

# **Low-complexity generalized residual prediction for SHVC**

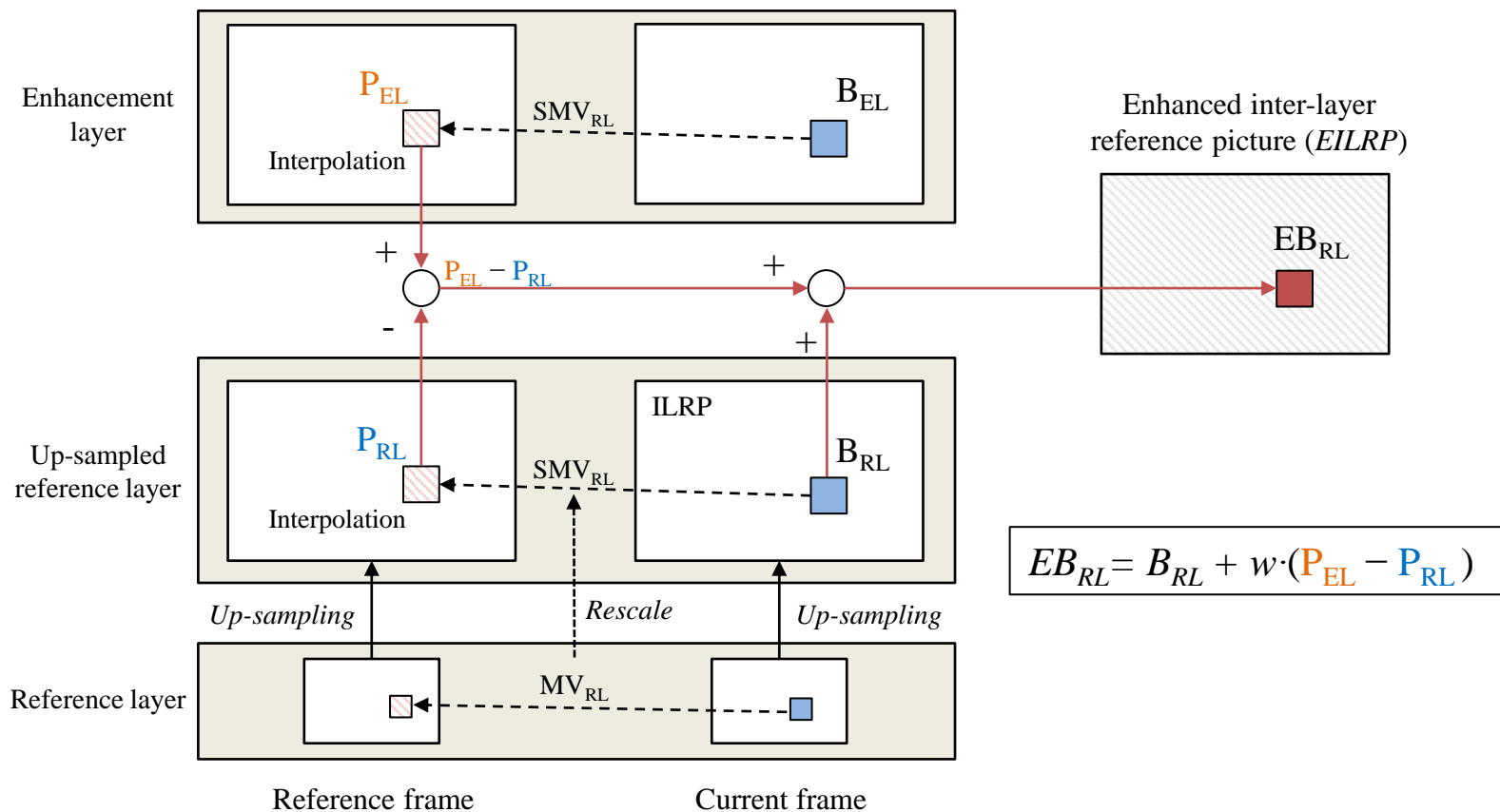
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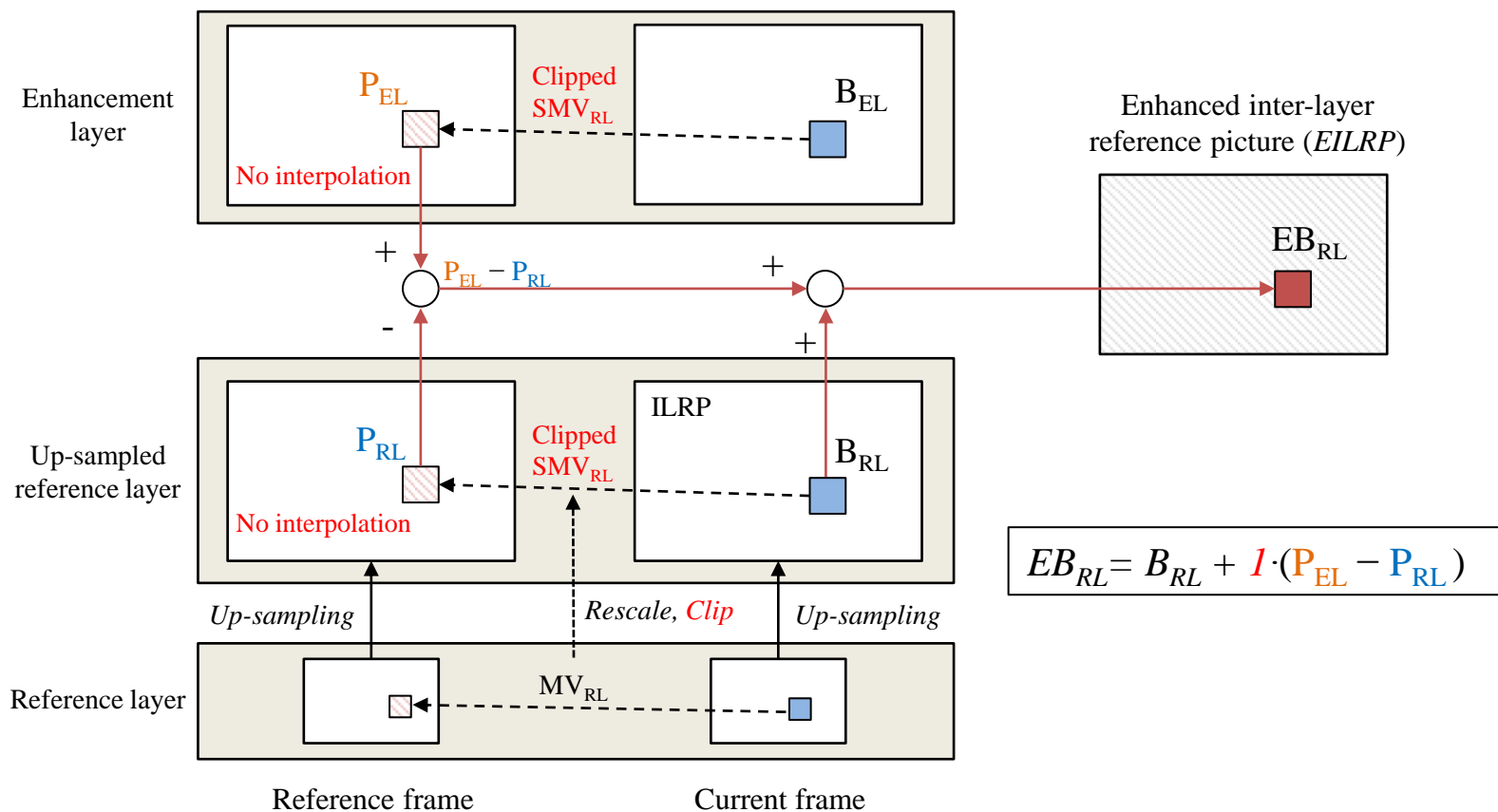
# Introduction

