

JCTVC-J0170: On Temporal and Combined motion vector predictors derivation for Merge/Skip mode

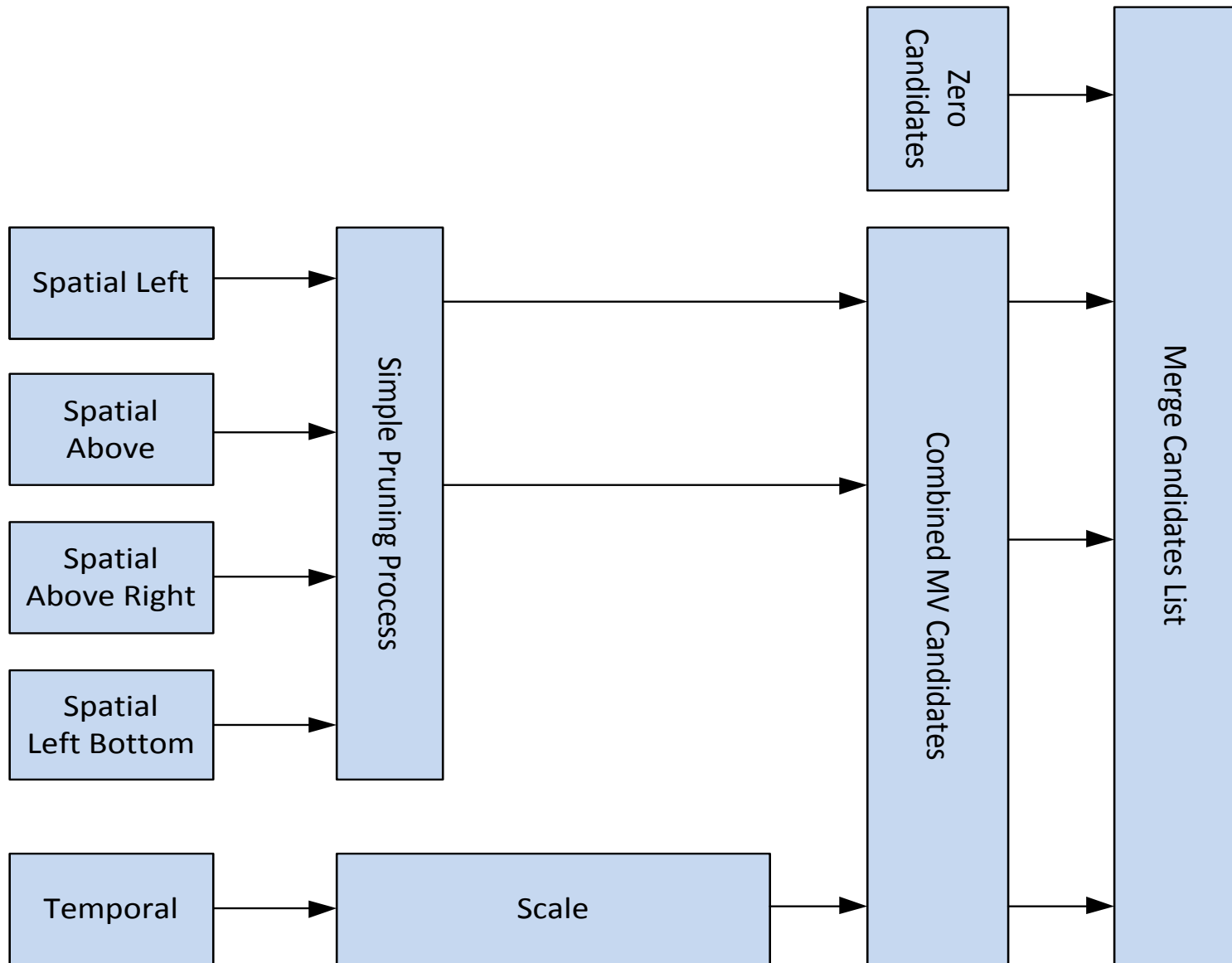
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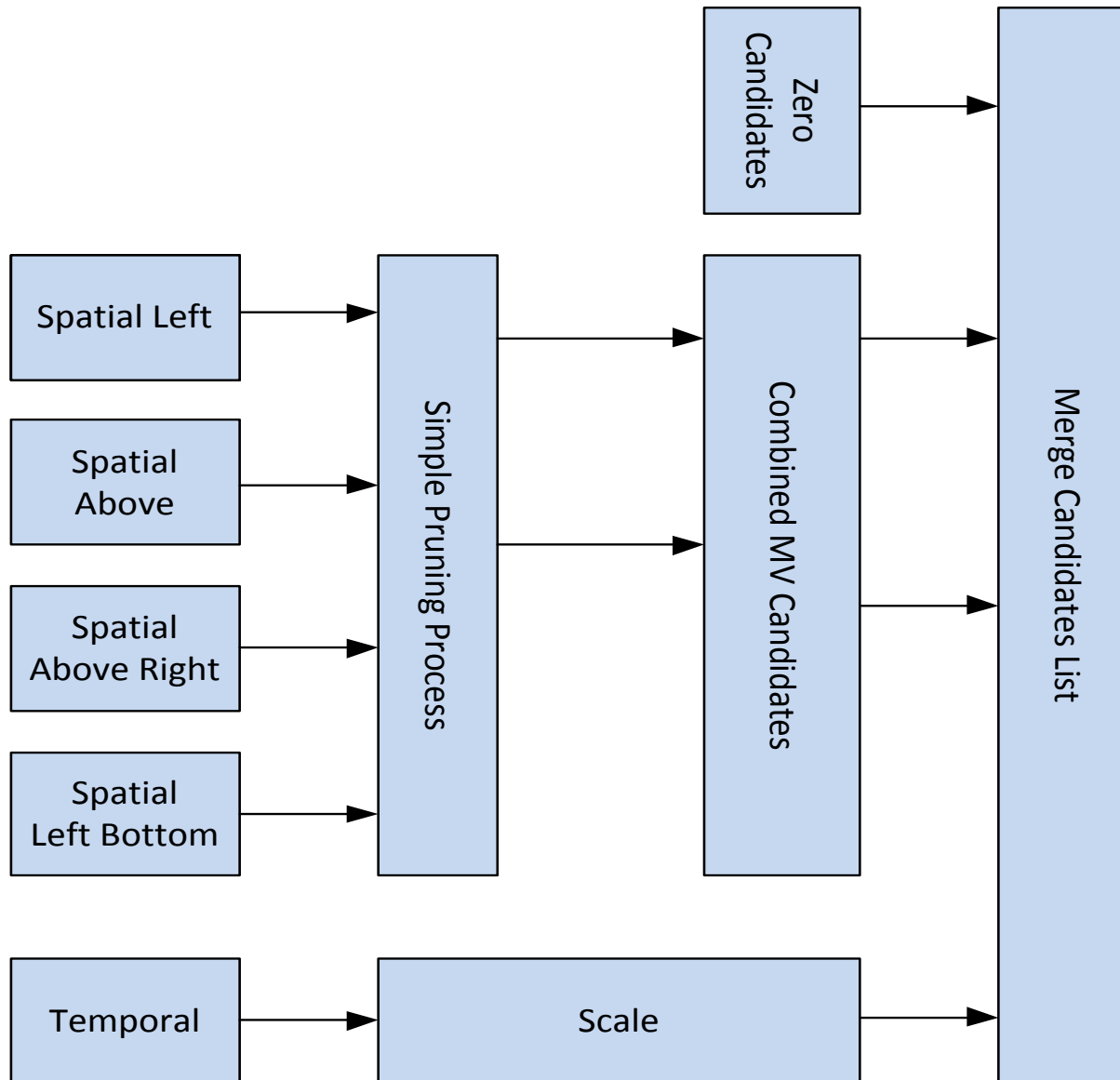
Introduction

