
JCTVC-B052

TE3: Adaptive Global Motion Temporal Prediction

Technische Universität Berlin

Communication Systems Group

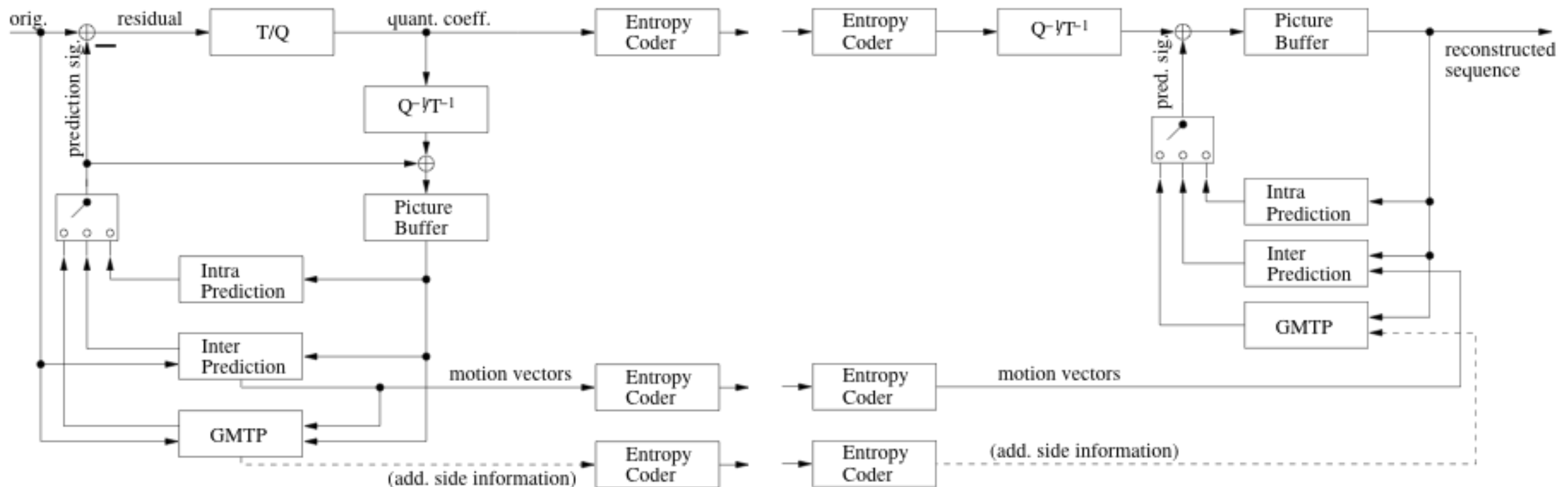
