

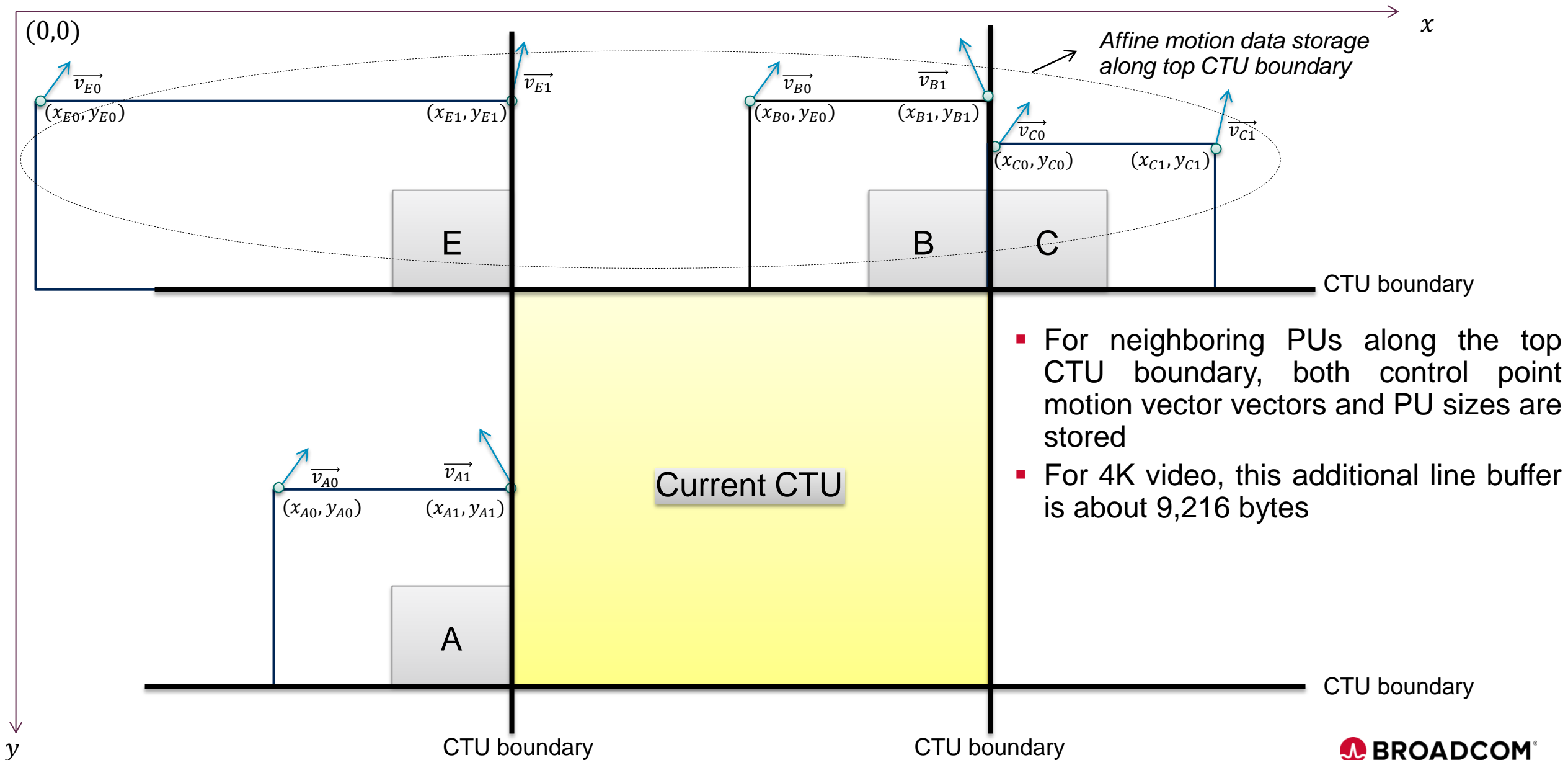
TEST RESULTS OF CE4.1.11 ON LINE BUFFER REDUCTION FOR AFFINE MODE (JVET-L0045)



