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Multiview HEVC – experimental results

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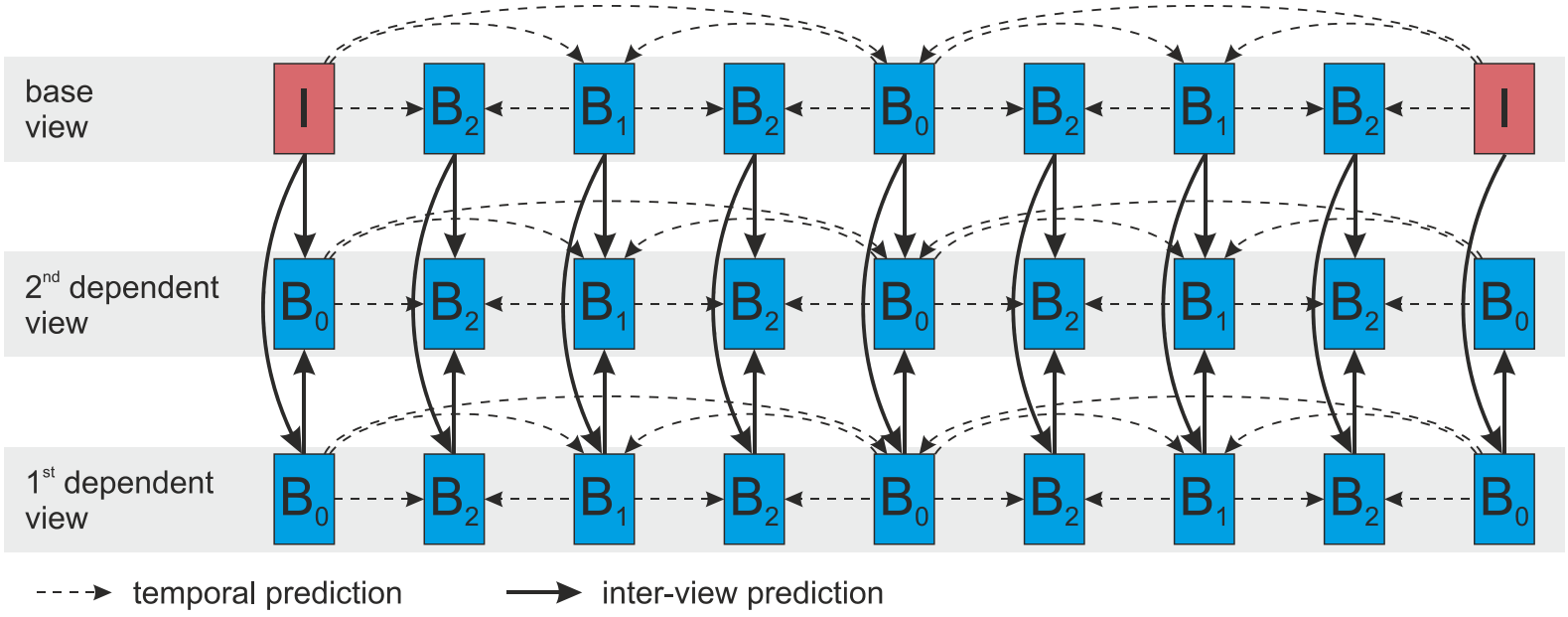
Introduction

- Multiview HEVC
- Coding scheme similar to MVC
- HM 3.0 based
- Base view compliant with HEVC
- Minimum interference in software structure
- Easy portable to higher HM version
- No additional complexity
  (merely additional reference frames)

Coding scheme

- Coding scheme similar to MVC
  - inter-view prediction
  - inter-view reference frames on reference list



