

AHG10: Modified copy above mode for palette based coding [JCTVC-Q0174]

Jianqing Zhu, Jiangli Ye, Kimihiko Kazui
Fujitsu R&D Center Co., Ltd
FUJITSU LABORATORIES LTD.

17th JCT-VC meeting, Valencia, 2014/03/27-04/05

- AHG10 was established for further study on Palette based coding
- A base software, P0303, for AHG10 investigation on palette coding tool was suggested.
 - For “copy run” derivation, index of current position and that of its above position is compared to judge whether use copy or not.
 - For the pixel in escape mode, copy mode will not be applicable.

Original coding unit

C0	C0	C1	C2	C2	C1	C0	C3
C0	C0	C1	C2	C2	C1	C0	C3
C0	C0	C1	C2	C2	C1	C0	C0
C0	C0	C1	C2	C2	C1	C0	C0
C0	C0	C1	C2	C2	C1	C0	C0
C6	C6	C0	C0	C1	C1	C7	C7
C6	C6	C6	C0	C0	C0	C7	C7
C4	C4	C4	C4	C4	C0	C0	C5

Palette={C0,C1,C2,C4,C6,C7},

Index deriving

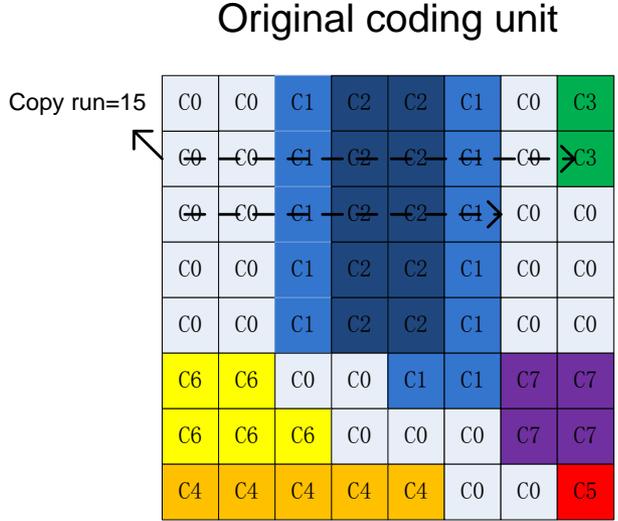


Copy run=7	0	0	1	2	2	1	0	C3
	0	0	1	2	2	1	0	C3
	0	0	1	2	2	1	0	0
	0	0	1	2	2	1	0	0
	0	0	1	2	2	1	0	0
	4	4	0	0	1	1	5	5
	4	4	4	0	0	0	5	5
	3	3	3	3	3	0	0	C5

3 This pixel is in palette. And its index is 3

C3 This pixel is in escape mode. And its value is C3

- Use pixel value directly for “copy-above”
 - No index derivation. Just compare pixel value of current position and its above/left to judge whether it can be copy or not.
 - copy mode will not care about the pixel value is in escape or not.



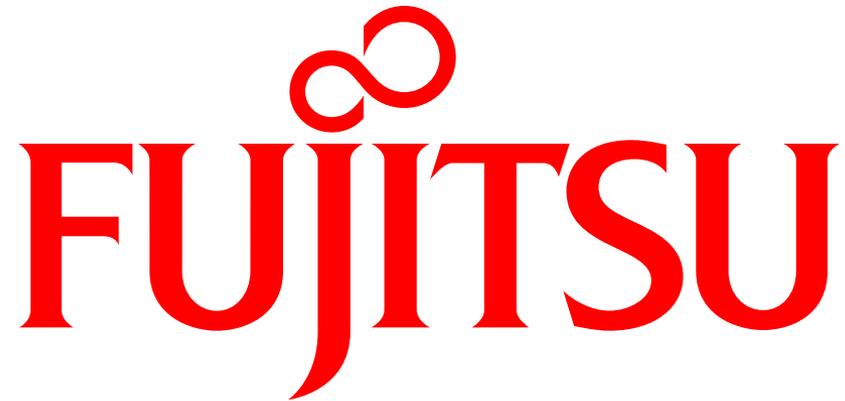
Palette={C0,C1,C2,C4,C6,C7},

Simulation results(lossless)

- Anchor: P0303 with bug fixed on calculation of run

	AI											
	Compression ratio								Bit-rate increase			
	Total		Average		Min		Max		Total	Avg	Min	Max
	Ref.	Tested	Ref.	Tested	Ref.	Tested	Ref.	Tested				
Class F	4.60	4.61	5.60	5.60	2.27	2.27	11.22	11.23	0.0%	0.0%	-0.1%	0.0%
Class B	2.25	2.25	2.26	2.26	2.08	2.08	2.44	2.44	0.0%	0.0%	0.0%	0.0%
RGB 4:4:4 SC	11.07	11.10	15.9	15.90	7.26	7.28	35.30	35.32	-0.2%	-0.2%	-0.5%	0.0%
RGB 4:4:4 Animation	2.83	2.83	2.9	2.86	2.41	2.41	3.15	3.15	0.0%	0.0%	0.0%	0.0%
YCbCr 4:4:4 SC	12.88	12.89	18.0	18.04	8.61	8.62	37.38	37.40	-0.1%	-0.1%	-0.3%	0.0%
YCbCr 4:4:4 Animation	3.08	3.08	3.2	3.23	2.67	2.67	3.98	3.98	0.0%	0.0%	0.0%	0.0%
RangeExt	1.98	1.98	2.44	2.44	1.52	1.52	4.43	4.43	0.0%	0.0%	0.0%	0.0%
RGB 4:4:4 SC (Optional)	50.90	50.96	65.34	65.41	23.91	23.94	105.64	105.71	-0.1%	-0.1%	-0.2%	-0.1%
YCbCr 4:4:4 SC (Optional)	58.64	58.68	74.83	74.90	29.21	29.22	127.87	127.97	-0.1%	-0.1%	-0.2%	0.0%
Enc Time[%]	97%											
Dec Time[%]	105%											

- Recommend this modification to be included in base software of palette based coding.



shaping tomorrow with you