Director: Prof. Thomas Sikora

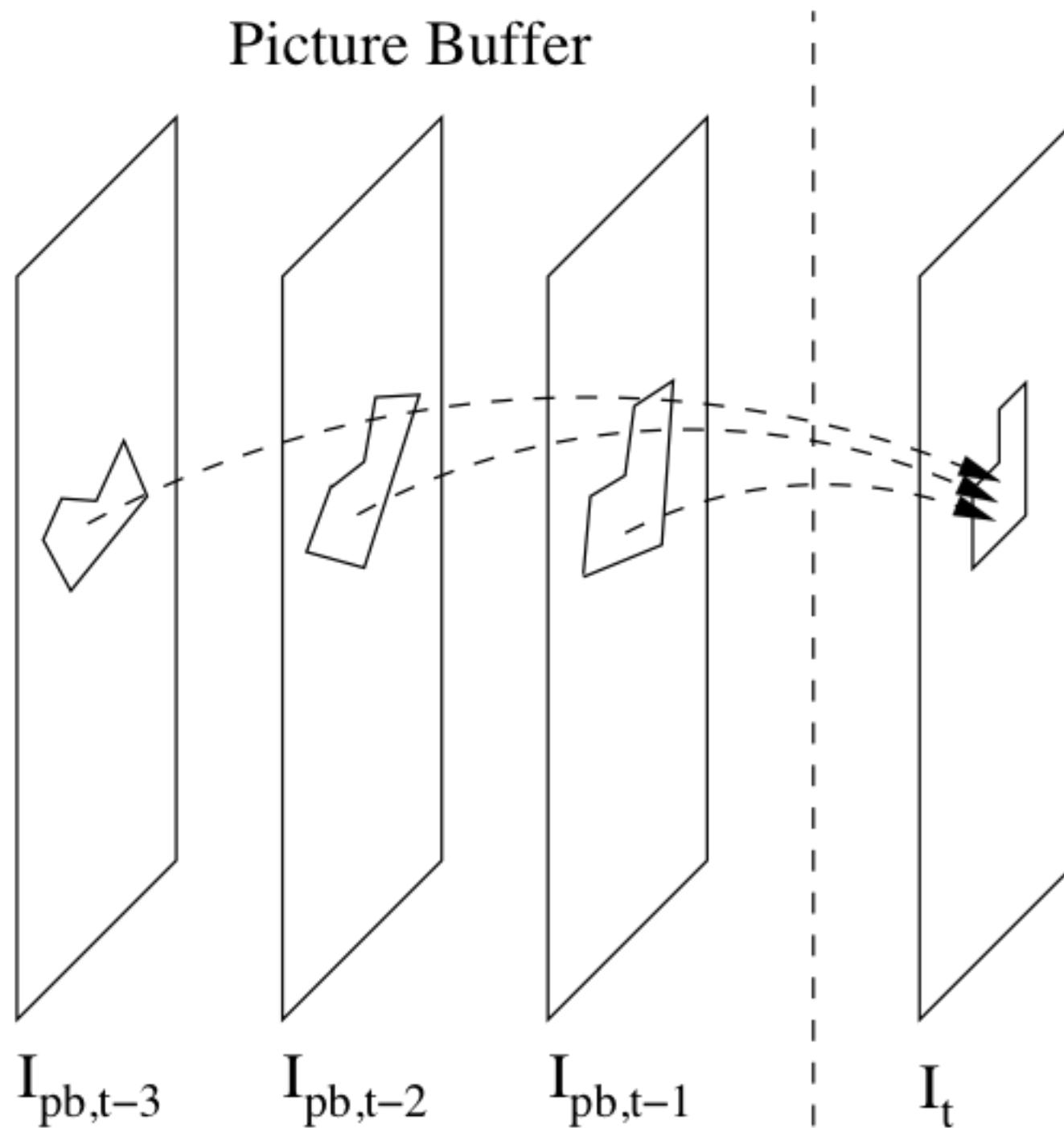
Andreas Krutz, Alexander Glantz, and Thomas Sikora
{krutz,glantz,sikora}@nue.tu-berlin.de

