



Subjective Quality Comparison between DMC Coding and YUV420 Hybrid Coding Using YUV444 Screen Content Test Sequences

JCTVC-I0336

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What are compared?

- HEVC YUV420 Hybrid Coding
- versus
- Dual-coder Mixed Chroma-sampling-rate Coding
 - ❖ Full-chroma dictionary-entropy coder
 - ❖ HEVC YUV420 hybrid coder with 444 prediction

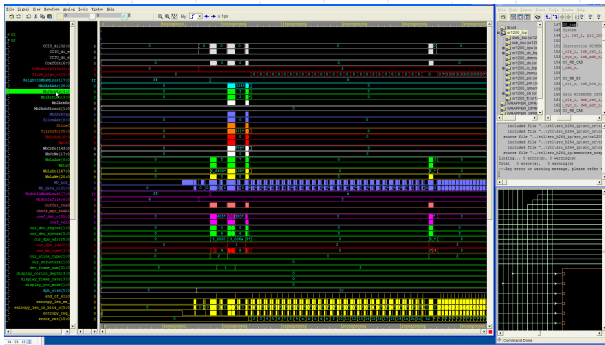
Observation

- Obvious improvement of subjective picture quality at the same bitrate

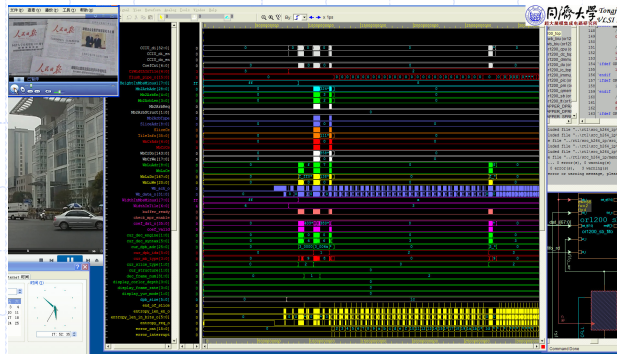


◆ Five test sequences: 335 frames, 1080p, 20fps

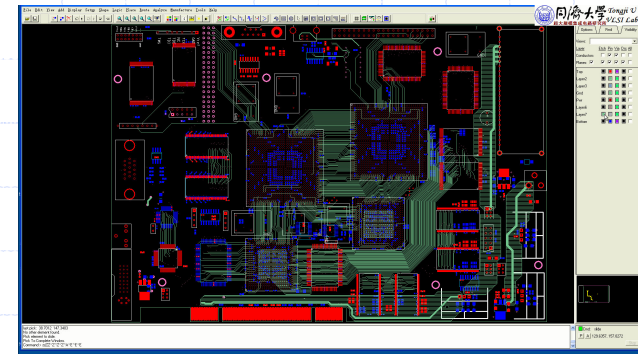
◆ See JCTVC-H0294 for details of the test sequences