- Inter-layer reference enhancement (based on N0204)
  - $MV_{EL}$  is a 16x16 compressed motion vector
  - Motion compensation with  $SMV_{EL}$  may incur interpolation in both the EL and the up-sampled RL



# The proposed ILR enhancement

- The inter-layer reference picture enhancement with clipped motion vector
  - Skips interpolation of both EL and the up-sampled RL by clipping  $SMV_{EL}$  to the left-top integer motion vector.
  - Weighting factor of the residual predictor ( $w$ ) is set to 1



# Enhanced ILRP placement

- Inter-layer reference picture (ILRP) in L0 is replaced with enhanced inter-layer reference picture (EILRP)
  - No additional reference pictures are added in the reference list



EILRP placement in the reference list

# Test results on SHM3.0.1

## Test conditions

<b>Anchor</b>	SHM3.0.1
<b>Configuration</b>	Random access
<b>Spatial scalability</b>	1.5x / 2x

## The performance of the proposed ILR enhancement

Seq	BD-rate		Enc time		Dec time	
	RA 2x	RA 1.5x	RA 2x	RA 1.5x	RA 2x	RA 1.5x
Kimono	-1.3%	-0.9%	103%	88%	105%	105%
ParkScene	-0.1%	-0.3%	94%	98%	107%	105%
Cactus	-1.5%	-1.9%	94%	102%	106%	105%
BasketballDrive	-0.6%	-0.5%	94%	82%	105%	105%
BQTerrace	-0.1%	-0.2%	101%	105%	108%	107%
Average	-0.9%	-0.8%	97%	95%	106%	105%

# Conclusion

- This contribution proposes a simplification of the inter-layer reference picture enhancement
- BD-rate gain of the proposed method is -0.9% and -0.8% for 1.5x and 2.0x spatial scalability, with 5% complexity increment on decoder