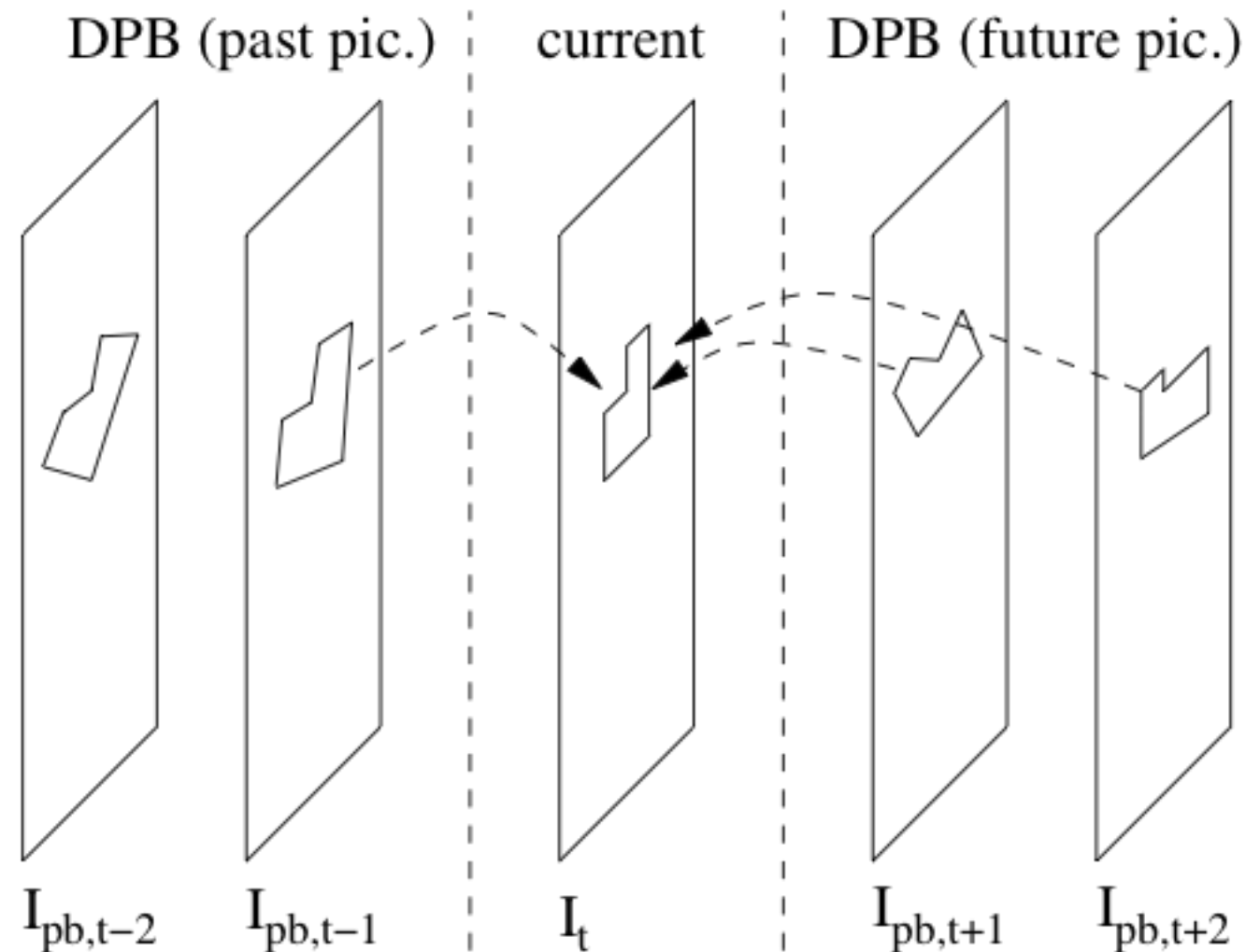
07/21/2010

- General concept
- Prediction signal generation
- Experimental evaluation
 - Discussion
 - Results with class A,B,C, D, and additional sequences
- Conclusion

- New prediction mode based on
 - Global motion estimation/compensation
 - Temporal filtering of spatially aligned pictures
- RDO decides between common modes and new GMTPSKIP mode