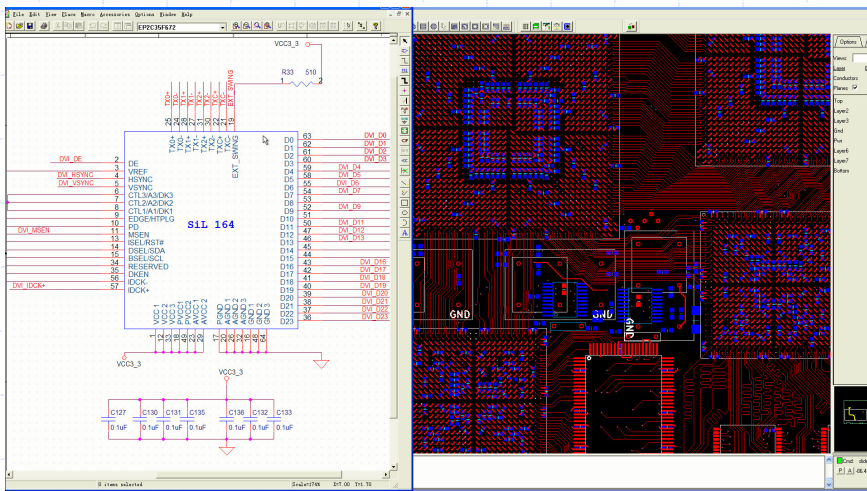
TJU_CAD_waveform.yuv



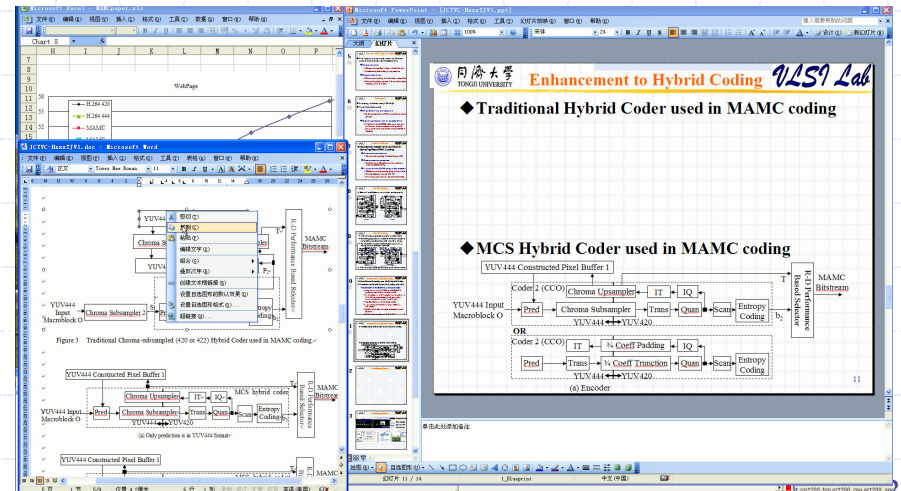
TJU_CAD_waveform_Street_Campus.yuv



TJU_PCB_layout.yuv



TJU_PCB_schematic.yuv



TJU_ppt_doc_xls.yuv

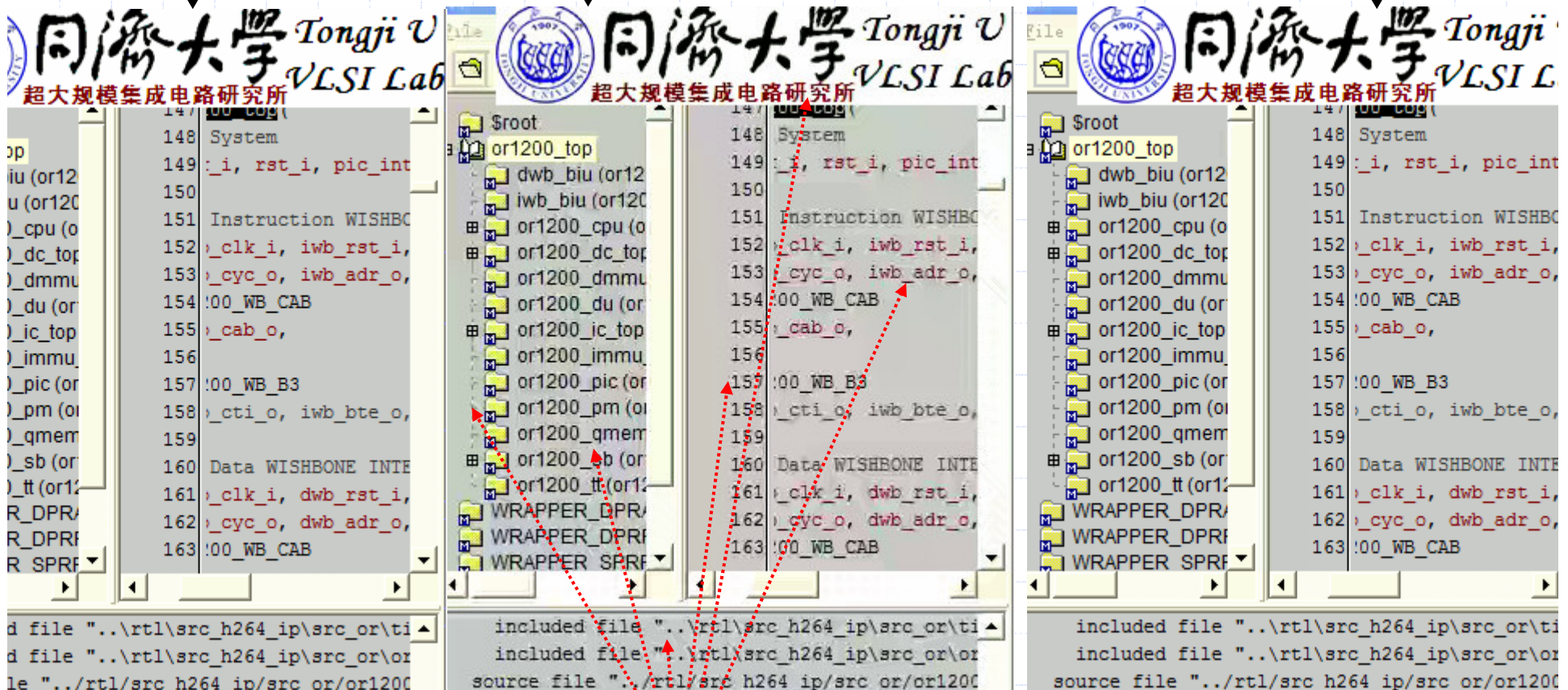


◆ CAD_waveform: 335 frames, 1080p, 20fps, about 1Gbps raw bitrate

Original picture

420 coded/constructed
picture: 25.4dB PSNR
