% | -0.8% |