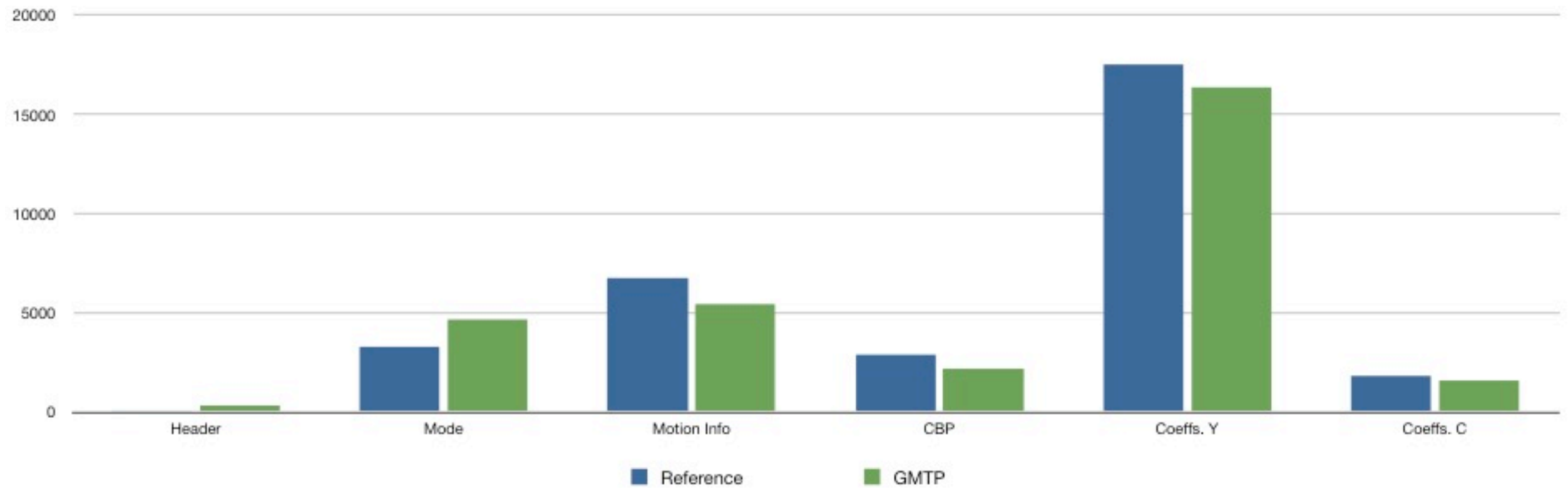






- GMTPSKIP incorporated into JM 17.0
- Settings follow suggestions in TE3 (CS2)
- All test sequences from CfP + Additional
- QPPSlice from {22,27,32,37,42,47}

- Results measured using BD-rate/BD-PSNR
- Two distinct bit rate regions
 - High: QPPSlice from {22,27,32,37}
 - Low: QPPSlice from {32,37,42,47}



BBC-Pan-13, QP27

	BD-Rate High	BD-PSNR High	BD-Rate Low	BD-PSNR Low
ParkJoy 000-249	0.19	-0.01	-0.26	0.01
ParkJoy 250-499	0.08	-0.00	-0.21	0.01
PeopleOnStreet	-0.31	0.01	-0.37	0.02
Traffic	-3.79	0.13	-3.43	0.16
Average	-0.96	0.03	-1.07	0.05

	BD-Rate High	BD-PSNR High	BD-Rate Low	BD-PSNR Low
BasketballDrive	-0.73	0.02	-4.47	0.20
BQTerrace	-1.71	0.08	-14.94	0.64
Cactus	-0.31	0.01	-0.05	0.00
ChristmasTree	-0.39	0.02	-3.79	0.14
Kimono1	-0.25	0.01	-5.26	0.28
ParkScene	-0.68	0.02	-3.31	0.12
Tennis	0.01	0.00	-0.54	0.03
Wisley2	-2.83	0.11	-12.31	0.42
Average	-0.86	0.03	-5.58	0.23

	BD-Rate High	BD-PSNR High	BD-Rate Low	BD-PSNR Low
BasketballDrill	-0.63	0.03	2.36	0.10
BQMall	-0.67	0.03	-1.21	0.07
Flowervase_832x480	-5.13	0.21	-11.81	0.56
Keiba_832x480	-3.09	0.13	-9.98	0.55
Mobisode2_832x480	-1.46	0.04	3.08	-0.19
PartyScene	-4.69	0.22	-2.44	0.10
RaceHorses_832x480	0.17	-0.01	0.09	-0.00
Average	-2.21	0.09	-2.84	0.17

	BD-Rate High	BD-PSNR High	BD-Rate Low	BD-PSNR Low
BasketballPass	1.04	-0.05	4.55	-0.21
BlowingBubbles	-0.97	0.04	8.20	-0.29
BQSquare	-3.86	0.18	-3.80	0.13
FlowerVase_416x240	-11.12	0.57	10.82	-0.96
Keiba_416x240	-2.46	0.14	-2.57	0.15
Mobisode2_416x240	3.39	-0.19	18.07	-1.45
RaceHorses_416x240	0.95	-0.05	3.85	0.16
Average	-1.86	0.09	5.59	-0.35

	BD-Rate High	BD-PSNR High	BD-Rate Low	BD-PSNR Low
Basketball	-0.51	0.02	-11.33	0.60
BBC-Pan-13	-9.63	0.48	-33.07	2.86
Desert	-1.58	0.06	-8.36	0.61
Entertainment	-1.72	0.08	-5.49	0.27
Average	-3.36	0.16	-14.56	1.09

- Novel prediction mode GMTPSKIP
- Bit rate savings up to 33% possible
- None of the proposals from CfP deal with complex motion (except LGE JCTVC-A021)
- Further improvement of technique
- Adopt into current TMuC
- Test within new TE/CE period