@237.6kbps

DMC coded/constructed
picture: 50.4dB PSNR
@227.8kbps

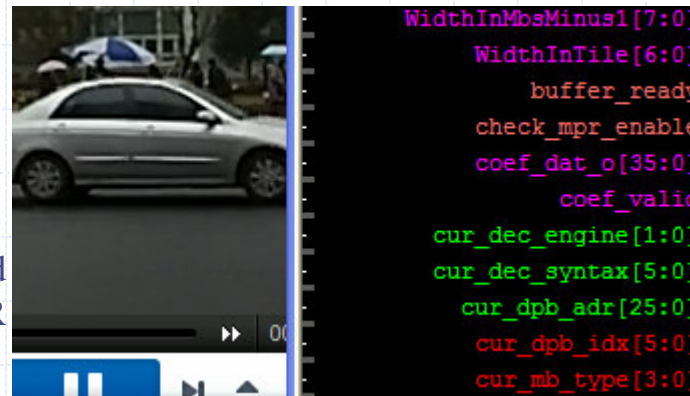
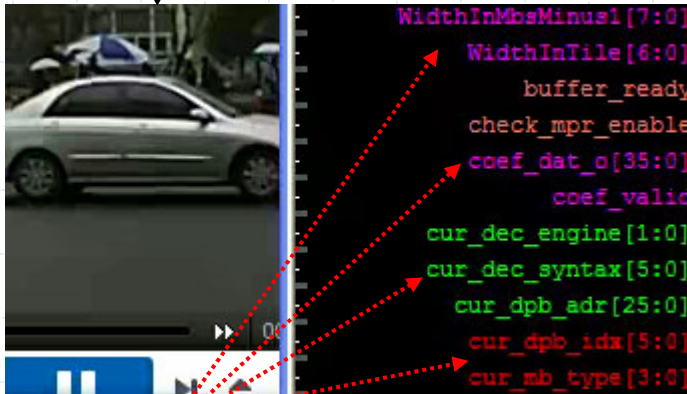


There are quite a lot very obvious coding artifacts on the middle picture but none on the right picture.



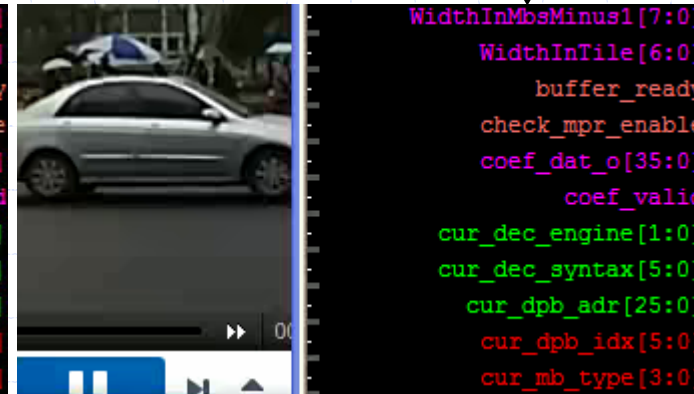
- ◆ CAD_waveform_Street_Campus: 335 frames, 1080p, 20fps, about 1Gbps raw bitrate

