Fast Depth Coding
Via TensorFlow

Version 1
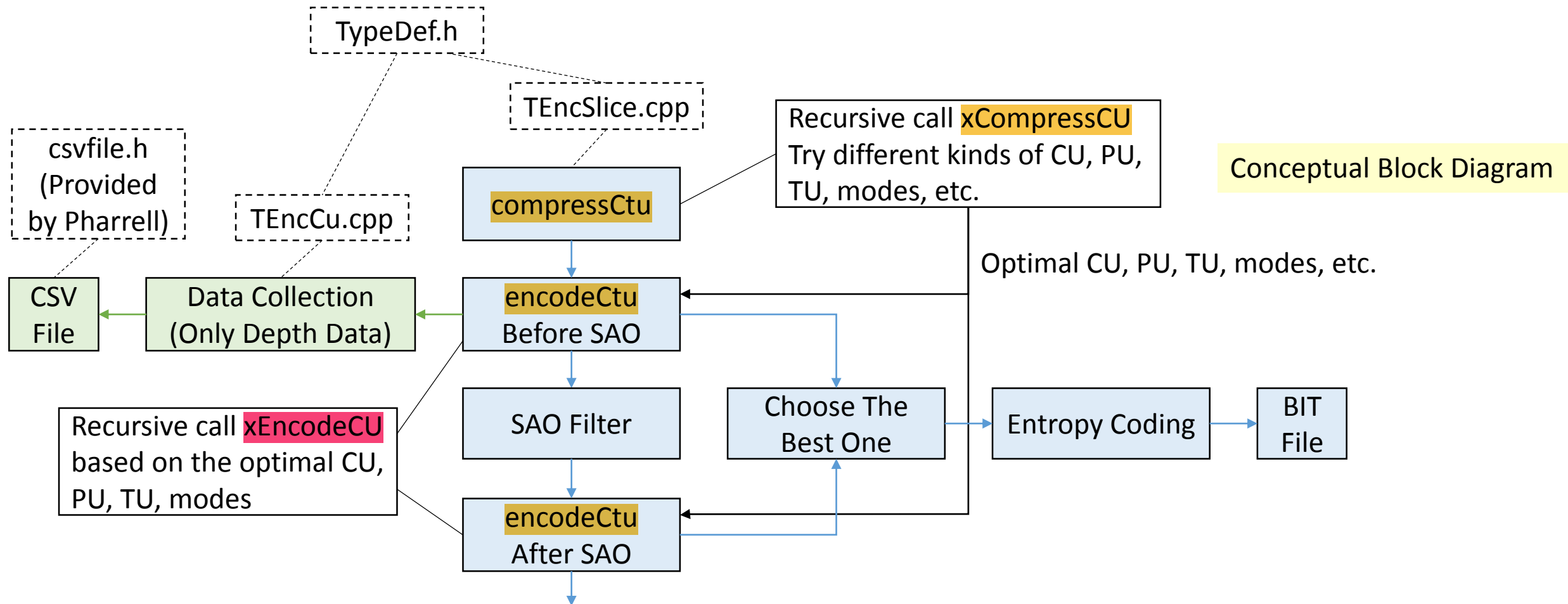
Ho

Version Log

Version	Descriptions
1	Data Collection at Encoder

Data Collection at Encoder

Data Collection at Encoder

We only keep the golden columns

- Depth data collected for each CU size from 64x64, 32x32, 16x16 to 8x8.

- For each row/vector/sample/observation:

when DIS mode is 1, that means NO NEED for partition. Hence negative one (-1) is used here.

1-D Depth Data (Length depending on CU size) (Raster Scan from Top Left to Bottom Right)	DIS Flag	DIS Type	Partition Number	Intra Pred[0]	Intra Pred[1]	Intra Pred[2]	Intra Pred[3]

DIS Flag:
0: Depth Intra Skip (DIS) mode not used
1: DIS mode used

DIS Type:
-1: when DIS mode is 0
{0-3}: DIS type when DIS mode is 1

Partition Number:
-1: when DIS mode is 1
1: 2Nx2N
4: NxN

Intra Pred[0]:
-1: when 2Nx2N or DIS mode is 1
0-34: when conventional Intra
37-38: when DMM

1-D Depth Data:
Luminance components of the depth data

Intra Pred[0] (detail):
-1: when DIS mode is 1
0-34: when conventional Intra
37-38: when DMM

As long as the depth intra skip mode is USED, the last five columns are all -1.

