

The background is a vibrant red color. It is decorated with various digital and network-related motifs. On the left side, there are faint, semi-transparent icons of a code editor with a '</>' symbol, a waveform graph, and a circular target-like graphic. In the center and right, there are abstract network diagrams consisting of interconnected nodes and lines, some of which are glowing with a bright white light. Binary code (0s and 1s) is also subtly visible in the background.

AHG17: Signaling of Rectangular Slices

JVET-P0240

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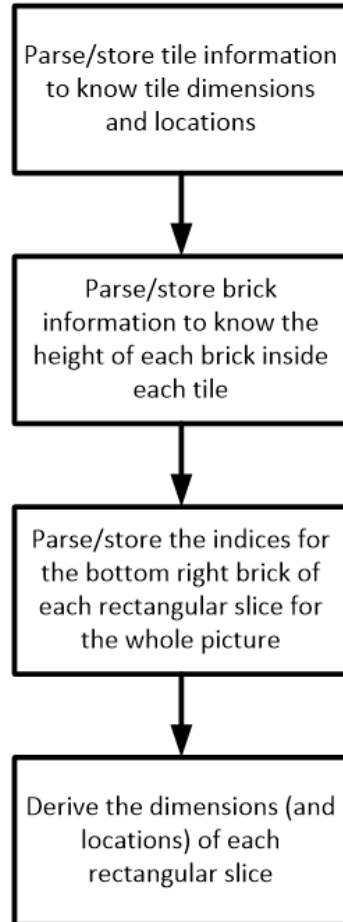
Geneva, October 2019 meeting



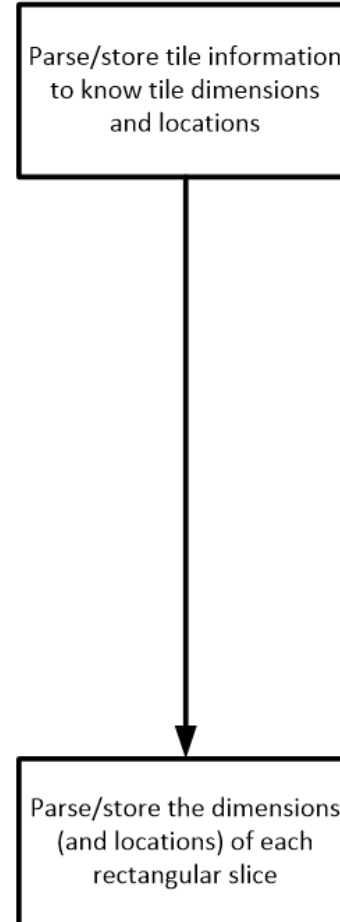
Introduction

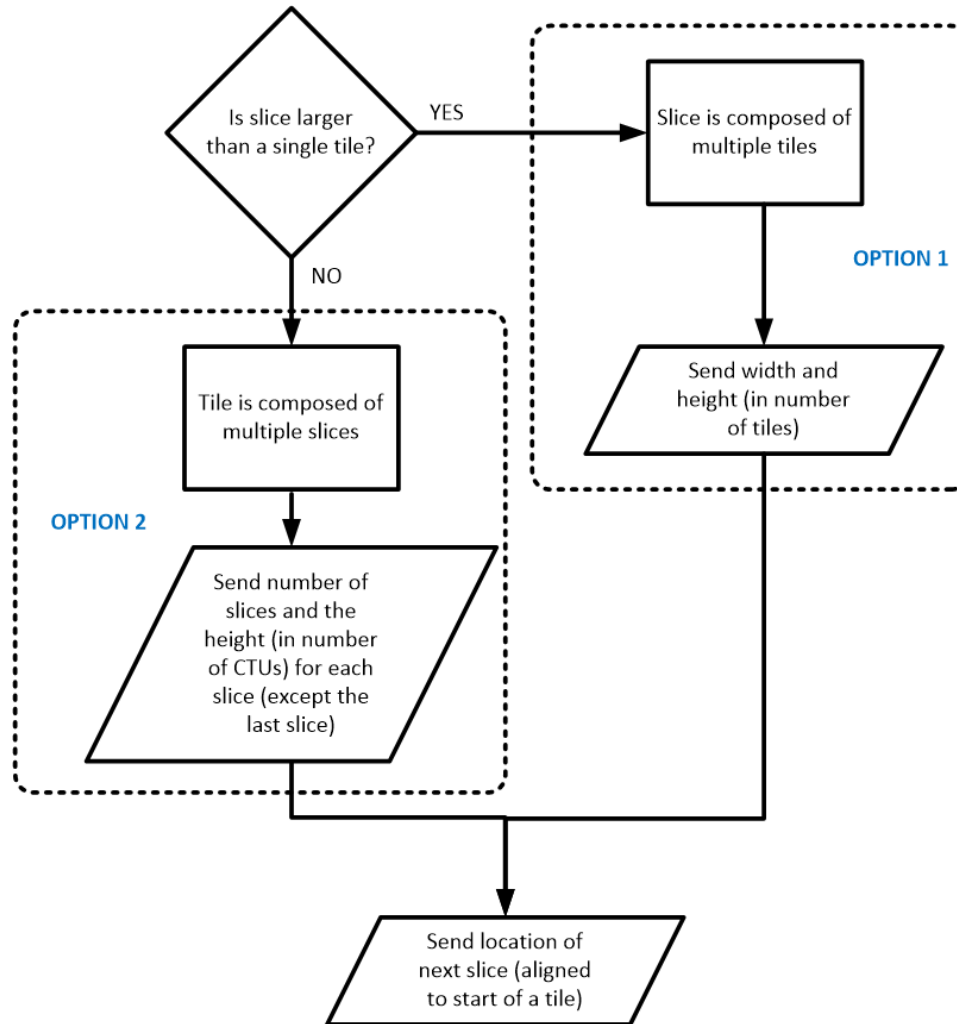
- Propose dimensions and locations of rectangular slices be signalled directly by using tile information rather than bricks
 - Each CTU row can potentially be a brick boundary
 - PPS for 8K picture with 64x64 CTUs potentially has 8192 bricks!
- Removes the need to predefine and store brick information at the PPS level
- No change to the slice and brick partitioning options
- Proposed changes only affect the signalling

