

Experimental results for Multi- Parameter Probability Up-date in HM6.0

Alexander Alshin

Elena Alshina

JeongHoon Park

Samsung Electronics Co., Ltd

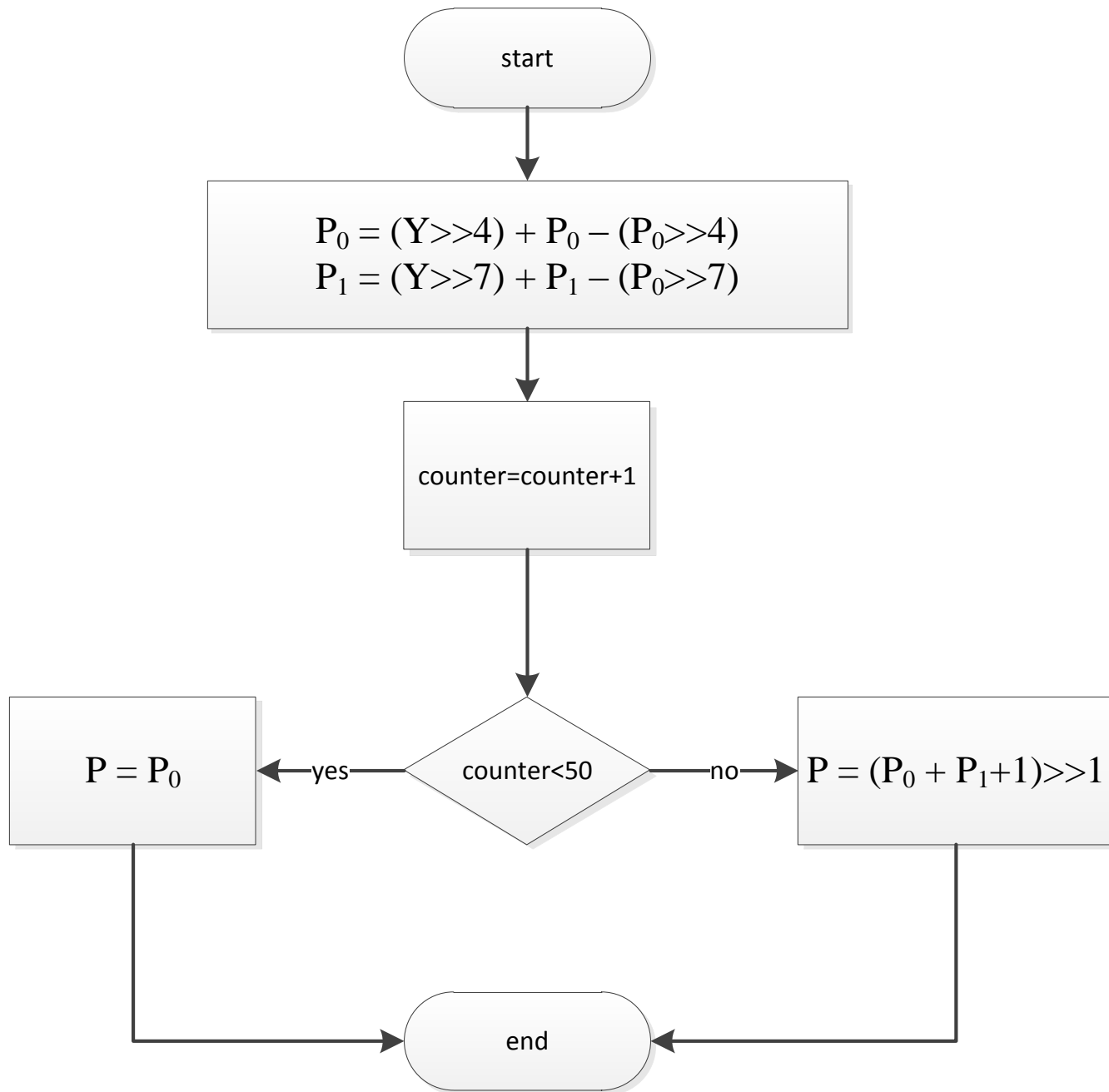
Summary of proposed changes

Removed	Added
UChar m_ucState;	UChar m_ucCounter; unsigned short iP0,iP1; (+4 bytes per context)
UChar m_aucNextStateMPS[64];	
UChar m_aucNextStateLPS[64];	
UChar sm_aucLPSTable[64][4];	unsigned short sm_aucLPSTable [64][64];

```

Void    updateLPS ()
{
    iP0 -= (iP0 >> 4);      iP1 -= (iP1 >> 7);
}
Void    updateMPS ()
{
    iP0 += (32768 - iP0) >> 4;    iP1 += (32768 - iP0) >> 7;
}

```



	All Intra Main			All Intra HE10		
	Y	U	V	Y	U	V
Class A	-0.8%	-0.1%	0.0%	-0.8%	0.2%	0.1%
Class B	-0.7%	-0.6%	-0.5%	-0.7%	-0.6%	-0.6%
Class C	-0.7%	-0.6%	-0.5%	-0.7%	-0.6%	-0.5%
Class D	-0.7%	-0.4%	-0.4%	-0.7%	-0.4%	-0.3%
Class E	-0.7%	-0.9%	-0.8%	-0.7%	-1.0%	-0.7%
Overall	-0.7%	-0.5%	-0.4%	-0.7%	-0.5%	-0.4%
Class F	-0.5%	-0.3%	-0.3%	-0.5%	-0.6%	-0.3%
Enc Time[%]	104%			104%		
Dec Time[%]	96%			97%		
	Random Access Main			Random Access HE10		
	Y	U	V	Y	U	V
Class A	-0.9%	0.3%	0.3%	-0.9%	0.7%	0.1%
Class B	-0.7%	-0.3%	-0.1%	-0.7%	-0.3%	-0.2%
Class C	-0.6%	-0.2%	-0.2%	-0.6%	-0.4%	-0.2%
Class D	-0.5%	-0.1%	0.5%	-0.4%	0.2%	0.0%
Overall	-0.7%	-0.1%	0.1%	-0.6%	0.0%	-0.1%
Class F	-0.4%	-0.1%	0.0%	-0.4%	-0.2%	-0.1%
Enc Time[%]	101%			100%		
Dec Time[%]	98%			96%		
	Low delay B Main			Low delay B HE10		
	Y	U	V	Y	U	V
Class B	-0.7%	0.0%	0.1%	-0.7%	-0.7%	-0.2%
Class C	-0.5%	0.0%	-0.3%	-0.5%	-0.2%	-0.1%
Class D	-0.4%	0.5%	0.6%	-0.5%	0.1%	0.5%
Class E	-0.2%	-0.7%	0.1%	-0.2%	-0.4%	-2.0%
Overall	-0.5%	0.0%	0.1%	-0.5%	-0.3%	-0.3%
Class F	-0.3%	0.2%	-0.2%	-0.2%	-0.8%	0.0%
Enc Time[%]	100%			100%		
Dec Time[%]	96%			97%		

Conclusion

Based on presented test results

Avg. gain 0.6% ; Avg. Enc/Dec time 100%

we propose adopt multi-parameter probability up-date model for CABAC to the next version of HM s/w and DIS.