



MEDIATEK

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AHG9: On parameters override mechanism in slice header for in-loop filters

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Overall Summary

- In VVC Draft 7, if all slices share the same in-loop filter parameters
 - Shared parameters are only signalled in PH

Otherwise, in-loop filter parameters are signalled in SH for each slice

- If only a few slices or subpictures have different parameters from the others in one picture
 - Every slice or subpicture has to signal parameters in SH even though most of them are the same and could be shared in the PH
 - Need to re-encode parameters in SH when merging subpicture bitstreams
- The proposed syntax design removes present flags in PH and adds override flags in SH

Proposed Syntax Changes

picture_header_rbsp() {	Descriptor
...	
if(sps_sao_enabled_flag) {	
pic_sao_enabled_present_flag	u(1)
if(pic_sao_enabled_present_flag) {	
pic_sao_luma_enabled_flag	u(1)
if(ChromaArrayType != 0)	
pic_sao_chroma_enabled_flag	u(1)
}	
}	
if(sps_alf_enabled_flag) {	
pic_alf_enabled_present_flag	u(1)
if(pic_alf_enabled_present_flag) {	
pic_alf_enabled_flag	u(1)
if(pic_alf_enabled_flag) {	
...	
}	
}	
...	
if(deblocking_filter_override_enabled_flag) {	
pic_deblocking_filter_override_present_flag	u(1)
if(pic_deblocking_filter_override_present_flag) {	
pic_deblocking_filter_override_flag	u(1)
if(pic_deblocking_filter_override_flag) {	
pic_deblocking_filter_disabled_flag	u(1)
if(!pic_deblocking_filter_disabled_flag) {	
pic_beta_offset_div2	se(v)
pic_tc_offset_div2	se(v)
}	
}	
}	
...	
}	

slice_header() {	Descriptor
...	
if(sps_sao_enabled_flag && !pic_sao_enabled_present_flag) {	
slice_sao_override_flag	u(1)
if(slice_sao_override_flag) {	
slice_sao_luma_flag	u(1)
if(ChromaArrayType != 0)	
slice_sao_chroma_flag	u(1)
}	
if(sps_alf_enabled_flag && !pic_alf_enabled_present_flag) {	
slice_alf_override_flag	u(1)
if(slice_alf_override_flag) {	
slice_alf_enabled_flag	u(1)
if(slice_alf_enabled_flag) {	
slice_num_alf_aps_ids_luma	u(3)
for(i = 0; i < slice_num_alf_aps_ids_luma; i++)	
slice_alf_aps_id_luma[i]	u(3)
if(ChromaArrayType != 0)	
slice_alf_chroma_idc	u(2)
if(slice_alf_chroma_idc)	
slice_alf_aps_id_chroma	u(3)
}	
}	
if(deblocking_filter_override_enabled_flag && !pic_deblocking_filter_override_present_flag)	
slice_deblocking_filter_override_flag	u(1)
if(slice_deblocking_filter_override_flag) {	
slice_deblocking_filter_disabled_flag	u(1)
if(!slice_deblocking_filter_disabled_flag) {	
slice_beta_offset_div2	se(v)
slice_tc_offset_div2	se(v)
}	
}	
...	
}	

Proposed Syntax Changes

- **pic_sao_enabled_present_flag** equal to 1 specifies that `pic_sao_luma_flag` and `pic_sao_chroma_flag` are present in the PH. `pic_sao_enabled_present_flag` equal to 0 specifies that `pic_sao_luma_flag` and `pic_sao_chroma_flag` are not present in the PH. When `pic_sao_enabled_present_flag` is not present, it is inferred to be equal to 0.
- **pic_alf_enabled_present_flag** equal to 1 specifies that `pic_alf_enabled_flag`, `pic_num_alf_aps_ids_luma`, `pic_alf_aps_id_luma[i]`, `pic_alf_chroma_idc`, and `pic_alf_aps_id_chroma` are present in the PH. `pic_alf_enabled_present_flag` equal to 0 specifies that `pic_alf_enabled_flag`, `pic_num_alf_aps_ids_luma`, `pic_alf_aps_id_luma[i]`, `pic_alf_chroma_idc`, and `pic_alf_aps_id_chroma` are not present in the PH. When `pic_alf_enabled_present_flag` is not present, it is inferred to be equal to 0.
- **pic_deblocking_filter_override_present_flag** equal to 1 specifies that `pic_deblocking_filter_override_flag` is present in the PH. `pic_deblocking_filter_override_present_flag` equal to 0 specifies that `pic_deblocking_filter_override_flag` is not present in the PH. When `pic_deblocking_filter_override_present_flag` is not present, it is inferred to be equal to 0.
- **slice_sao_override_flag** equal to 1 specifies that SAO parameters are present in the current slice. `slice_sao_override_flag` equal to 0 specifies that SAO parameters are not present in the current slice. When `slice_sao_override_flag` is not present, the value of `slice_sao_override_flag` is inferred to be equal to 0.
- **slice_alf_override_flag** equal to 1 specifies that adaptive loop filter parameters are present in the current slice. `slice_alf_override_flag` equal to 0 specifies that adaptive loop filter parameters are not present in the current slice. When `slice_alf_override_flag` is not present, the value of `slice_alf_override_flag` is inferred to be equal to 0.