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Data Collection at Encoder

- The modified part is indicated by the macro definition
  - HO_EXPORT_ENCODE_DATA

- The All-Intra (AI) configuration used
  - Provided by original HTM at the path below
  - 3D-HEVC\NonCTC\allintra\baseCfg_3view+depth_AllIntra.cfg
  - e.g.: TAppEncoder.exe -c seqCfg_Newspaper.cfg -c qpCfg_Nview+depth_QP45.cfg -c baseCfg_3view+depth_AllIntra.cfg

- The exported CSV file named just simply as
  - test_%d.csv
  - %d is the CU depth level
  - Please rename it if needed

Appendix: Mode Decision Process
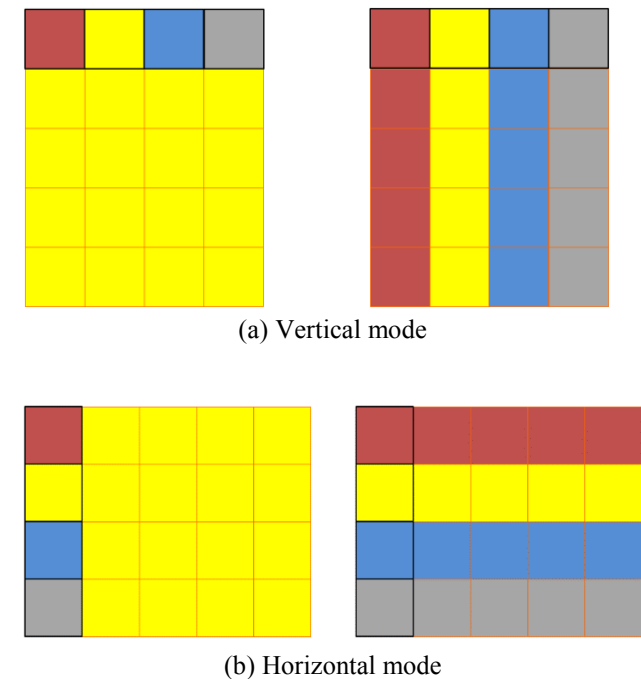
- For each CU,
    - when DIS mode is used,
        - conventional intra mode (including DMM) would not be used.
    - when conventional intra mode (including DMM) is used,
        - DIS mode would not be used.

xCheckRDCostDIS
DIS Mode

xCheckRDCostIntra
Intra Mode
including DMM
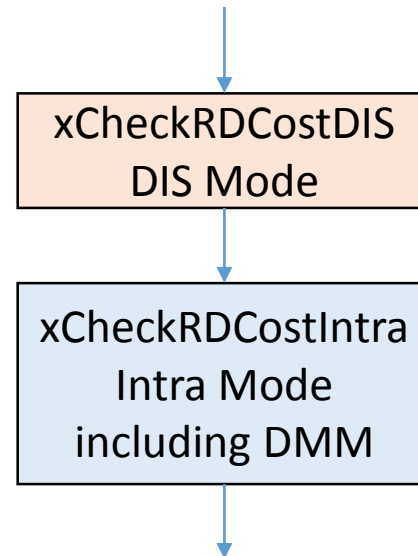
Conceptual Block Diagram

Appendix: Depth Intra Skip (DIS) Mode
from JCT3V-K0033 "3D-CE1: Depth intra skip (DIS) mode"

- Fig. 2 displays the difference between (left) the single depth mode and (right) the proposed method in (a) the vertical mode and (b) the horizontal mode. A block within a black boundary shows a reconstructed pixel. In the single depth mode, the yellow boundary pixel, which is placed in the middle of the boundary, is filled for the reconstruction of the current pixels. The proposed DIS mode performs the reconstruction like the conventional prediction vertical and horizontal modes.

- does not code the residual information, only one bit flag signaling is required.

(a) Vertical mode

(b) Horizontal mode

From (JCT3V-K0033)