

SONY

JCTVC-00271:
SHVC: On direct_dependency_flag

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Agenda

- ◆ Introduction/Problem Statement
- ◆ Proposal
- ◆ Conclusion

Introduction/Problem Statement

- ◆ **Layer sets can be defined by the syntax element “layer_id_included_flag[i][j]” in VPS.**
- ◆ **Direct dependencies between layers can be defined by “direct_dependency_flag[i][j]” in VPS_extension()**
 - Indirect dependencies between layers can be inferred from the values of this syntax element.
- ◆ **If there exists direct or indirect dependency between layerId A and B ($A > B$), it means that layer A cannot be decoded unless layer B is decoded.**
 - Then if a certain layer set contains layer A, it should also contain layer B.
 - However there is no constraint in the semantics of direct_dependency_flag[i][j].

▪ video_parameter_set_rbsp() { ... vps_max_layer_id vps_num_layer_sets_minus1 for(i = 1; i <= vps_num_layer_sets_minus1; i++) for(j = 0; j <= vps_max_layer_id; j++) layer_id_included_flag[i][j] ... }	Descriptor u(6) ue(v) u(1)
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▪ vps_extension() { ... for(i = 1; i <= vps_max_layers_minus1; i++) for(j = 0; j < i; j++) direct_dependency_flag[i][j] ... }	Descriptor u(1)
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Proposal

- ◆ To solve the problem stated above, it is proposed to add constraint in the semantics of `direct_dependency_flag[i][j]` as follows:
- ◆ It is a requirement of bitstream conformance that if the value of `dependency[CurrLayerId][RefLayerId]` is equal to 1 and a layer set defined by `layer_id_included_flag[i][j]` contains the current layer with `CurrLayerId`, it shall also contain the ref layer with `RefLayerId` inferred by the syntax element `direct_dependency_flag[i][i]`.

Conclusion

- ◆ If direct or indirect dependency is specified by `direct_dependency_flag[i][j]` between layerId A and B ($A > B$), it means that layer A cannot be decoded unless layer B is decoded. Then if a certain layer set contains layer A, it should also contain layer B.
- ◆ It is proposed by this contribution to add constraint on the semantics of `direct_dependency_flag[i][j]` associated with layer sets defined by `layer_id_included_flag[i][j]`.
- ◆ It is recommended that the suggested modification be adopted into SHVC WD.

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