



AHG16/AHG17: Simplification of CU Splitting Controls (JVET-P0419)

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CU Splitting Parameters

- Parameters that control what splits are allowed when
 - Example: Min CU Size = No splits below this CU size
 - Example: Max Split Hierarchy = Only “N” levels of splits
- Why?
 - Only Coding Efficiency (generally for “simple” encoders)
 - Encoder can always choose not to do a type of split

Present Parameters

- HEVC: 5 Parameters in SPS

1. min_luma_coding_block_size: Smallest allowed CU size
2. min/max_transform_block_size (2): Smallest/Largest allowed TU size
3. max_transform_hierarchy_depth (Inter, Intra) (2): Max TU split level for intra/inter slices

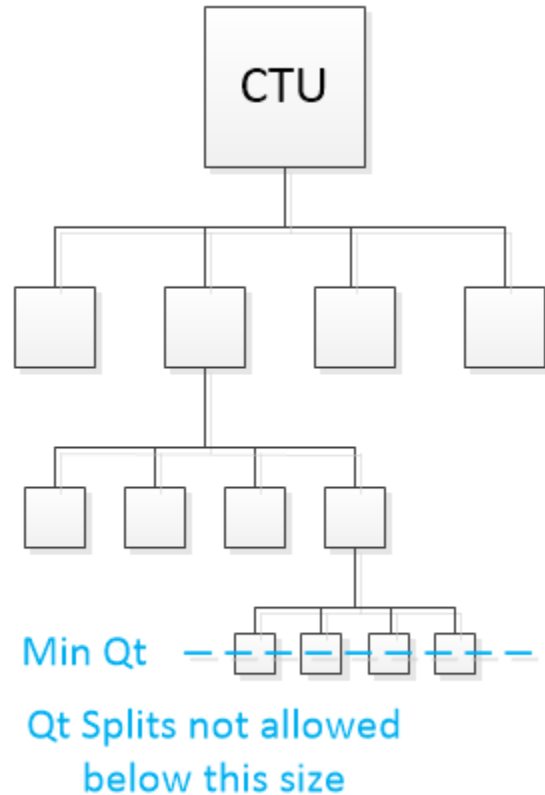
- VVC: 14 Parameters in SPS and Slice Header

1. min_luma_coding_block_size (1): Smallest allowed CU size (width or height)
2. max_transform_block_size (1); Largest allowed TU size
3. MaxMttDepth (Inter, IntraY, IntraC) (3): Max Bt/Tt split level
4. MinQtSize (Inter, IntraY, IntraC) (3): Minimum size allowed for a Qt split
5. MaxBtSize (Inter, IntraY, IntraC) (3): Maximum size allowed for a Bt split
6. MaxTtSize (Inter, IntraY, IntraC) (3): Maximum size allowed for a Tt split

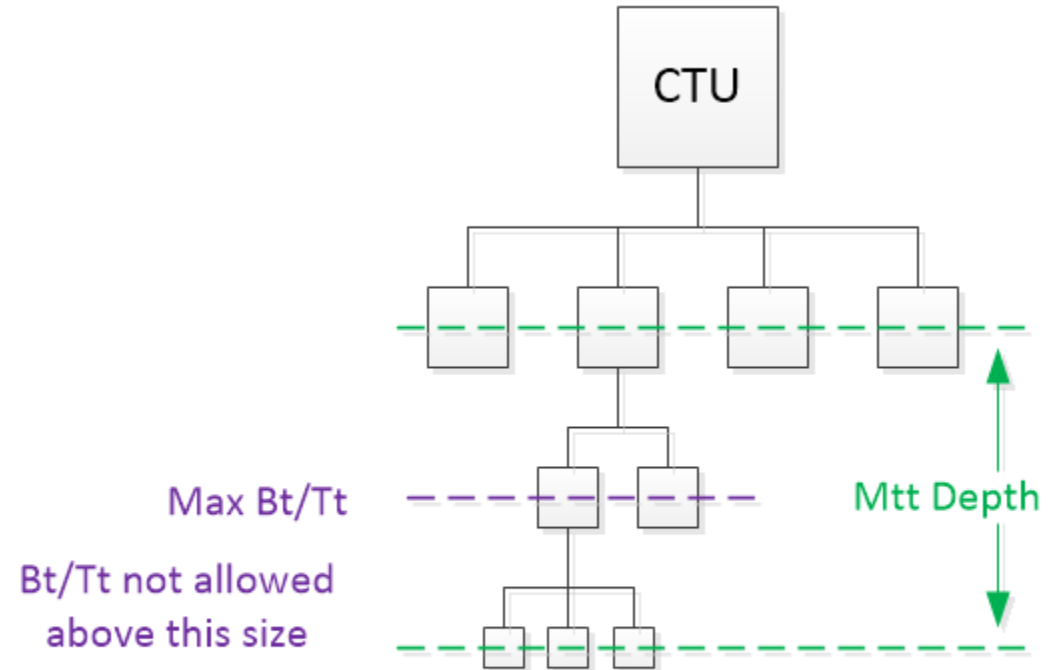
- Why is this a Problem?

