

CONSISTENT CHROMA QP DERIVATION IN THE DEBLOCKING AND INVERSE QUANTIZATION PROCESSES

JCTVC-K0145



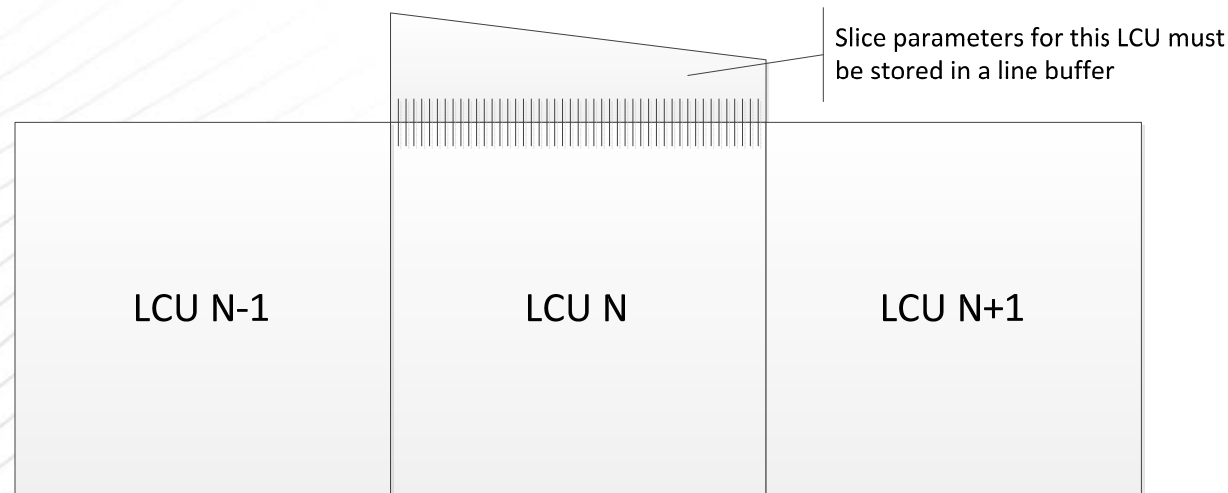
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- **QP used in two places: Inverse Quantization and Deblocker**
- **Current HEVC Deblocking:**
 - Luma QPs are first averaged
 - Chroma QP derived from average Luma QP producing an index into a lookup table
 - Chroma QP offsets are **not** used for deriving chroma QP in deblocker
- **Different from H.264/AVC Deblocking:**
 - Luma QP is converted first to Chroma QP and then averaged
 - Chroma QP offsets are used for both inverse quantization and deblocking which both use the same chroma QP
- **Derivation equations are different!**
 - **Asymmetry seems unintuitive**
 - **Using “wrong” chroma QP for HEVC deblocking**
 - **Different from H.264/AVC which had identical derivations**

PROPOSED SOLUTION



- **Make chroma QP derivation consistent between Inverse Quantization and Deblocker (as in H.264/AVC)**
- **Undesirable complication for single pass deblocking**
 - Due to slice-level QP offsets introduced in JCTVC-J0342
 - Line buffer storage needed for all parameters involved in the top LCU horizontal edge filtering



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- **Proposal #1: Add QP offsets and QpBdOffset to equation 8-298 (deblocker derivation)**
- **Proposal #2: Remove slice-level QP offsets**
 - In our experience, H.264/AVC **picture-level** offsets are infrequently used in practice
 - Need for slice-level functionality unclear and this eliminates need for additional storage
- **Proposal #3: Convert to Chroma QP first and then average**
 - Result is basically the same as averaging Luma QPs first and then converting
 - Makes text description simpler
 - Consistent with H.264/AVC



Thank you!