m54614
Missing parts regarding harmonization of QtBt and Planar

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■ **Problem statement**

- **In the current spec, the following two parts regarding harmonization of QtBt and Planar are missing.**
  1. Considering QtBt at occupancy map decoding
  2. Considering QtBt at eligible planar flag derivation
- **The above two parts are implemented to the software.**

■ **Proposal**

- **Spec should be align with the software.**
- **Add the following two text changes to fill the missing parts.**
  1. When a node is not split along an axis by QtBt, planar mask is set equal to 0 (nodes may be occupied) for lower plane and 1 (nodes are not occupied) for upper plane.
  2. When a node is not split along an axis by QtBt, eligible planar flag is set equal to 0 (planar is not eligible).

Problem Statement

- **At the last Geneva meeting (Oct. 2019), harmonization of QtBt and Planar (m50922) was adopted.**

- **It was proposed that QtBt was integrated by using the same mechanism of Planar mode.**

from m50922 presentation doc

Problem Statement

- **At the last Geneva meeting (Oct. 2019), harmonization of QtBt and Planar (m50922) was adopted.**

- **It was proposed that QtBt was integrated by using the same mechanism of Planar mode.**

- **However, the following two items proposed in m50922 are not included in the current spec.**
    1. **occupancy decoding for QtBt was implemented by reusing the code of planar mode**
    2. **planar mode was not eligible for not split axis by QtBt.**

- **On the other hand, the above two items have been included to the software.**

- **The spec should be align with the software.**

Proposed text changes

■ **Item 1 : Considering QtBt at occupancy map decoding (Adding <mark>highlighted part</mark>)**

- **When a node is not split along an axis by QtBt, planar mask is set equal to 0 (nodes may be occupied) for lower plane and 1 (nodes are not occupied) for upper plane.**

9.7.3 Determination of planar masks used in the inverse binarization process

[Ed. XXX this process seems to be missing the interaction with qtbt (now geom_tree_coded_axis_flag)]
Two 8-bit binary masks mask_planar_fixed0[axisIdx] and mask_planar[axisIdx] are determined for the current node and for an axis index axisIdx.
...
<mark>If the node is not split along the axisIdx-th axis, i.e. geom_tree_coded_axis_flag[depth][axisIdx] is equal to 0, then is_planar_flag[nodeIdx][axisIdx] is set to 1, and the i-th bit, for i = 0 .. 7, of mask_planar[axisIdx] is set to 0 if the corresponding i-th child node belongs to the lower plane along the axisIdx-th axis, 1 otherwise.</mark>
<mark>Otherwise, i</mark>~~I~~f the node is not planar along the axisIdx-th axis, i.e. is_planar_flag[nodeIdx][axisIdx] is equal to 0, then mask_planar[axisIdx] is set to 0.
Otherwise, if is_planar_flag[nodeIdx][axisIdx] is equal to 1, the node is planar along the axisIdx-th axis, the occupied plane position is known from plane_position[nodeIdx][axisIdx], and the i-th bit, for i = 0 .. 7, of mask_planar[axisIdx] is set to 0 if the corresponding i-th child node belongs to the occupied plane, 1 otherwise.
By construction of mask_planar[axisIdx], its bits whose value is 1 do mask the occupancy bits corresponding to child nodes for which it is known, from the planar information, that they are not occupied.

Proposed text changes

- **Item 2 : Considering QtBt at eligible planar flag derivation (Adding <mark>highlighted part</mark>)**
  - **When a node is not split along an axis by QtBt, eligible planar flag is set equal to 0 (planar is not eligible).**

8.2.4.1 Eligibility of a node for planar coding mode

For an axis index axisIdx in the range 0 .. 2, the value of eligible_planar_flag[axisIdx] for a current node is determined as follows

```
if (geom_tree_coded_axis_flag[depth][axisIdx] == 0)
  eligible_planar_flag[axisIdx] = 0
else if (depth == GeomScalingDepth – 1)
  eligible_planar_flag[axisIdx] = 0
else if (localDensity >= 3 × 1024)
  eligible_planar_flag[axisIdx] = 0
else {
  eligible_planar_flag[axisIdx] =
    planeRate[axisIdx] >= geom_planar_mode_th[probable_order[axisIdx]]

}
```

Conclusion

- **Problem statement**
  - **In the current spec, the following two parts regarding harmonization of QtBt and Planar are missing.**
    1. Considering QtBt at occupancy map decoding
    2. Considering QtBt at eligible planar flag derivation
  - **The above two parts are implemented to the software.**

- **Proposal**
  - **Spec should be align with the software.**
  - **Add the following two text changes to fill the missing parts.**
    1. When a node is not split along an axis by QtBt, planar mask is set equal to 0 (nodes may be occupied) for lower plane and 1 (nodes are not occupied) for upper plane.
    2. When a node is not split along an axis by QtBt, eligible planar flag is set equal to 0 (planar is not eligible).
  - **It is recommended to adopt the proposal to the next draft.**