- Merge/Skip mode MV derivation process is the most complex derivation process of Inter modes
- The complexity for H/W implementation comes from the **cascade derivation** process of Temporal Scaling and Combined candidates.
- Proposal: derive in parallel the Temporal and Combined Candidates in order to reduce the worst case complexity for H/W implementation

HM7.0: Merge/Skip mode derivation process



Proposal: Merge/Skip mode derivation process



Results

	Random Access Main			Random Access HE10		
	Y	U	V	Y	U	V
Class A	0.1%	-0.1%	0.0%	0.1%	-0.1%	0.2%
Class B	0.1%	0.1%	0.1%	0.1%	0.0%	0.0%
Class C	0.1%	0.2%	0.2%	0.1%	0.1%	0.0%
Class D	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Class E						
Class F	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%
Overall	0.1%	0.1%	0.1%	0.1%	0.0%	0.1%
	0.1%	0.1%	0.1%	0.1%	0.0%	0.1%
Enc Time[%]	100%			101%		
Dec Time[%]	100%			101%		

	Low delay B Main			Low delay B HE10		
	Y	U	V	Y	U	V
Class A						
Class B	0.2%	0.2%	0.0%	0.2%	0.2%	0.2%
Class C	0.2%	0.2%	0.2%	0.2%	0.2%	0.4%
Class D	0.1%	0.1%	0.4%	0.2%	0.5%	0.2%
Class E	-0.1%	0.3%	-0.1%	0.1%	-0.2%	-0.2%
Class F	-0.1%	0.3%	0.2%	0.2%	0.4%	1.0%
Overall	0.1%	0.2%	0.1%	0.2%	0.2%	0.3%
	0.1%	0.2%	0.1%	0.2%	0.3%	0.4%
Enc Time[%]	99%			100%		
Dec Time[%]	100%			99%		

	BDR		
	Y	U	V
Average	0.1%	0.1%	0.1%

Cross-checked by
Samsung JCTVC-J0410

Conclusion

- Merge/Skip mode MV derivation process simplification
- In order to
 - Increase the throughput of H/W
 - Reduce the worst case complexity of H/W
- 3 lines modification in the HM software
- Minor modifications of the DIS text
- Same contribution as JCTVC-J0204