JCTVC-U0100
On operation of DPB in Screen Content Coding

Chenghao Liu, Shan Liu, Xiaozhong Xu, Shawmin Lei

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Problem statements

- Operation of Decoded Picture Buffer (DPB) is not complete in the current SCC spec. draft when current picture is used as a reference.
  - IntraBC picture is not considered in calculating DPB fullness
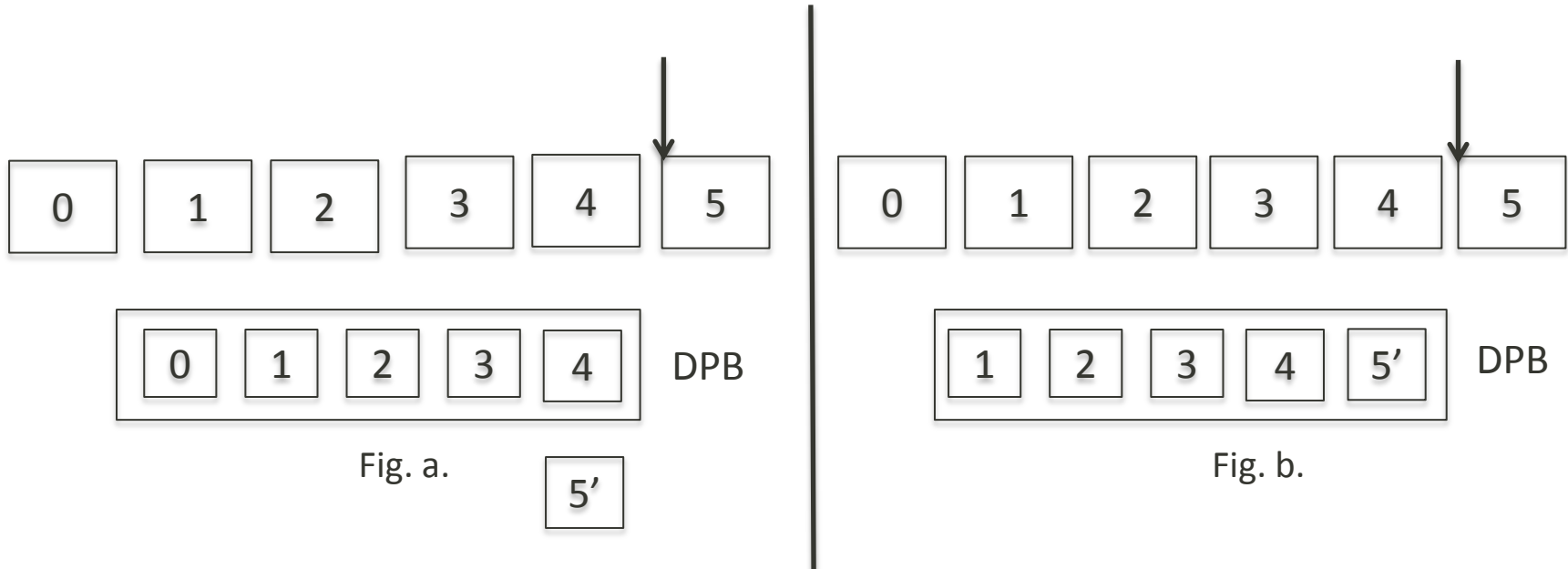
Problem statements

Fig. 'DPB status' before decoding picture 5

- In this example:
  - Fig. a, Current decoded picture is not considered to calculate DPB fullness in operation of DPB
  - Fig. b, Current decoded picture is considered to calculate DPB fullness in operation of DPB
    - DPB size: 5
    - 5': Current decoded picture before in-loop filter

Proposed modifications in operation of DPB

Annex C.3.2 Removal of pictures from the DPB (no change)

Annex C.3.3 Picture output (no change)

