

Non-CE1: On Copy Above Mode for Palette Mode [JCTVC-T0054]

Jianqing Zhu, Zhanglei Xu
Fujitsu R&D Center Co., Ltd

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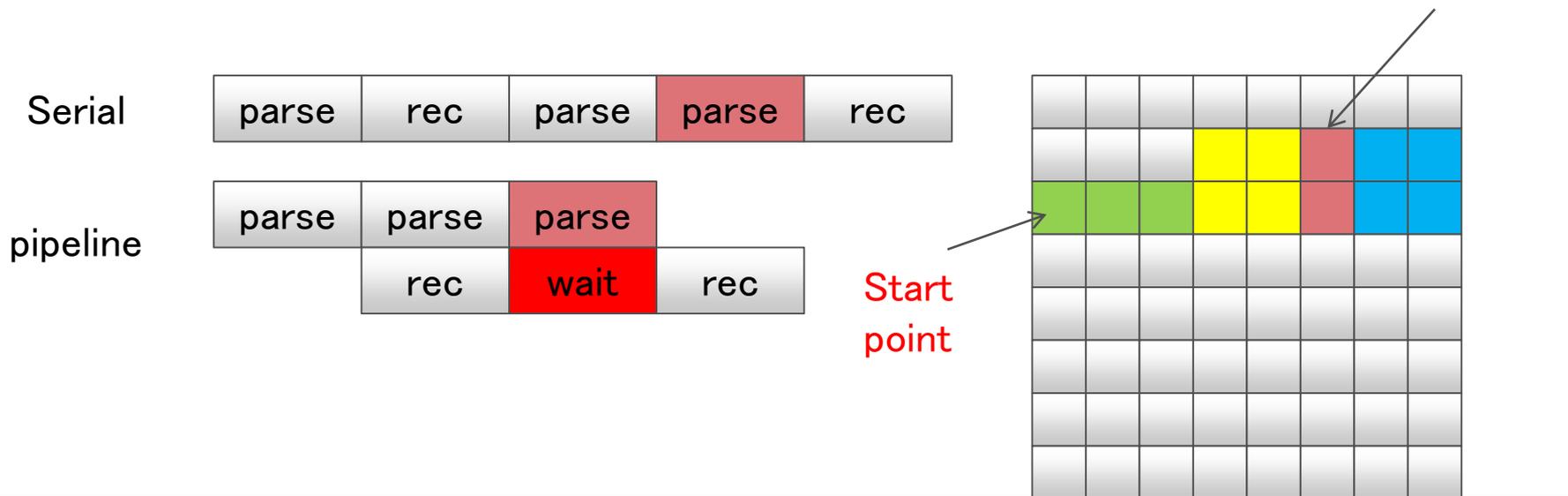
- Palette mode is integrated in test model of screen content coding(SCM).
 - For copy above mode, a run is coded to indicate how many index is copied from above line from current scan position. However, there are some problems brought by this practice.
 - This contribution proposes to use pixel value instead of index for copy above mode to overcome the problems.

■ Problem1: Copy above mode for the 1st line.

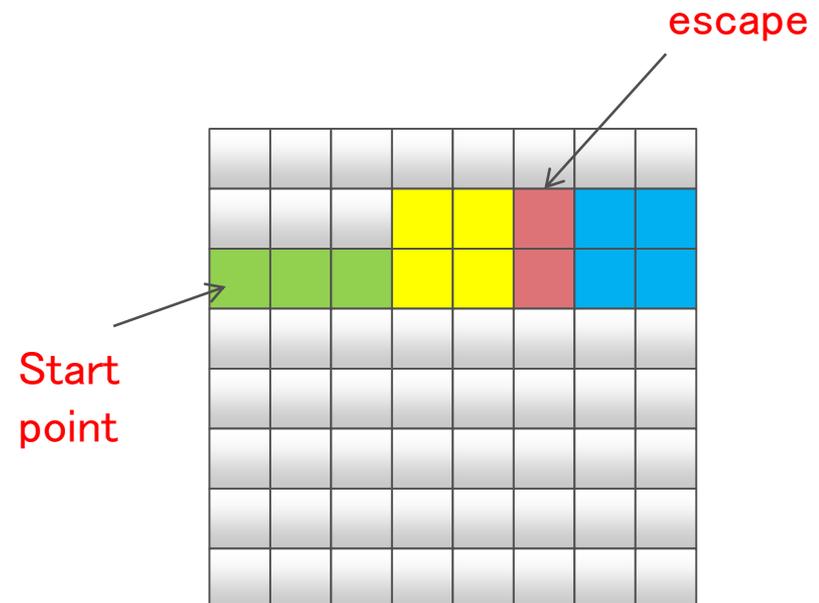
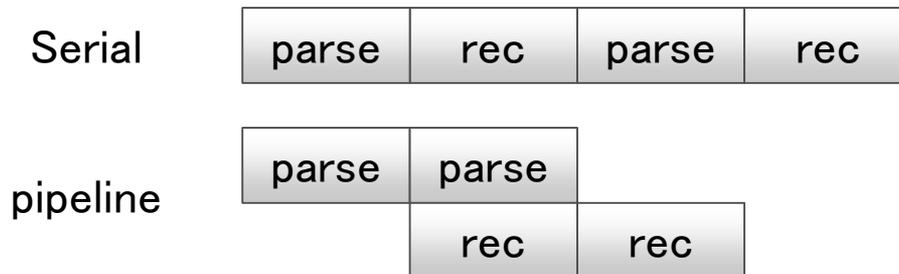
- In current test model, copy above mode is forbidden for the 1st line. It will lose some gain.
- Even if it is allowed, the index of above line cannot be used directly. Need re-conducted. More complexity.