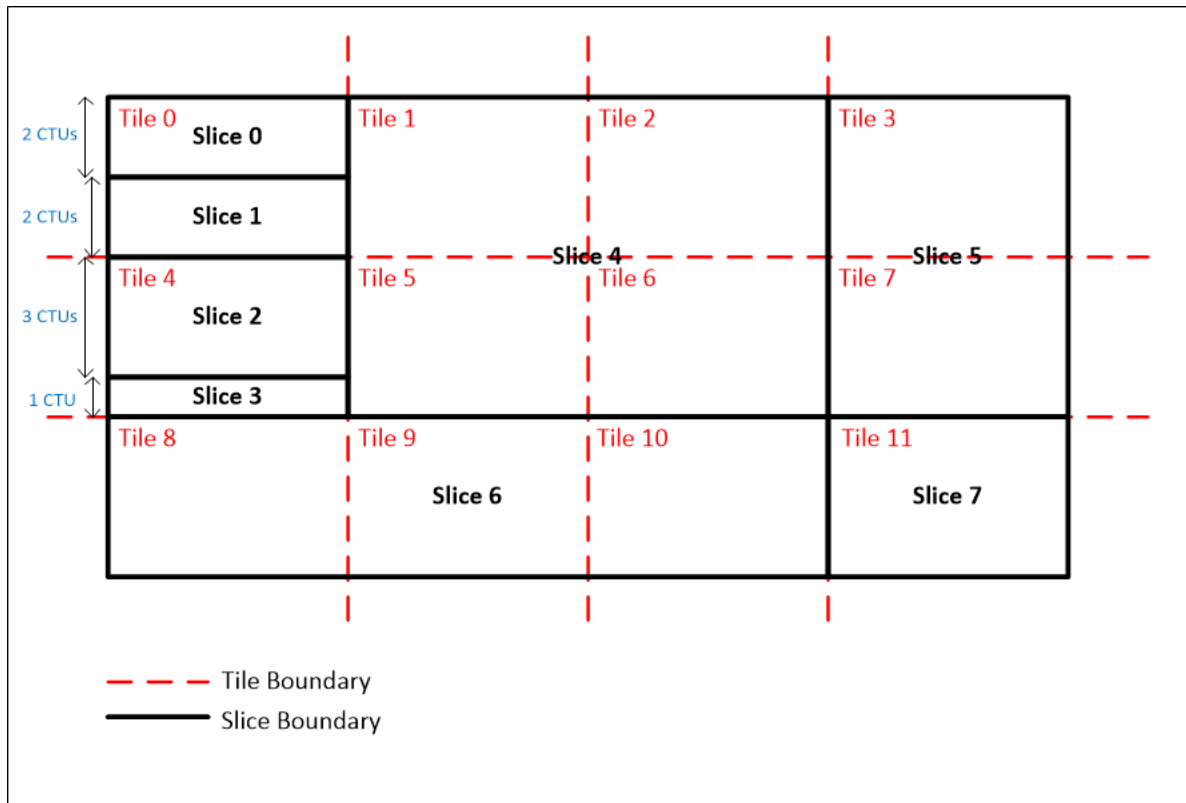
Current Draft Text



Proposed Method







Tile 0: Option 2

CTU_rows = 2

Infer CTU_rows = 2

Tile 4: Option 2

CTU_rows = 3

Infer CTU_rows = 1

Tile 1: Option 1

2x2 Tiles

Tile 3: Option 1

2x1 Tiles

Tile 8: Option 1

1x3 Tiles

Tile 11: Inferred

Overview of new syntax elements

- **num_slices_in_pic_minus1** plus 1 specifies the number of rectangular slices in each picture referring to the PPS.
- **slice_width_in_tiles_minus1[i]** plus 1 specifies the width of the i-th rectangular slice in units of tile columns.
- **slice_height_in_tiles_minus1[i]** plus 1 specifies the height of the i-th rectangular slice in units of tile rows.
- **num_slices_in_tile_minus1[i]** plus 1 specifies the number of slices in the current tile for the case where the i-th slice contains a subset of bricks from a single tile.
- **slice_height_in_ctu_minus1[i]** plus 1 specifies the height of the i-th rectangular slice in units of CTU rows for the case where the i-th slice contains a subset of bricks from a single tile.
- **tile_idx_delta[i]** specifies the difference in tile index between the i-th rectangular slice and the (i+1)-th rectangular slice. The value of **tile_idx_delta[i]** shall not be equal to 0.

Syntax Changes to slice_data

- Introduction of **end_of_brick_flag** allows each CTU tile row within a slice to start a new brick.
- All existing brick splitting options are still available, without the need to pre-define and store all this information in the PPS.

Summary of Text Simplifications

- Reduce brick/slice related syntax elements in the PPS from 13 to 7
- More significantly, removes the following lookup tables:
 - BrickColBd[], BrickRowBd[], BrickWidth[], BrickHeight[]
 - CtbAddrRsToBs[], CtbAddrBsToRs[], BrickId[]
 - NumCtusInBrick[], FirstCtbAddrBs[], BricksToSliceMap[], BottomRightBrickIdx[]
 - TopLeftBrickIdx[], NumBrickInSlice[]



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