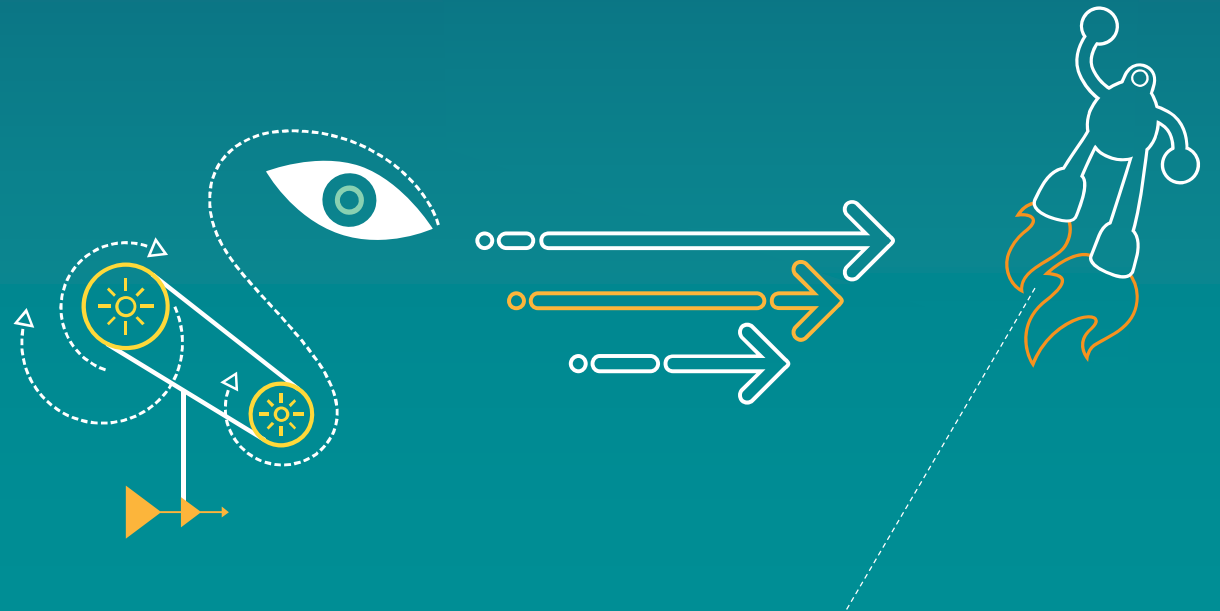


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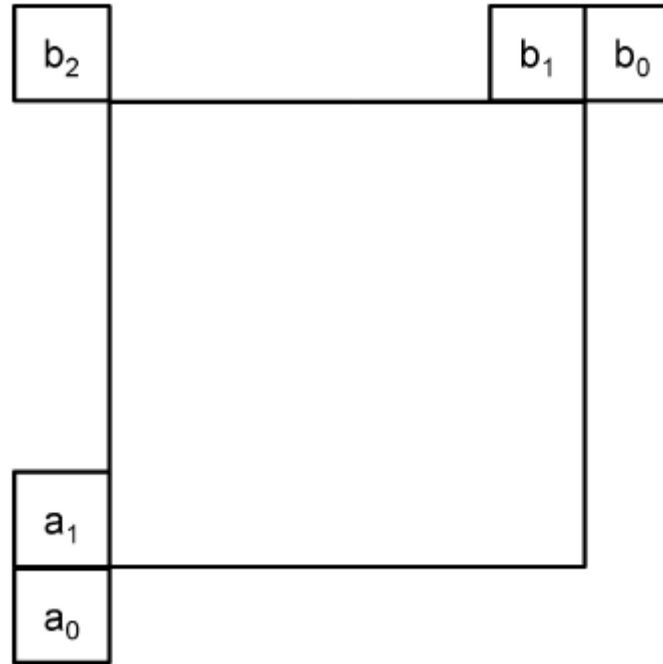
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## Non-CE2: Block vector prediction method for intra block copy

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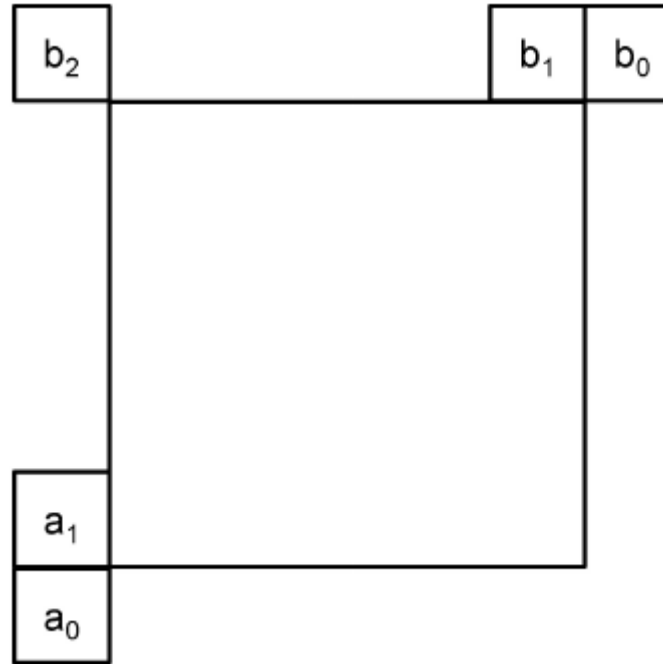