- Thousands of combinations to test (hidden bugs)
- Many combinations don't make sense

VVC Splitting Control Definitions



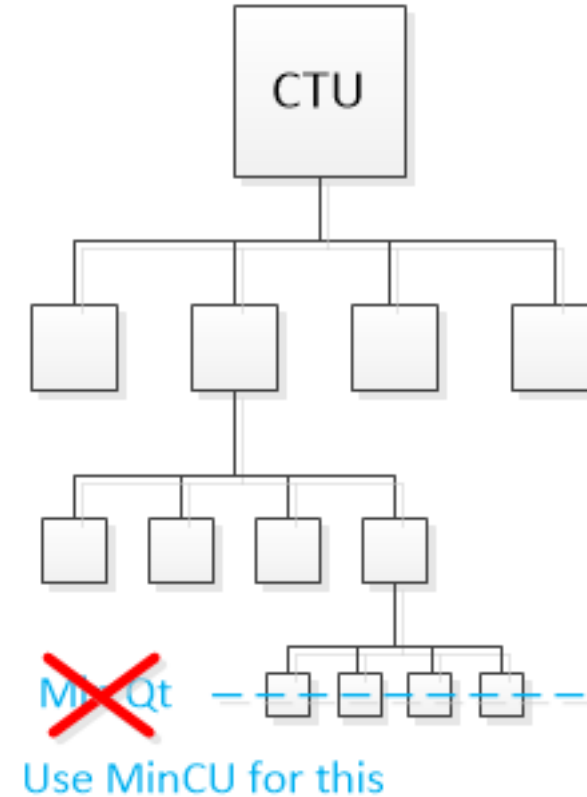
- Min Qt: Smallest quad-split Result



- Max Bt/Tt: Largest Binary/Ternary Split Result
- Mtt Depth: Max Number of Binary/Ternary Split Levels

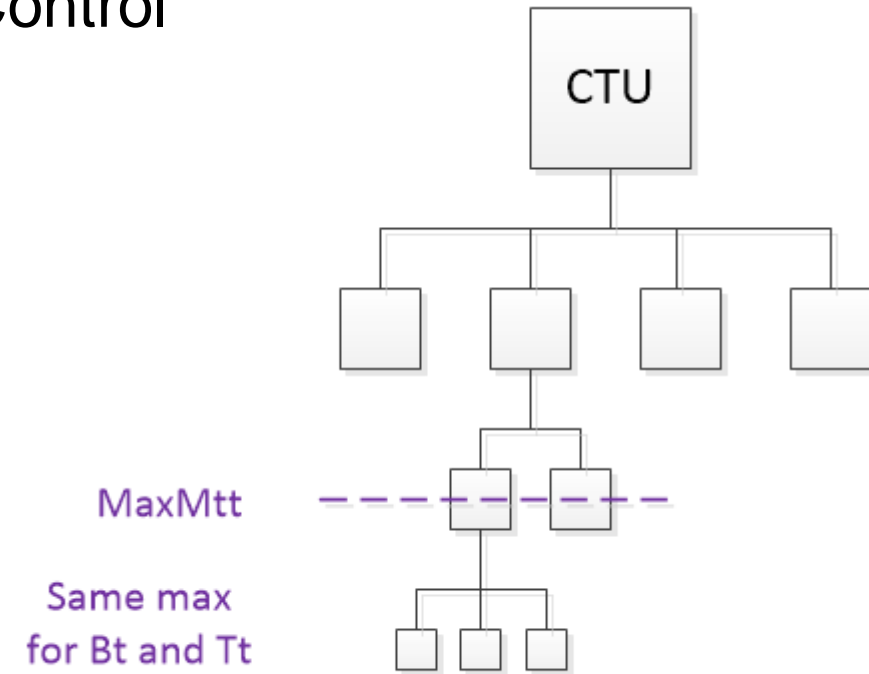
Proposed Change #1: Remove MinQtSize

- Unnecessary: MinCUSize already available
- Removes 3 parameters



Proposed Change #2: Merge MaxBtSize & MaxTtSize

- No need for Independent Binary/Ternary Control
- Removes 3 parameters



Proposed Change #3: Remove Slice-level Controls

- These are sequence-level decisions. Not needed at the slice level.

Summary

- 3 Changes
 1. Remove MinQt (Saves 3)
 2. Replace MaxBt & MaxTt with MaxMtt (Saves 3)
 3. Remove Parameters from Slice Header
- Reduces 14 Parameters to 8



Thank You