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Title: [MIV] Signaling of the chroma scaling bit depth
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Abstract

This proposal proposes to move the chroma scaling bit depth flag from MIV view parameters list to the CASPS MIV 2 extension. Such a change will remove the parsing dependency between IRAP and non-IRAP CAFs in the case of chroma scaling updating.

1 Introduction

In WD2, the `chroma_scaling_bit_depth_minus1` is placed in the MIV view parameters list structure. This structure is signalled only for IRAP common atlas frames. On the other hand, chroma scaling updates (which require to know a value of the chroma scaling bit depth) can be signalled only for non-IRAP frames. Such a structure would require the parsing dependency between IRAP and non-IRAP CAFs:

8.3.9.6.1 MIV extension syntax

	Descriptor
<code>caf_miv_extension() {</code>	
<code>if(nal_unit_type == NAL_CAF_IDR) {</code>	
<code>miv_view_params_list()</code>	
<code>} else {</code>	
<code>(...)</code>	
<code>if(came_update_chroma_scaling_flag)</code>	
<code>miv_view_params_update_chroma_scaling()</code>	
<code>(...)</code>	
<code>}</code>	
<code>}</code>	
<code>}</code>	

This parsing dependency can be removed by moving the chroma scaling bit depth into the CASPS MIV 2 extension. It would require the parsing dependency between CAF and CASPS, but such a dependency already exists.

2 Proposed syntax changes

8.3.9.6.2 MIV view parameters list syntax

	Descriptor
<code>miv_view_params_list() {</code>	
<code>mvp_num_views_minus1</code>	u(16)
<code>mvp_explicit_view_id_flag</code>	u(1)
(...)	
if(<code>casme_decoder_side_depth_estimation_flag</code>)	
<code>mvp_depth_reprojection_flag</code>	u(1)
if(<code>casme_chroma_scaling_present_flag</code>) {	
<code>mvp_chroma_scaling_bit_depth_minus1</code>	u(5)
for(<code>v = 0; v <= mvp_num_views_minus1; v++</code>)	
<code>chroma_scaling(v)</code>	
}	
}	
}	

`mvp_chroma_scaling_bit_depth_minus1` plus 1 specifies the number of bits used to represent the chroma scaling syntax elements.

NOTE – The value of `mvp_chroma_scaling_bit_depth_minus1` is expected to be equal to or larger than the maximum of `ai_attribute_2d_bit_depth_minus1[aspsAtlasID][attrIdx]` values, for all values of `aspsAtlasID` and `attrIdx` where `ai_attribute_type_id[aspsAtlasID][attrIdx]` is equal to `ATTR_TEXTURE`, inclusive.

8.3.9.9 Common atlas sequence parameter set MIV edition 2 extension syntax

	Descriptor
<code>casps_miv_2_extension() {</code>	
<code>casme_decoder_side_depth_estimation_flag</code>	u(1)
<code>casme_chroma_scaling_present_flag</code>	u(1)
if(<code>casme_chroma_scaling_present_flag</code>)	
<code>casme_chroma_scaling_bit_depth_minus1</code>	u(5)
<code>casme_capture_device_information_present_flag</code>	u(1)
if(<code>casme_capture_device_information_present_flag</code>)	
<code>capture_device_information()</code>	
<code>casme_reserved_zero_8bits</code>	u(8)
}	

`casme_chroma_scaling_bit_depth_minus1` plus 1 specifies the number of bits used to represent the chroma scaling syntax elements.

NOTE – The value of `casme_chroma_scaling_bit_depth_minus1` is expected to be equal to or larger than the maximum of `ai_attribute_2d_bit_depth_minus1[aspsAtlasID][attrIdx]` values, for all values of `aspsAtlasID` and `attrIdx` where `ai_attribute_type_id[aspsAtlasID][attrIdx]` is equal to `ATTR_TEXTURE`, inclusive.

3 Recommendations

The proponents recommend adopting this proposal.