

Encoding and decoding significant coefficient flags for small Transform Units using partition sets

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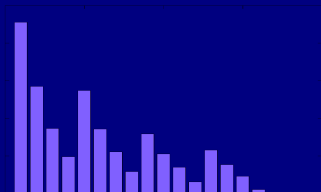


Context Reduction

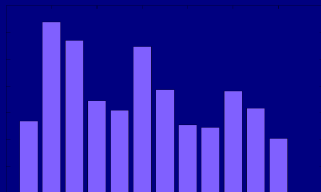
We propose sharing contexts among different significant coeff flags to reduce complexity and increase adaptivity. We merge contexts when

- Several different contexts behave similarly
- One context does not contribute significantly to encoded output

Context contribution to output for 8×8 luma



HM-4.0



Proposal



Context Reduction

As a result of context sharing

- 15+15 4×4 contexts were reduced to 9+6
- 16+16 8×8 contexts were reduced to 12+4



HM-4.0 luma & chroma



Proposed luma



Proposed chroma

Context Selection

Example for describing the 4×4 assignment

```
if (x < 2) {  
    if (y < 2) return 2 * y + x;  
    else return y + 4;  
} else {  
    if (y < 2) return x + 2;  
    else return 8;  
}
```

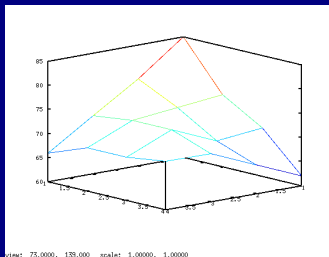


Context Initialization

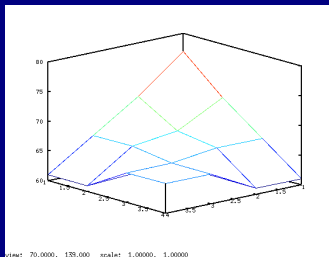
Reduced number of independent parameters ensure generic nature of values

- HM-4.0: 134
- Proposal: 23

4×4 luma



HM-4.0 for QP=27



Proposal for all QP

Results

	All Intra HE			Random Access HE		
	Y	U	V	Y	U	V
Class A	0.01%	-0.02%	0.00%	0.05%	-0.04%	-0.09%
Class B	0.03%	-0.03%	-0.02%	0.02%	-0.08%	-0.15%
Class C	0.00%	0.00%	-0.01%	0.03%	-0.23%	-0.05%
Class D	0.03%	-0.15%	-0.03%	0.08%	-0.33%	-0.11%
Class E	0.02%	-0.02%	-0.13%			
Class F	-0.03%	0.05%	-0.00%	-0.01%	0.07%	-0.01%
Overall	0.01%	-0.03%	-0.03%	0.03%	-0.12%	-0.09%

	Low Delay B HE			Low Delay P HE		
	Y	U	V	Y	U	V
Class B	0.04%	-0.49%	-0.49%	0.03%	-0.38%	-0.19%
Class C	0.02%	-0.57%	-0.23%	0.04%	-0.32%	-0.15%
Class D	0.08%	-0.62%	-0.57%	0.09%	-1.23%	-0.86%
Class E	-0.02%	0.02%	0.16%	0.03%	-0.26%	-0.51%
Class F	-0.22%	-0.38%	-0.06%	-0.14%	-0.25%	0.19%
Overall	-0.02%	-0.43%	-0.27%	0.01%	-0.50%	-0.29%

