

G767: Bypass coding of Intra prediction modes in CABAC

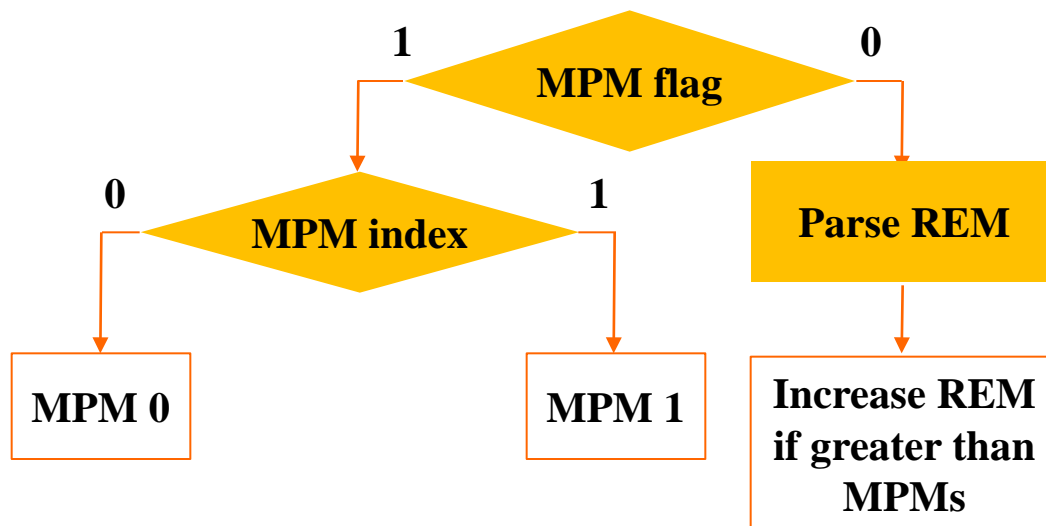
Tammy Lee, Jianle Chen, Jeonghoon Park
Samsung Electronics Co., Ltd

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Introduction

❖ HM4.0

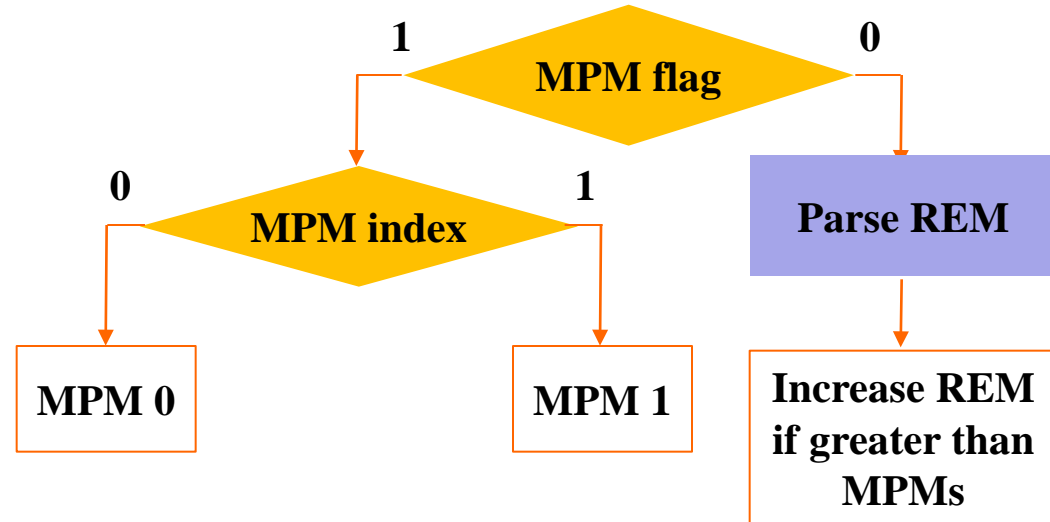
- There are three context models used in intra prediction mode coding in CABAC
 - One is for MPM flag which indicates whether MPM modes are used or not
 - Another is for MPM index which indicates which MPM mode is used among two MPM modes
 - The other is for REM which is the remainder mode after MPM modes are subtracted in intra prediction modes
 - ⊕ REM is coded as fixed length codes where each bin is coded by context modeling



Bypass coding on REM

- ❖ Bypass coding on REM coding
 - Each bin coding of REM is bypassed
 - Experiment in HE-AI

| | Y | U | V |
|--------|-------|--------|--------|
| ClassA | 0.0% | -0.1% | -0.1% |
| ClassB | 0.0% | 0.0% | 0.0% |
| ClassC | 0.1% | 0.1% | 0.0% |
| ClassD | 0.0% | 0.0% | -0.1% |
| ClassE | 0.0% | -0.1% | -0.1% |
| Avg | 0.02% | -0.02% | -0.04% |

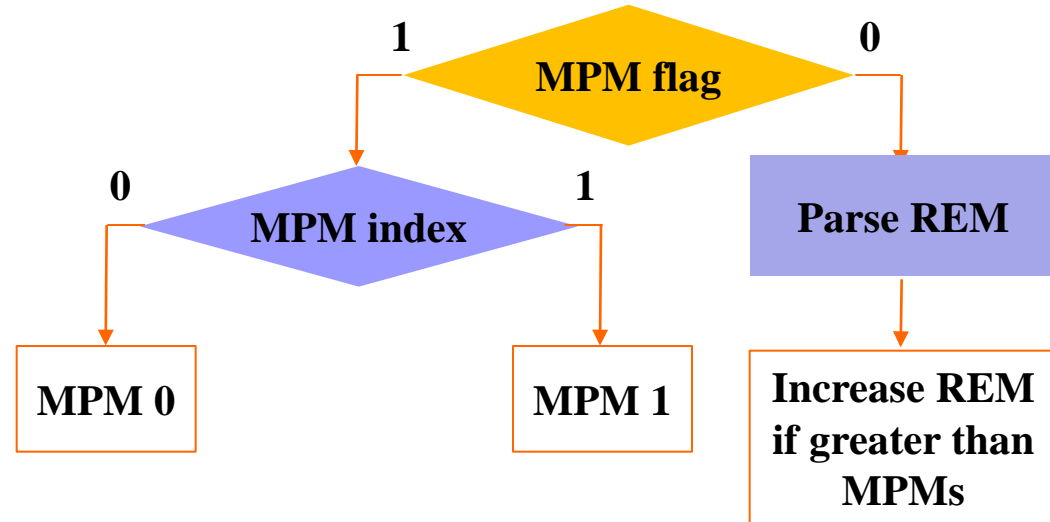


Bypass coding on REM and MPM index

❖ Bypass coding on REM and MPM index coding

- Each bin coding of REM is bypassed
- MPM index coding is also bypassed
- Experiment in HE-AI

| | Y | U | V |
|--------|-------|--------|--------|
| ClassA | 0.0% | -0.2% | -0.1% |
| ClassB | 0.1% | 0.0% | 0.1% |
| ClassC | 0.0% | 0.1% | 0.0% |
| ClassD | 0.0% | 0.0% | -0.1% |
| ClassE | 0.0% | -0.1% | 0.0% |
| Avg | 0.03% | -0.03% | -0.02% |



Conclusion

- ❖ In this proposal, bypass coding on MPM index and REM was tested and it results in almost loss. This can saves two context models in intra prediction mode coding
- ❖ Therefore, it is proposed to remove context models on MPM index and REM coding

Thank you !