



Non-CE8: Pure VLC for SAO and ALF

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Overall Summary

- In HM-4.1, SAO and ALF parameters can be coded by CABAC
- Proposed to always use VLC for APS
 - Remove CABAC-only syntax elements from APS
 - 0%-0.2% coding efficiency gain
- Proposed to always use VLC for slice header
 - No coding efficiency loss

Parameter Coding for SAO and ALF

- SAO and ALF parameters can be coded by CABAC in APS and slice header
 - In APS: ALF coefficients related parameters and SAO parameters
 - In slice header: ALF CU-on/off control parameters

Current APS Syntax

aps_rbsp() {	Descriptor
aps_id	ue(v)
aps_sample_adaptive_offset_flag	u(1)
aps_adaptive_loop_filter_flag	u(1)
if(aps_sample_adaptive_offset_flag aps_adaptive_loop_filter_flag) {	
aps_cabac_use_flag	u(1)
if(aps_cabac_use_flag) {	
aps_cabac_init_idc	ue(v)
aps_cabac_init_qp_minus26	se(v)
}	
}	
if(aps_sample_adaptive_offset_flag) {	
sao_data_byte_count	u(12)
byte_align()	
sao_param()	
if(aps_adaptive_loop_filter_flag) {	
byte_align()	
}	
}	
if(aps_adaptive_loop_filter_flag) {	
alf_data_byte_count	u(8)
byte_align()	
alf_param()	
}	
rbsp_trailing_bits()	
}	

Proposed Pure VLC for Slice Header

- Use VLC to code ALF CU-on/off control parameters
- No syntax change

Simulation Results: Pure-VLC for APS

- Anchor
 - HM-4.0-dev-miscs (rev. 1423)
 - High-Efficiency configurations
- Results
 - 0 - 0.2% gain
 - Similar run time

	Y	U	V
HE-AI	0%	0%	0%
HE-RA	-0.1%	-0.1%	-0.1%
HE-LDB	-0.2%	-0.2%	-0.2%
HE-LDP	-0.2%	-0.2%	-0.2%

Simulation Results: Pure VLC for Slice Header

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 - No impact on coding efficiency
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Conclusions

- In HM-4.1, SAO and ALF parameters can be coded by CABAC.
- Proposed to always use VLC for APS
 - Remove CABAC-related syntax elements
 - 0-0.2% gain
- Proposed to always use VLC for slice header
 - No impact on coding efficiency