■ Problem2: Escape coded pixel in copy above mode

- Problem2.1: lose coding gain if escape coded pixel has same value
- Problem2.2: lower throughput. Pixels cannot be constructed immediately.



- Use pixel value instead of index for copy above mode in palette mode.
- Copy above mode is applied for the 1st line of CU.
- Advantage
 - No index conversion for the 1st line.
 - No duplicated escaped coded pixels transmission.
 - Higher parallel possibility



Simulation results(lossless)

■ Anchor: SCM3.0

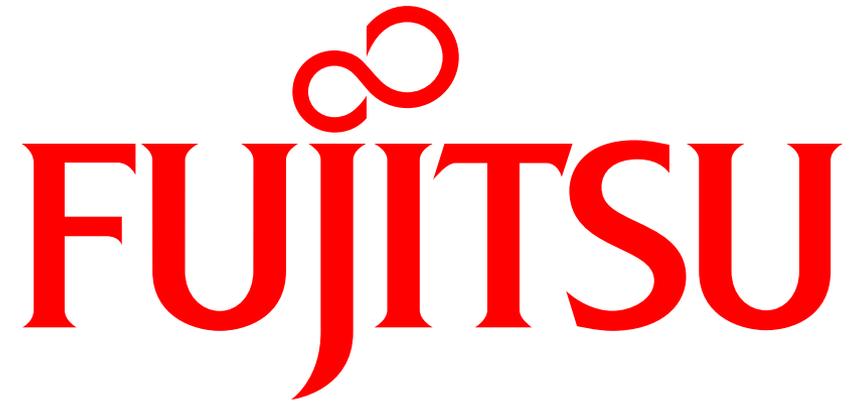
	All Intra			
	Bit-rate change (Total)	Bit-rate change (Average)	Bit-rate change (Min)	Bit-rate change (Max)
RGB, text & graphics with motion, 1080p & 720p	-0.3%	-0.5%	-1.6%	0.0%
RGB, mixed content, 1440p & 1080p	0.0%	0.0%	-0.1%	0.0%
RGB, Animation, 720p	0.0%	0.0%	0.0%	0.0%
RGB, camera captured, 1080p	0.0%	0.0%	0.0%	0.0%
YUV, text & graphics with motion, 1080p & 720p	-0.4%	-0.5%	-1.6%	-0.1%
YUV, mixed content, 1440p & 1080p	0.0%	0.0%	0.0%	0.0%
YUV, Animation, 720p	0.0%	0.0%	0.0%	0.0%
YUV, camera captured, 1080p	0.0%	0.0%	0.0%	0.0%
Enc Time[%]	102%			
Dec Time[%]	97%			

Simulation results(lossy)

■ Anchor: SCM3.0

	All Intra		
	G/Y	B/U	R/V
RGB, text & graphics with motion, 1080p & 720p	-0.7%	-0.7%	-0.7%
RGB, mixed content, 1440p & 1080p	0.0%	0.0%	0.0%
RGB, Animation, 720p	0.0%	0.0%	0.0%
RGB, camera captured, 1080p	0.0%	0.0%	0.0%
YUV, text & graphics with motion, 1080p & 720p	-0.8%	-0.8%	-0.7%
YUV, mixed content, 1440p & 1080p	-0.1%	-0.1%	0.0%
YUV, Animation, 720p	0.0%	0.0%	0.0%
YUV, camera captured, 1080p	0.0%	0.0%	0.0%
Enc Time[%]		105%	
Dec Time[%]		98%	

- Suggest to adopt the proposal.
- Thanks cross-checking of Huawei.



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