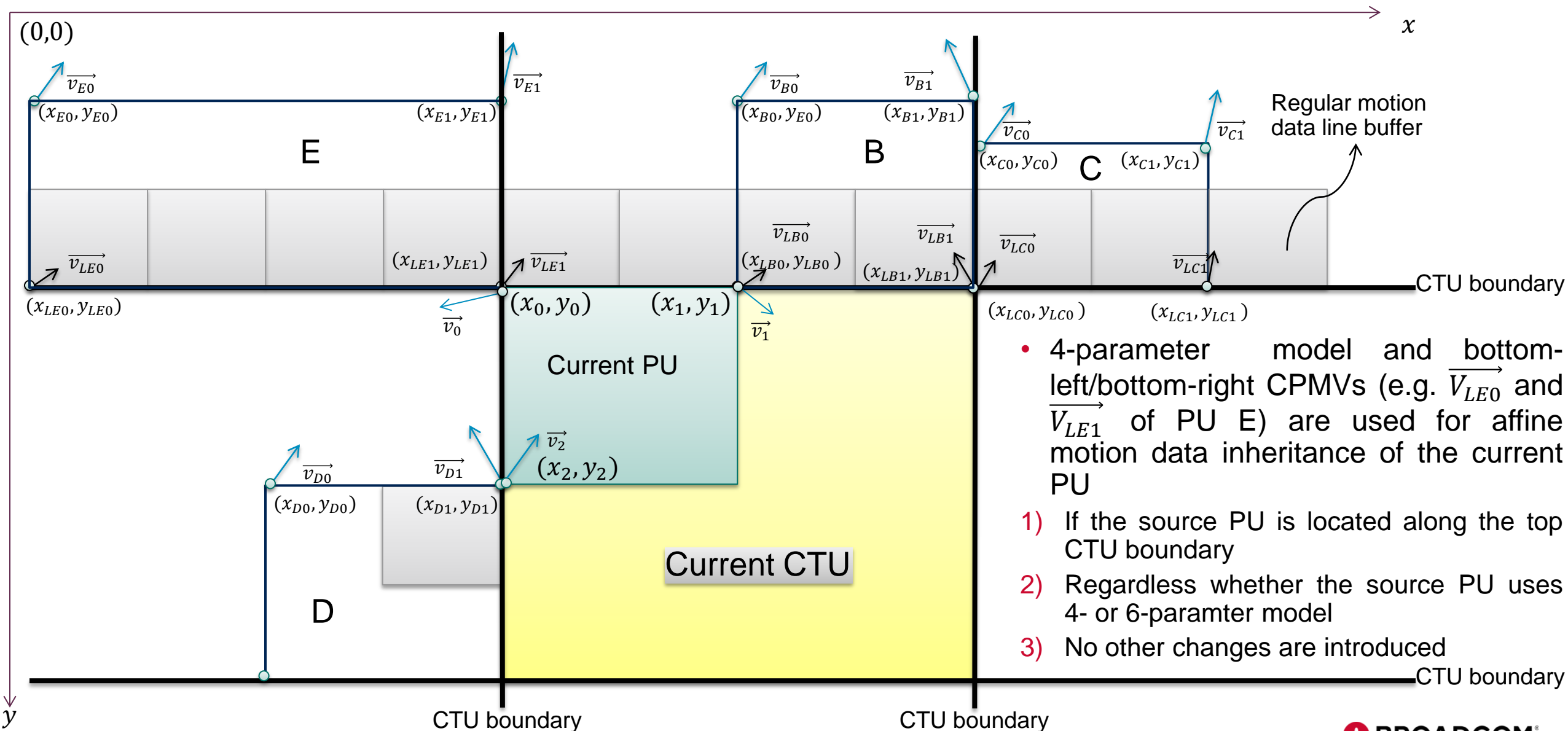
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Motivation