420 coded/constructed
picture: 26.4dB PSNR
@667.6kbps



← The original picture

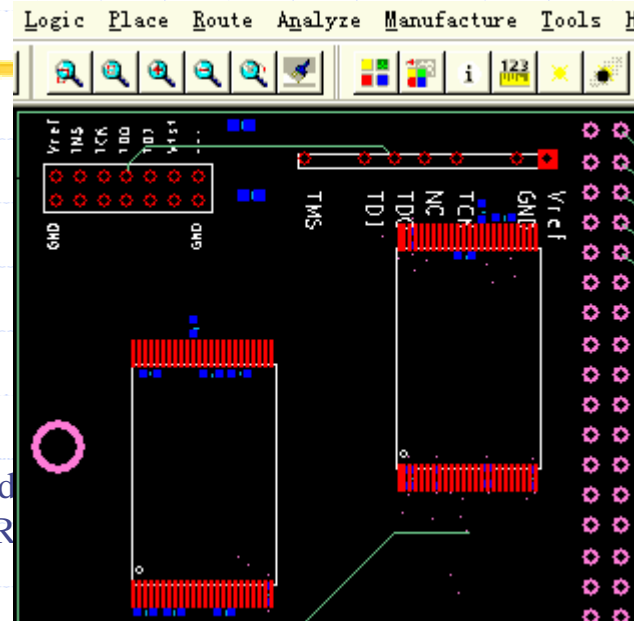
DMC coded/constructed
picture: 44.8dB PSNR
@666.7kbps



Texts are blurred and have color distortion on the left picture but none on the right picture.



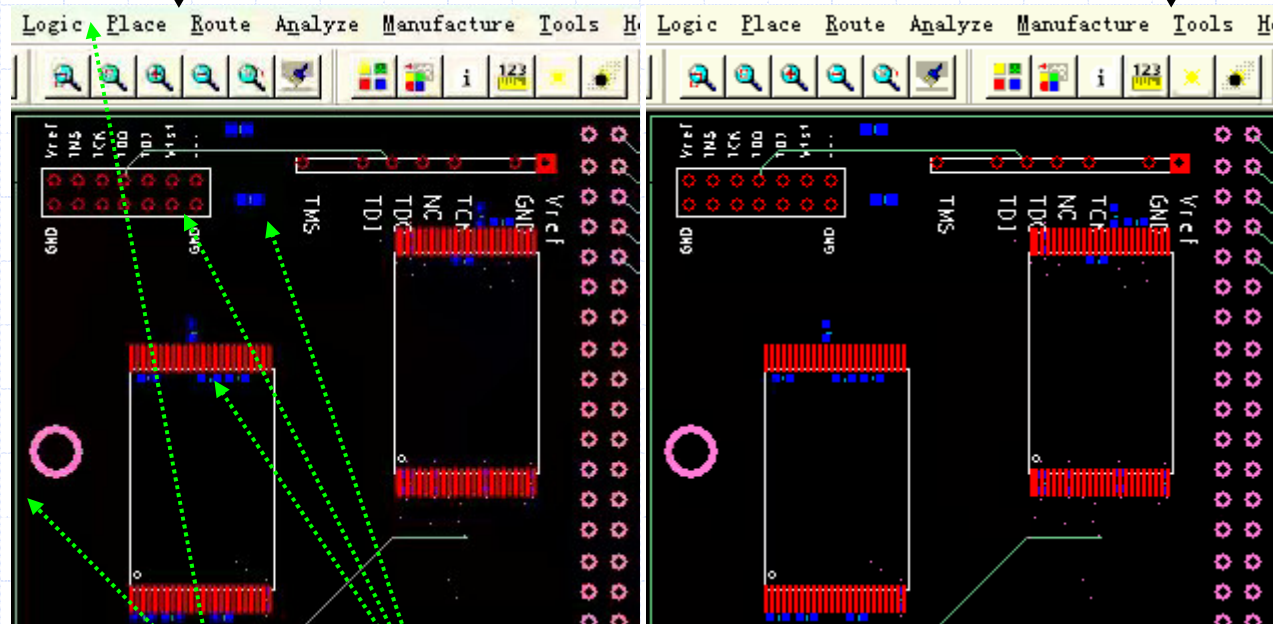
- ◆ PCB_layout: 335 frames, 1080p, 20fps, ~1Gbps raw bitrate



