



# JCTVC-00142/JCT3V-F0055: Conditional SPS extension syntax for RExt, SHVC, and MV-HEVC

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# Motivation

- RExt, MV-HEVC, SHVC being developed in parallel
  - Each extension contains syntax elements in the SPS extension
  - Recent drafts of the RExt (JCTVC-N1005\_v3) and MV-HEVC (JCT3V-E1004) extensions have incompatible SPS extension syntax
- Desirable to be able to implement a decoder for a particular extension without being aware of other unrelated extensions
- Proposal: to conditionally include syntax elements in the SPS
  - Similar to previous JCTVC-M0045 proposal #4



## Undesirable option: chained extension flags

- Problem of incompatible extensions could be solved by the undesirable option of chained extensions flags
  - Not proposed – described only for comparison purposes
- The N+1-th extension must parse all syntax elements related to the 1<sup>st</sup> through N-th extensions

# Undesirable option: chained extension flags

...	
<b>sps_extension_flag0</b>	u(1)
if( sps_extension_flag0 ) {	
sps_extension0( )	
<b>sps_extension_flag1</b>	u(1)
if( sps_extension_flag1 ) {	
sps_extension1( )	
<b>sps_extension_flag2</b>	u(1)
if( sps_extension_flag2 ) {	
sps_extension2( )	
<b>sps_extension_flag3</b>	u(1)
if( sps_extension_flag3 )	
while( more_rbsp_data( ) )	
<b>sps_extension_data_flag</b>	u(1)
}	
rbsp_trailing_bits( )	
}	



# Proposal: conditional SPS extension syntax

- When `sps_extension_present_flag` is set, add 8 flags to include presence of groups of syntax elements associated with particular extensions
- 8<sup>th</sup> flag can be used as an escape for additional chained extensions
- Avoids the need to parse syntax elements of unrelated extensions
  - A profile may require that
    - Flag indicating needed extension syntax elements are present
    - Flags indicating that unrelated extensions are not present
- Allows future combinations of extensions

# Proposal: conditional SPS extension syntax

...	
<b>sps_extension_present_flag</b>	u(1)
if( sps_extension_present_flag ) {	
for ( i = 0; i < 8; i++ )	
<b>sps_extension_flag[ i ]</b>	u(1)
if( sps_extension_flag[ 0 ] ) {	
sps_extension0( )	
if( sps_extension_flag[ 1 ] ) {	
sps_extension1( )	
if( sps_extension_flag[ 2 ] ) {	
sps_extension2( )	
...	
if( sps_extension_flag[ 7 ] )	
while( more_rbsp_data( ) )	
<b>sps_extension_data_flag</b>	u(1)
}	
rbsp_trailing_bits( )	
}	

# Conclusion

- Problem of incompatible syntax between RExt and MV-HEVC should be addressed
- Preferable to avoid requiring decoders to parse syntax elements of unrelated extensions
- Same proposed approach could be used for PPS extension syntax, if found to be necessary
  - However, current extension drafts do not use the PPS extension flag