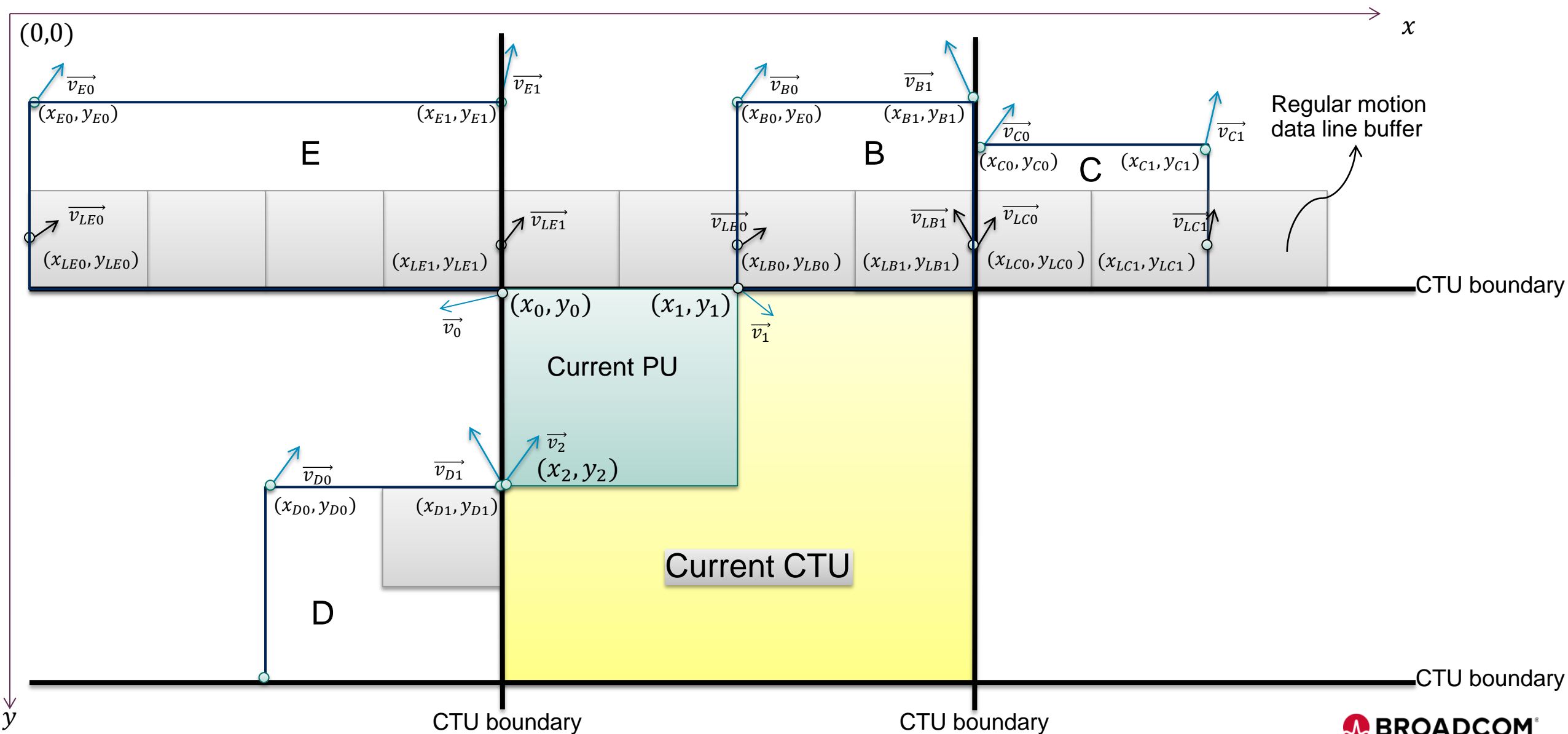


Proposed Simplification (location 1)



- 4-parameter model and bottom-left/bottom-right CPMVs (e.g. \vec{v}_{LE0} and \vec{v}_{LE1} of PU E) are used for affine motion data inheritance of the current PU
- 1) If the source PU is located along the top CTU boundary
- 2) Regardless whether the source PU uses 4- or 6-parameter model
- 3) No other changes are introduced

Proposed Simplification (location 2)