← The original picture

420 coded/constructed
picture: 27.3dB PSNR
@824.5kbps

DMC coded/constructed
picture: 44.8dB PSNR
@832.7kbps

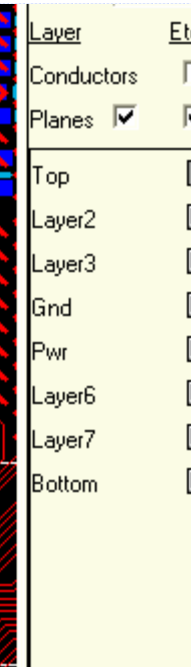
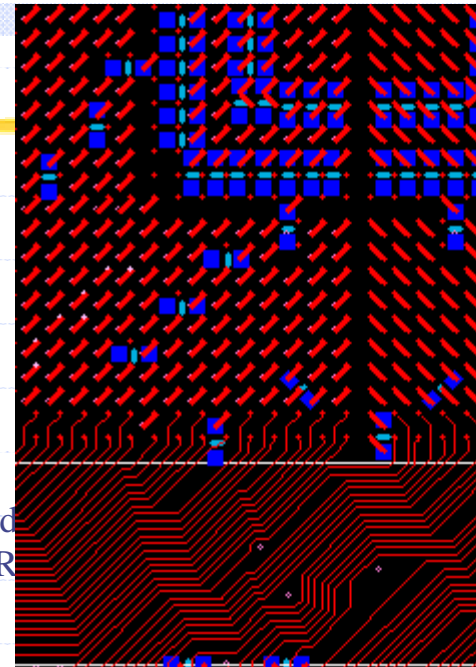
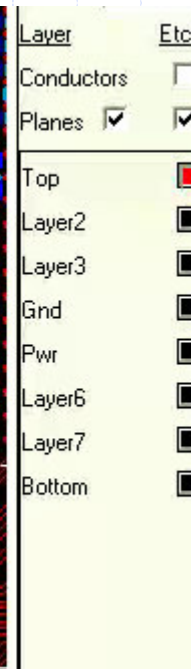
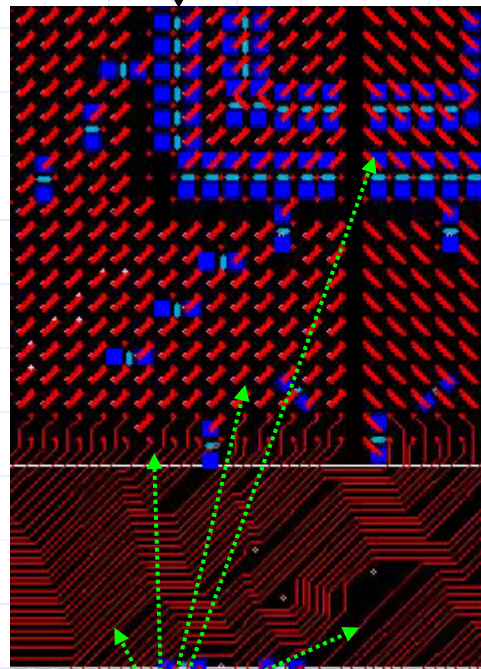


Whited/greenish color artifacts, blurred lines/circles/squares/icons etc. on the left picture ⁶



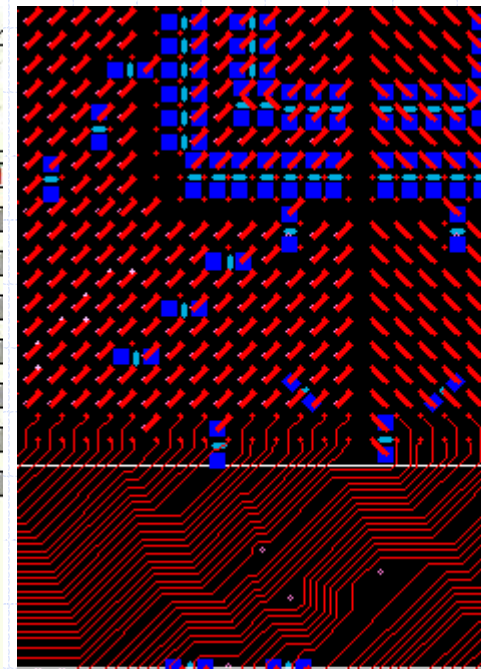
◆ PCB_schematic: 335 frames, 1080p, 20fps, ~1Gbps raw bitrate

