

Parallel Context Processing of Coefficient Level (JCTVC-F130)

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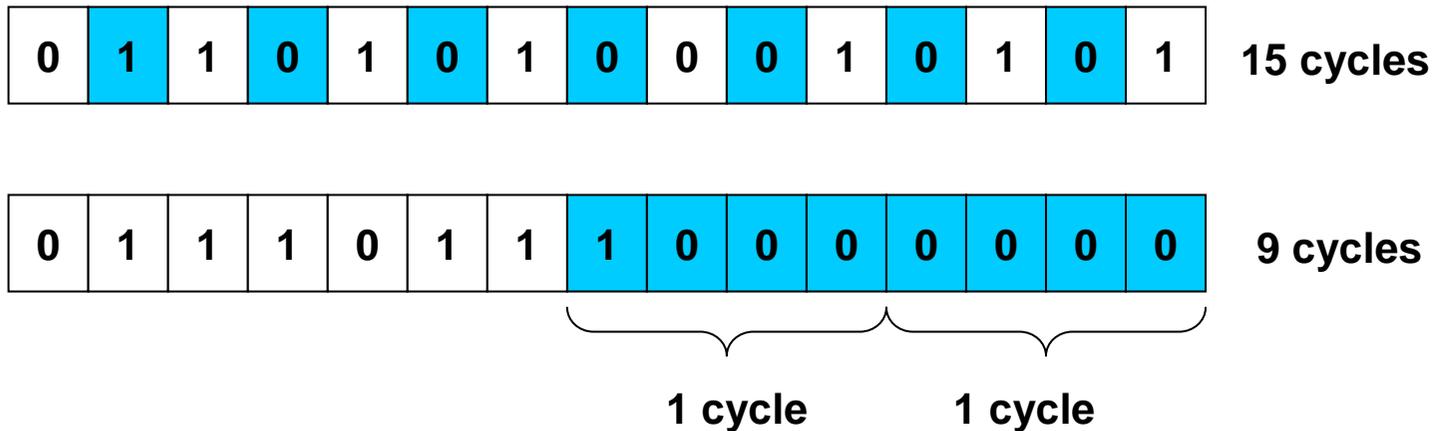
**Joint Collaborative Team on Video Coding (JCT-VC)
of ITU-T SG16 WP3 and ISO/IEC JTb1/SC29/WG11**

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Bypass bins have high throughput

- Bypass has higher throughput than regular bins
 - multiple bins per cycle possible (See ref [1],[2] in contribution for examples of multi-bin coding for bypass bins)
- Long runs of bypass bins help increase overall CABAC throughput

Example 1 context coded bin/cycle
 4 bypass coded bin/cycle



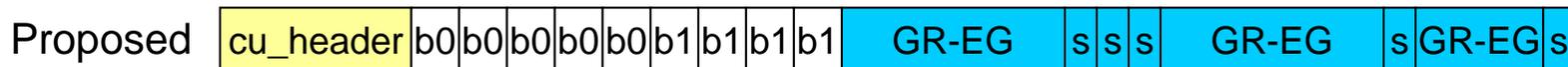
Coefficient Level

- Coefficient level bins are significant portion of total bins
- Coefficient Level coding in CABAC has three parts
 - b0: coeff_abs_level_greater1_flag (context coded)
 - b1: coeff_abs_level_greater2_flag (context coded)
 - GR-EG: coeff_abs_level_minus3 (bypass coded)
 - s: coeff_sign_flag (bypass coded)

- Data currently sent as follows



- Propose grouping all bypass together



Experiment Results

- HM-3.0 under common conditions
- Simulation platform is LSF equipped with Intel(R) Xeon(R) CPU X5570@2.93GHz 64 bits Linux machines
- Results cross-checked by Panasonic (F370)

Coding efficiency impact for High Efficiency

Intra	Random Access	Low Delay
0.0	0.0	0.0

Conclusions

- For increase CABAC throughput, send all bypass bins together for coefficient level within a transform
- No coding efficiency impact
- Recommend for adoption into HEVC test model
 - Draft text available in contribution