Annex C.3.4 Current decoded picture marking and storage (modified)
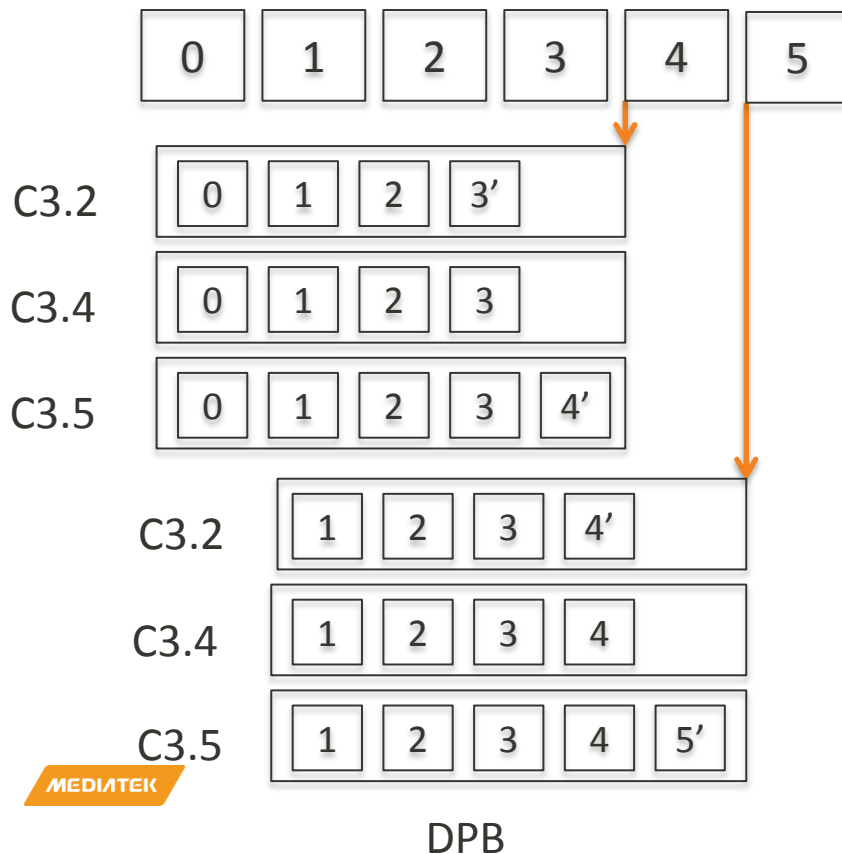
– If curr_pic_as_ref_enabled_flag is equal to 0, tThe current decoded picture is stored in the DPB in an empty picture storage buffer, the DPB fullness is incremented by one, and the current picture is marked as "used for short-term reference".

– Otherwise, if curr_pic_as_ref_enabled_flag is equal to 1 , DPB fullness keeps unchanged. In addition, as specified in subclause 8.1.3, the current decoded picture is stored in the DPB in the picture storage buffer, which is allocated for the current picture and is marked as "used for short-term reference".

Annex C.3.5 Current decoded picture before in-loop filter storage (added)
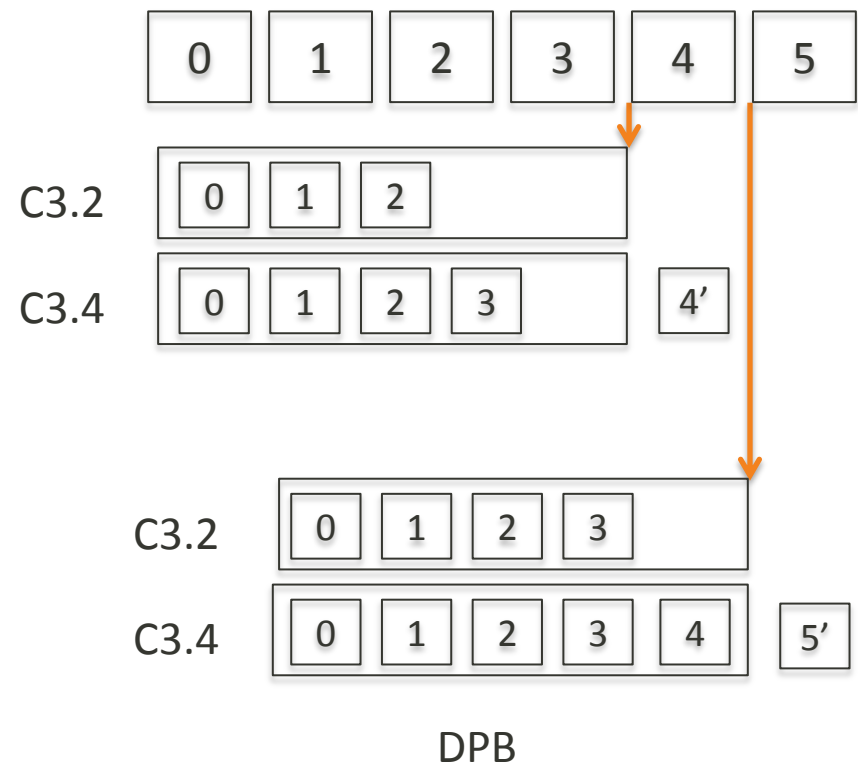
– The DPB fullness is increased by 1.

An example of DPB operation in the modified method and SCC: Draft 3

- **In the proposed modified method**
  - DPB size 5
  - For picture 5, picture 1, 2, 3, 4, and 5' stored in DPB

- **In SCC: Draft 3**
  - DPB size 5
  - For picture 5, pictures 0, 1, 2, 3, and 4 stored in DPB

Conclusions

- Summary of modifications in operation of DPB
  - Modified Annex C.3.4 Current decoded picture marking and storage
  - Added Annex C.3.5 Current decoded picture before in-loop filter storage
- Recommendations
  - Include the proposed modifications on operation of DPB in the next SCC Draft

Thank you for your attention!

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