# Current block vector (BV) prediction method



- The number of candidates is 2.
- First, check the spatial neighboring BVs of  $a_1$  and  $b_1$ ; if the candidate number is less than 2, check the last two BVs initialized with  $(-2 \cdot CUw, 0)$  and  $(-CUw, 0)$ .

# Proposed BV prediction method



- The number of candidates is increased to be 5.
- First, check the spatial neighboring BVs with the order  $\{a_1, b_1, b_0, a_0, b_2\}$ ; second, if the candidate number is less than 5, check the temporal BV predictor and the last two BVs; last, 5 predefined BVs,  $\{(-2*PUw, 0), (-PUw, 0), (0, -2*PUh), (0, -PUh), (-PUw, -PUh)\}$ , are added until the candidate list is full.

# Experimental results

## 4:4:4 lossy coding without temporal BV predictor

	All Intra			Random Access			Low delay B		
	G/Y	B/U	R/V	G/Y	B/U	R/V	G/Y	B/U	R/V
RGB, text & graphics with motion, 1080p & 720p	-2.0%	-2.0%	-2.0%	-1.8%	-1.7%	-1.7%	-1.4%	-1.1%	-1.0%
RGB, mixed content, 1440p & 1080p	-1.2%	-1.2%	-1.3%	-1.0%	-1.0%	-1.0%	-0.9%	-0.7%	-0.9%
RGB, Animation, 720p	-0.1%	-0.1%	-0.1%	0.0%	0.1%	0.0%	-0.1%	-0.1%	-0.2%
RGB, camera captured, 1080p	0.0%	0.0%	0.0%	-0.1%	-0.1%	0.0%	0.1%	0.0%	0.0%
YUV, text & graphics with motion, 1080p & 720p	-2.2%	-2.2%	-2.0%	-2.1%	-2.1%	-2.0%	-1.6%	-1.5%	-1.6%
YUV, mixed content, 1440p & 1080p	-1.4%	-1.3%	-1.4%	-1.4%	-1.3%	-1.4%	-1.5%	-1.0%	-1.1%
YUV, Animation, 720p	-0.3%	-0.4%	-0.4%	-0.2%	-0.5%	-0.1%	0.0%	-0.2%	0.0%
YUV, camera captured, 1080p	0.0%	-0.1%	-0.1%	-0.1%	-0.2%	-0.2%	-0.1%	0.1%	-0.1%
Enc Time[%]	119%			103%			102%		
Dec Time[%]	101%			101%			101%		

## 4:4:4 lossy coding with temporal BV predictor

	All Intra			Random Access			Low delay B		
	G/Y	B/U	R/V	G/Y	B/U	R/V	G/Y	B/U	R/V
RGB, text & graphics with motion, 1080p & 720p	-2.0%	-2.0%	-2.0%	-2.1%	-1.9%	-1.9%	-1.8%	-1.4%	-1.3%
RGB, mixed content, 1440p & 1080p	-1.2%	-1.2%	-1.3%	-1.0%	-1.0%	-1.1%	-1.1%	-0.8%	-1.0%
RGB, Animation, 720p	-0.1%	-0.1%	-0.1%	0.0%	0.1%	0.0%	-0.1%	0.0%	-0.2%
RGB, camera captured, 1080p	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
YUV, text & graphics with motion, 1080p & 720p	-2.2%	-2.2%	-2.0%	-2.4%	-2.3%	-2.2%	-2.0%	-1.8%	-1.9%
YUV, mixed content, 1440p & 1080p	-1.4%	-1.3%	-1.4%	-1.4%	-1.2%	-1.3%	-1.5%	-1.2%	-1.4%
YUV, Animation, 720p	-0.3%	-0.4%	-0.4%	-0.2%	-0.5%	-0.2%	-0.1%	0.2%	0.0%
YUV, camera captured, 1080p	0.0%	-0.1%	-0.1%	0.0%	-0.1%	-0.1%	-0.1%	0.0%	-0.2%
Enc Time[%]	120%			105%			101%		
Dec Time[%]	103%			104%			106%		

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# Conclusions

- Proposed BV prediction method
  - Increase BV predictor candidates.
  - Include temporal BV predictor in the candidate list.