JCTVC-F427:
Consideration on Temporal Predictor

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Problem Statement

- Temporal motion prediction requires more complexity than spatial motion prediction.
  - Additional buffers and additional memory accesses required
- There should be solution to develop low-cost encoders w/o temporal motion prediction
- HM software can disable temporal prediction with the following macros in Typedef.h:
  - `#define MRG_NEIGH_COL          1`
  - `#define AMVP_NEIGH_COL         1`
- However WD does not allow this:
  - There used to be "mv_copetition_temporal_flag" in slice header in JCTVC-B205 (TMuC) but when it goes to JCTVC-C403 (WD1) it disappeared
- When all spatial predictors are unavailable but the temporal predictor is available there is no way to avoid using the temporal predictor right now

Solution

- We would like either of the following solutions be adopted
    - Solution A: Insert "amvp_temporal_flag" (formerly known as "mv_competition_temporal_flag") and "merge_temporal_flag" in a slice header
    - Solution B: If all of the spatial predictors unavailable, set (0,0) as a spatial predictor regardless of the availability of the temporal predictor
- Our simulation result shows that Solution B does not cause loss in coding efficiency, even a slight gain is observed
    - Thanks Fujitsu for x-checking (JCTVC-F626)

	Random access			Random access LC		
	Y BD-rate	U BD-rate	V BD-rate	Y BD-rate	U BD-rate	V BD-rate
Class A	0.00	-0.04	0.00	0.01	0.00	-0.13
Class B	-0.06	-0.13	-0.04	-0.03	-0.08	0.01
Class C	-0.02	0.00	-0.01	0.00	0.02	0.10
Class D	-0.08	0.06	0.02	-0.08	-0.13	-0.03
Class E						
All	-0.04	-0.03	-0.01	-0.02	-0.05	-0.01
Enc Time[%]	100%			100%		
Dec Time[%]	100%			100%		

	Low delay			Low delay LC		
	Y BD-rate	U BD-rate	V BD-rate	Y BD-rate	U BD-rate	V BD-rate
Class A						
Class B	-0.03	0.15	-0.45	-0.07	-0.08	0.00
Class C	-0.01	-0.03	-0.11	-0.06	0.00	-0.14
Class D	-0.09	-0.09	0.14	-0.02	0.23	-0.12
Class E	-0.05	0.30	0.08	-0.07	-0.02	0.74
All	-0.04	0.07	-0.12	-0.05	0.03	0.07
Enc Time[%]	100%			100%		
Dec Time[%]	100%			99%		

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