Memory Reduction Analysis

- About 9 K bytes reduction for 4K video

Luma picture width = 4096		line buffer for merge/skip and AMVP mode		line buffer for affine mode in VTM2.0.1		line buffer for affine mode after simplification	
	Bits/unit	Number of units per 4 luma samples	list0 & list1 line buffer size (bytes)	Number of units per 8 luma samples	list0 & list1 line buffer size (bytes)	Number of units per 8 luma samples	list0 & list1 line buffer size (bytes)
sub-block MVs/CPMVs	32	2	8192	4	8192	0	0
Reference index	4	2	1024	2	512	0	0
PU width	4	0	0	1	256	1	256
PU height	4	0	0	1	256	0	0
Total (bytes)			9216		9216		256

Experimental Results (VTM2.0.1 code base)

- Left – location1 (peak loss 0.34% in RA) and Right - location 2 (peak loss 0.52% in RA)

	Random Access Main 10				
	Over VTM-2.0.1				
	Y	U	V	EncT	DecT
Class A1	0.08%	0.09%	0.09%	100%	97%
Class A2	0.23%	0.22%	0.19%	111%	107%
Class B	0.06%	0.04%	0.03%	94%	93%
Class C	0.03%	0.12%	-0.02%	102%	103%
Class E					
Overall	0.09%	0.11%	0.06%	101%	99%
Class D	0.02%	-0.06%	0.03%	106%	103%
Class F (optional)	0.04%	0.09%	0.05%	100%	97%

	Low delay B Main10				
	Over VTM-2.0.1				
	Y	U	V	EncT	DecT
Class A1					
Class A2					
Class B	0.04%	-0.10%	-0.24%	98%	100%
Class C	0.00%	-0.11%	-0.08%	87%	89%
Class E	-0.07%	-0.06%	-0.86%	101%	100%
Overall	0.00%	-0.09%	-0.34%	95%	96%
Class D	0.02%	0.55%	-0.17%	104%	100%
Class F (optional)	0.01%	0.50%	-0.04%	115%	112%

	Low delay P Main10				
	Over VTM-2.0.1				
	Y	U	V	EncT	DecT
Class A1					
Class A2					
Class B	0.00%	0.05%	0.35%	109%	106%
Class C	0.02%	-0.23%	-0.13%	97%	101%
Class E	0.05%	-0.76%	0.27%	84%	86%
Overall	0.02%	-0.25%	0.17%	98%	99%
Class D	0.03%	0.17%	-0.42%	96%	94%
Class F (optional)	0.10%	-0.22%	-0.36%	93%	91%

	Random Access Main 10				
	Over VTM-2.0.1				
	Y	U	V	EncT	DecT
Class A1	0.08%	0.18%	0.02%	95%	92%
Class A2	0.34%	0.30%	0.19%	95%	94%
Class B	0.09%	0.12%	0.02%	94%	92%
Class C	0.01%	0.20%	0.07%	95%	95%
Class E					
Overall	0.12%	0.19%	0.07%	95%	93%
Class D	0.03%	0.07%	0.09%	109%	100%
Class F (optional)	0.08%	0.14%	0.10%	96%	91%

	Low delay B Main10				
	Over VTM-2.0.1				
	Y	U	V	EncT	DecT
Class A1					
Class A2					
Class B	0.05%	0.33%	-0.02%	92%	97%
Class C	0.02%	0.01%	-0.16%	80%	82%
Class E	-0.06%	-0.13%	-0.08%	91%	92%
Overall	0.01%	0.11%	-0.08%	88%	91%
Class D	0.04%	0.49%	-0.20%	95%	90%
Class F (optional)	0.12%	0.12%	0.05%	98%	96%

	Low delay P Main10				
	Over VTM-2.0.1				
	Y	U	V	EncT	DecT
Class A1					
Class A2					
Class B	0.03%	0.33%	0.30%	93%	92%
Class C	0.04%	-0.16%	0.00%	92%	92%
Class E	0.06%	-0.06%	0.35%	83%	89%
Overall	0.04%	0.07%	0.21%	90%	91%
Class D	0.07%	-0.02%	0.28%	98%	90%
Class F (optional)	0.05%	0.08%	-0.33%	91%	88%

Thanks
to
Tencent
for
cross-
check