420 coded/constructed picture: 25.9dB PSNR @368.4kbps



← The original picture

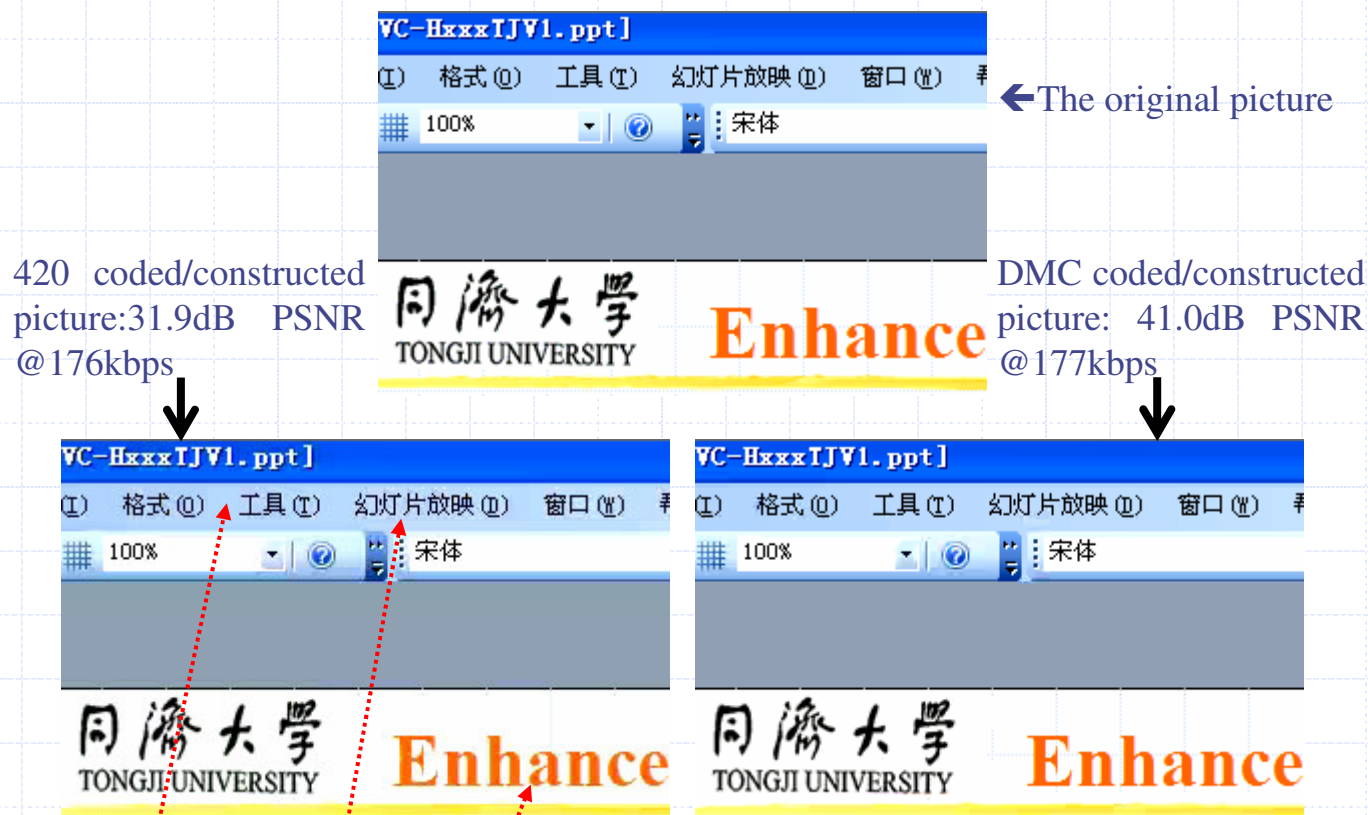
DMC coded/constructed picture: 46.6dB PSNR @377.0kbps



Broken thin lines, blurred shapes, missed pixels and color distortion on the left picture 7



- ◆ ppt_doc_xls: 335 frames, 1080p, 20fps, ~1Gbps raw bitrate



Reddish artifacts, salt noise, and black pixels in text edges are obvious on the left picture



Conclusions

- **Obvious subjective quality improvement of DMC coding over the current HEVC for screen content**
- **Document JCTVC-H0294 and 444 screen content test sequences have been updated and no copyright issue**
- **Somebody can help to upload the test sequences and the constructed sequences to JCT-VC site for public use**



THANK YOU