



JCTVC-G241: Non-CE9: On parallel derivation of the temporal predictor for Merge/Skip modes

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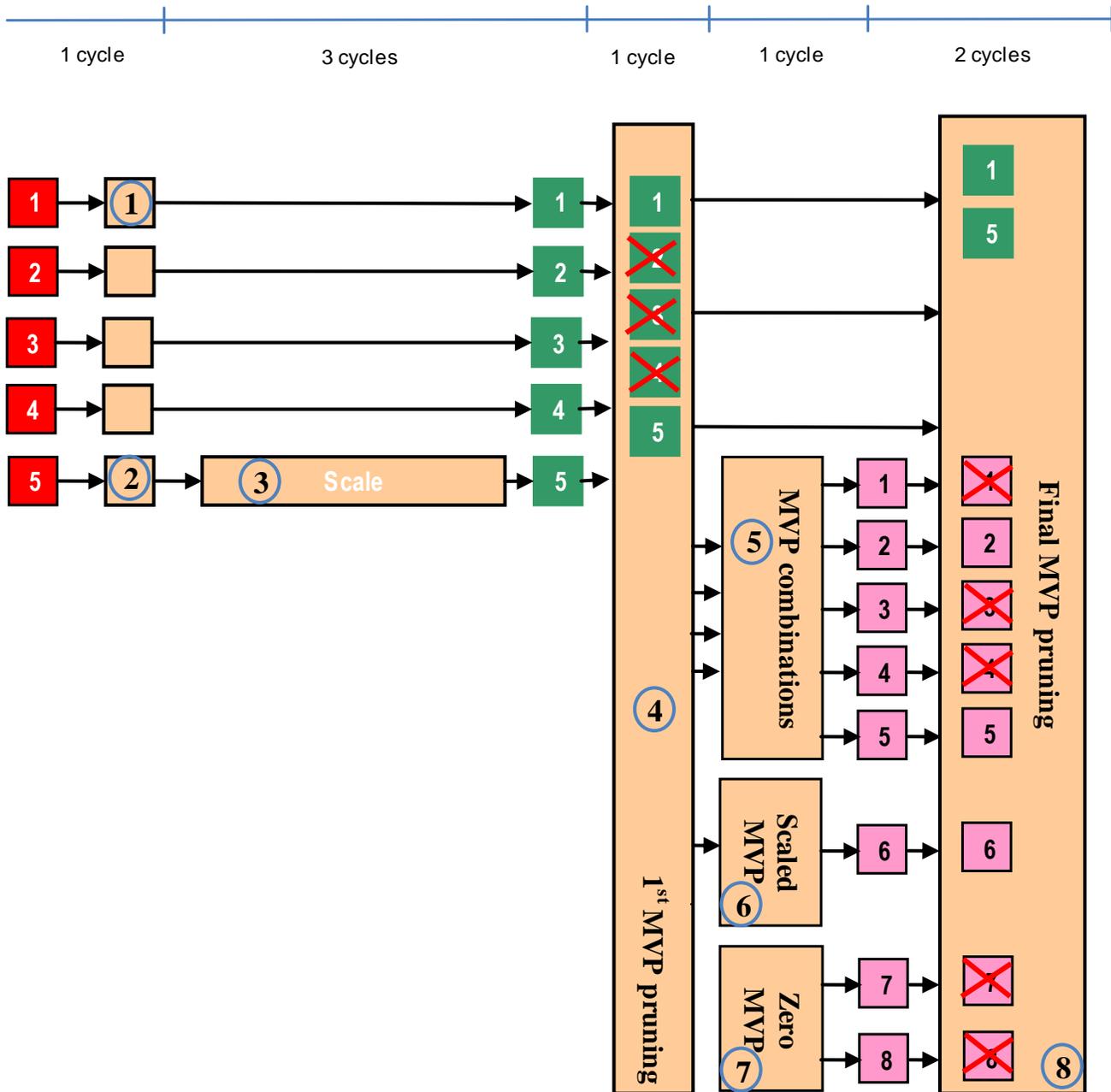
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Canon

