SPECIFICATION OF PARALLELIZATION TOOLS IN HEVC VERSION 1

JCTVC-J0338

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BACKGROUND

- **At last meeting (9th), decision to include WPP into Main Profile along with tiles which was previously adopted**

- **Current draft text specifies that these two tools can only be used exclusively as a result of the discussion with JCTVC-H0463**

- **Significant complexity with supporting each of these concepts by themselves**

- **Problem to guarantee support for all different possible permutations when combining the two techniques**

- **Unclear the benefit of combining the two techniques**

- **JCTVC-I0118 (and JCTVC-J0088) discuss the concept of subpictures**
  - Suggests large pictures could be subdivided into subpictures (conceptually same as tiles)
  - Suggested use of WPP or tiles inside each of these subpictures can be easily supported since each subpicture would be decoded by a single core decoder
  - Does not change difficulties of a general design (e.g. single core decoder) handling combinations of tiles and WPP

- **JCTVC-I0118 (and JCTVC-J0088) propose to mandate tiles for high levels to enable parallel decoding**
  - There are challenges with supporting increasing picture resolutions
  - This contribution would like to inform the group that our opinion is that single core decoders can be designed in a cost-effective fashion to support higher resolutions like 4K and 8K video without mandating a parallel bitstream structure
  - Also concerns on the negative impact on coding efficiency and potential visual artifacts with mandating a parallel bitstream structure

RECOMMENDATION

- **Recommend that following two aspects of tiles and wavefronts remain as currently specified in the HEVC draft standard text:**

- **Tiles and wavefronts remain exclusive tools that cannot be used together**

- **The use of tiles and/or wavefronts is optional (and not mandatory) even at high resolutions.**