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| *Title:* | **On sequence parameter set and picture parameter set** | | |
| *Status:* | Input Document to JCT-VC | | |
| *Purpose:* | Proposal | | |
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# Abstract

This document includes some discussions on some SPS and PPS syntax elements, on their value ranges, syntax element coding, and/or semantics.

# On SPS

For convenience, relevant SPS syntax elements and their semantics are copied below. The suggested changes and added Word comments are for discussions of the corresponding syntax elements.

|  |  |
| --- | --- |
| seq\_parameter\_set\_rbsp( ) { | Descriptor |
| **...** |  |
| **bit\_depth\_luma\_minus8** | ue(v) |
| **bit\_depth\_chroma\_minus8** | ue(v) |
|  |  |
|  |  |
| **delta\_pcm\_bit\_depth\_luma** | ue(v) |
| **delta\_pcm\_bit\_depth\_chroma** | ue(v) |
| **...** |  |
| **log2\_min\_coding\_block\_size\_minus3** | ue(v) |
| **log2\_diff\_max\_min\_coding\_block\_size** | ue(v) |
| **log2\_min\_transform\_block\_size\_minus2** | ue(v) |
| **log2\_diff\_max\_min\_transform\_block\_size** | ue(v) |
| **log2\_min\_pcm\_coding\_block\_size\_minus3** | ue(v) |
| **max\_transform\_hierarchy\_depth\_inter** | ue(v) |
| **max\_transform\_hierarchy\_depth\_intra** | ue(v) |
| **...** |  |
| } |  |

#### Sequence parameter set RBSP semantics

**…**

**bit\_depth\_luma\_minus8** + 8 specifies the bit depth of the samples of the luma array and the value of the luma quantisation parameter range offset QpBdOffsetY, as specified by

BitDepthY = 8 + bit\_depth\_luma\_minus8 (7‑2)  
QpBdOffsetY = 6 \* bit\_depth\_luma\_minus8 (7‑3)

bit\_depth\_luma\_minus8 shall be in the range of 0 to 6, inclusive.

**bit\_depth\_chroma\_minus8** + 8specifies the bit depth of the samples of the chroma arrays and the value of the chroma quantisation parameter range offset QpBdOffsetC, as specified by

BitDepthC = 8 + bit\_depth\_chroma\_minus8 (7‑4)  
QpBdOffsetC = 6 \* bit\_depth\_chroma\_minus8 (7‑5)

bit\_depth\_chroma\_minus8 shall be in the range of 0 to 6, inclusive.

**delta\_pcm\_bit\_depth\_luma** indicates the difference between the bit depth of the samples of the luma array (BitDepthY) and the number of bits used to represent each of PCM sample values of luma component. The value of delta\_pcm\_bit\_depth\_luma shall be in the range of 0 to 6.

PCMBitDepthY = BitDepthY - delta\_pcm\_bit\_depth\_luma (7‑4)

**delta\_pcm\_bit\_depth\_chroma** indicates the difference between the bit depth of the samples of the chroma array (BitDepthC) and the number of bits used to represent each of PCM sample values of chroma components. The value of delta\_pcm\_bit\_depth\_chroma shall be in the range of 0 to 6.

PCMBitDepthC = BitDepthC - delta\_pcm\_bit\_depth\_chroma (7‑4)

**…**

**log2\_min\_coding\_block\_size\_minus3** specifies the minimum size of a coding block. The value of log2\_min\_coding\_block\_size\_minus3 shall be in the range of 0 to 3, inclusive.

The variable Log2MinCUSize is set equal to log2\_min\_coding\_block\_size\_minus3 + 3.

NOTE – The minimum SCU size is 8x8, and the maximum SCU size is 32x32.

**log2\_diff\_max\_min\_coding\_block\_size** specifies the difference between the maximum and minimum coding block size.

The variable Log2MaxCUSize is set equal to log2\_min\_coding\_block\_size\_minus 3 + 3 + log2\_diff\_max\_min\_coding\_block\_size.The value of Log2MaxCUSize shall be in the range of 3 to 6, inclusive.

NOTE – The minimum LCU size is 8x8, and the maximum LCU size is 64x64.

**log2\_min\_transform\_block\_size\_minus2** specifies the minimum size of a transform block.

The variable Log2MinTrafoSize is set equal to log2\_min\_transform\_block\_size\_minus2 + 2.

**log2\_diff\_max\_min\_transform\_block\_size** specifies the difference between the maximum and minimum transform size.

The variable Log2MaxTrafoSize is set equal to log2\_min\_transform\_block\_size\_minus 2 + 2 + log2\_diff\_max\_min\_transform\_block\_size.

The bitstream shall not contain data that result in Log2MaxTrafoSize greater than Log2MaxCUSize.

**log2\_min\_pcm\_coding\_block\_size\_minus3** + 3 specifies the minimum size of I\_PCM coding blocks.

The variable Log2MinIPCMCUSize is set equal to log2\_min\_pcm\_coding\_block\_size\_minus3 + 3. The variable Log2MinIPCMCUSize should be equal or less than Log2MaxCUSize.

**max\_transform\_hierarchy\_depth\_intra** specifies the maximum hierarchy depth for transform blocks of coding blocks coded in intra prediction mode.

**max\_transform\_hierarchy\_depth\_inter** specifies the maximum hierarchy depth for transform units of coding units coded in inter prediction mode.

**…**

# On the PPS flag to disable temporal MV predictor

At the previous JCT-VC meeting, it was agreed to put a flag in PPS to disable temporal MV predictor. This flag was proposed to be included in the slice header in JCTVC-F474 and JCTVC-F427, and agreed in the BoG report (in JCTVC-F744) on MV coding.

However, until the time of writing this document, it was not clear what the exact semantics of the flag is, and what other required changes to the HEVC WD are.

We suggest that the following is discussed at the 7th JCT-VC meeting.

The semantics (and other WD text using the flag) should not just apply for a particular picture referring to the PPS, but also for the following pictures in decoding order, which may or may not refer to this PPS, not to use any earlier pictures in decoding order for temporal MV prediction. In other words, if the flag is set to disable temporal MV prediction for picture A, then any picture C following picture A in decoding order shall not perform temporal MV prediction from any picture B before picture A in decoding order.

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