



CE9: Results of Experiment SP04

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Overall Summary

- The results of **CE9 SP04** experiment are reported.
- The redundancy check during the derivation of the top MVP for Inter mode is removed.
- Experiment results show that removing the redundancy check does not cause any bit rate increase .
- The derivation of the three MVPs (left, top, temporal) can thus be done in parallel.
- The complexity can also be reduced.
 - The maximum number of spatial MVP scaling for each PU is reduced from 4 to 2.

Outline

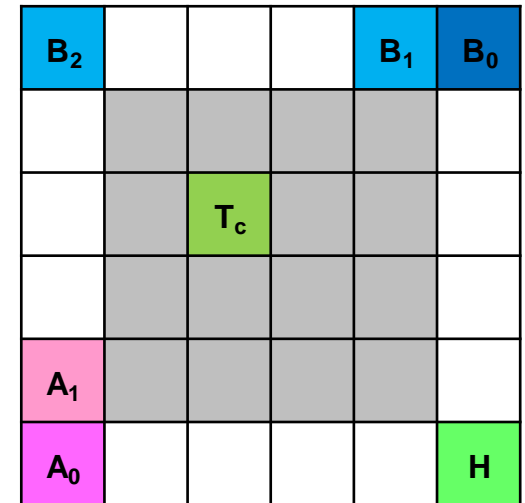
- Problem definition
- Proposed method
- Simulation results
- Conclusions

Problem Definition

- In HM-3.0, two spatial MVPs and one temporal MVP are included in the MVP candidate set for Inter mode
- To derive the top MVP, a **redundancy check** is applied for each possible candidate to check whether it is identical to the left MVP
- The derivation of the top MVP depends on the left MVP, which is not good for deriving the MVPs in parallel

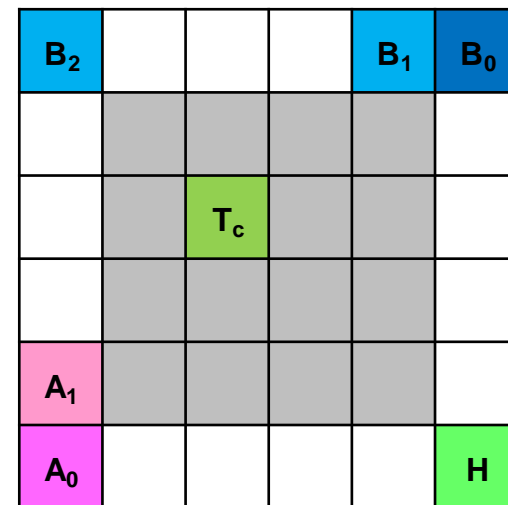
MVP Derivation for Inter Mode in HM-3.0

- Left MVP: the first available MV
 - Searched in (A_0 , A_1)
 - With the same list and the same ref. pic., or
 - With different list or/and different ref. pic.
- Top MVP: the first available MV which is different from the left MVP
 - Searched in (B_0 , B_1 , and B_2)
 - With the same list and the same ref. pic., or
 - With diff. list or/and diff. ref. pic.
- Temporal MVP: the first available MV
 - Searched in (H , T_c)
- Remove redundant MVPs



Proposed Method

- Left MVP: the first available MV
 - Searched in (A_0 , A_1)
 - With the same list and the same ref. pic., or
 - With different list or/and different ref. pic.
- Top MVP: the first available MV ~~which is different from the left MVP~~
 - Searched in (B_0 , B_1 , and B_2)
 - With the same list and the same ref. pic., or
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- Temporal MVP: the first available MV
 - Searched in (H , T_c)
- Remove redundant MVPs



Simulation Results

- Anchor : HM-3.0 with the fix of bug #146
- Thank Samsung for crosscheck (JCTVC-F391)

	HE-RA			LC-RA		
	Y BD-rate	U BD-rate	V BD-rate	Y BD-rate	U BD-rate	V BD-rate
Class A	0.0	0.2	0.0	0.0	0.1	0.0
Class B	0.0	-0.1	0.0	0.0	0.0	0.0
Class C	0.0	0.0	0.1	0.0	0.0	0.1
Class D	0.0	0.1	0.0	0.0	-0.1	-0.1
Class E						
All	0.0	0.0	0.0	0.0	0.0	0.0
Enc Time[%]	99%			99%		
Dec Time[%]	99%			100%		

	HE-LD			LC-LD		
	Y BD-rate	U BD-rate	V BD-rate	Y BD-rate	U BD-rate	V BD-rate
Class A						
Class B	0.0	0.2	-0.3	0.0	-0.1	-0.1
Class C	0.0	0.0	-0.1	0.0	-0.1	-0.1
Class D	-0.1	0.0	0.1	-0.1	-0.7	-0.4
Class E	0.0	0.3	0.2	0.0	0.0	0.4
All	0.0	0.1	0.0	0.0	-0.2	-0.1
Enc Time[%]	100%			99%		
Dec Time[%]	99%			99%		

Conclusions

- MediaTek proposed to remove the redundancy check during the derivation of top MVP for Inter mode.
- To reduce complexity and to allow parallel processing
- Experimental results show no bit rate increase.
- All MVPs of the AMVP scheme can thus be derived in parallel.