Introduction

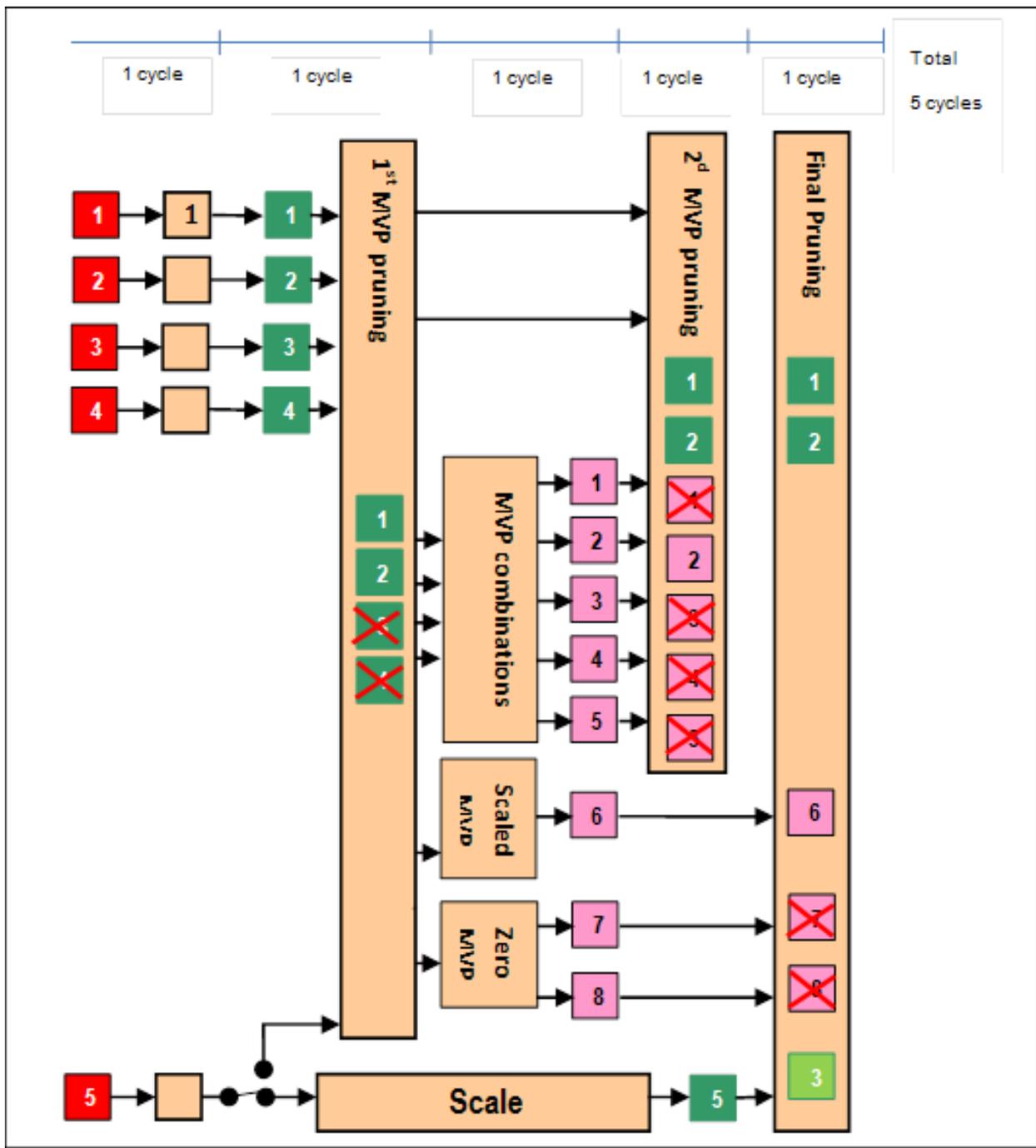
- The new MV Merge derivation process of HM4.0 significantly increases the complexity compared to HM3.0.
- This comes from the cascade derivation process of the combined and scaled predictors.
 - x2: Based on complexity analysis from TI in JCTVC-F088 and JCTVC-F068 the MV derivation process, the number of cycle has been multiply by 2 in HM4.0.
- Proposal: derive in parallel the temporal predictor in order to reduce the number of cycles (throughput) needed for Merge Mode derivation process



Total
8 cycles

Scaling process
takes 3 cycles

Diagram based
on JCTVC-F088
(TI)



- **If Temporal mvp needs to be scaled it is derived in parallel to:**
 - the first **pruning**
 - combined and scaled mvp derivation process

Added at its position if it is not a duplicate
- Otherwise **no change**

Diagram based on JCTVC-F088 (TI)

Experimental results

	BDR								
	RAHE	RALC	LDHE	LDLC	LDPHE	LDPLC		Average	
Proposed	0.1%	0.1%	0.1%	0.2%	0.0%	0.0%		0.1%	

 **Small BDR loss**

Conclusion

- **Proposal: Simplification of the Merge mode motion vector derivation process.**
 - Conditional parallel derivation of the temporal predictor
 - The scaling process is processed in parallel to the pruning processes and derivation of the combined and scaled predictors
- **Aim: Increase the throughput of the current HM4.0**
- **Results of the parallel derivation:**
 - Reduce the number of cycles from 8 to 5 cycles
 - Small impact on coding efficiency: 0.1% loss
- **Recommendation adopt this simplification**
- **Cross-checked by TI: G098**