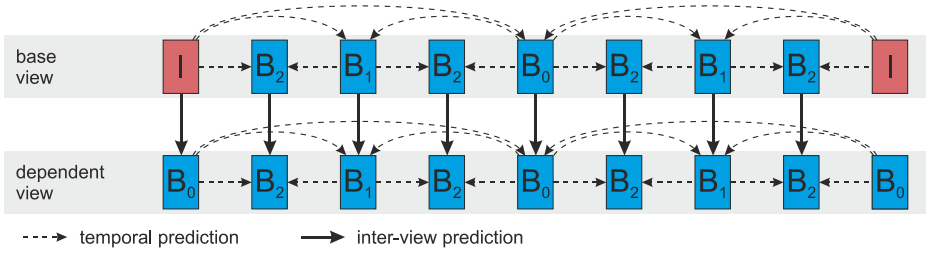
Test sequences

- Sequences from Call for Proposals (CfP) on 3D Video Coding (3DVC)
- Two classes:
  - Class A
    - 2 natural and 2 synthetic (rendered)
    - FullHD (1920x1088) resolution
    - 25 FPS

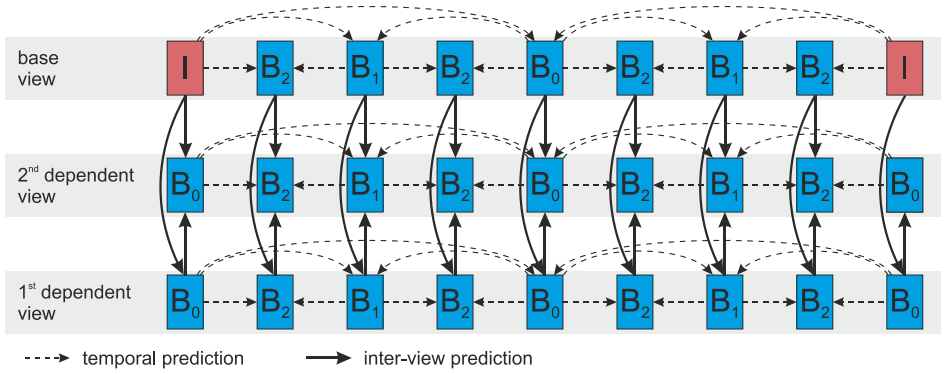
  - Class C
    - natural sequences
    - XGA (1024x768) resolution
    - 30 FPS

Coding scenarios

- Call for Proposals (CfP) on 3D Video Coding (3DVC)
- 2-view case
  - stereoscopic pair of views
  - intended to display on stereoscopic monitor
- 3-view case
  - intended to use in auto-stereoscopic displays



2-view case



3-view case

Results

Performance of **multiview HEVC** compared to **simulcast HEVC** (HM 3.0)						
	RA-HE 2-view case			RA-HE 3-view case		
	Y BD-rate	U BD-rate	V BD-rate	Y BD-rate	U BD-rate	V BD-rate
Class A	**-26,8**	**-27,0**	**-26,9**	**-35.5**	**-35.4**	**-35.1**
Class C	**-18.6**	**-15.1**	**-16.4**	**-25.5**	**-22.1**	**-23.5**
Overall	**-22.7**	**-21.1**	**-21.7**	**-30.5**	**-28.8**	**-29.3**
	-22.6	-21.1	-21.7	-30.4	-28.8	-29.3
Enc Time	**113%**			**126%**		
Dec Time	**96%**			**97%**		

Views and sequences details
3-view case

Performance of **multiview HEVC** compared to **simulcast HEVC** (HM 3.0)						
	RA-HE 1st dependent view			RA-HE 2nd dependent view		
	Y BD-rate	U BD-rate	V BD-rate	Y BD-rate	U BD-rate	V BD-rate
Poznan_Hall2	-22.7	-16.6	-21.8	-46.6	-42.0	-41.8
Poznan_Street	-36.6	-37.3	-31.9	-64.2	-64.7	-63.5
Undo_Dancer	-50.2	-52.9	-51.9	-73.2	-75.6	-74.6
GT_Fly	-52.9	-54.1	-54.3	-78.3	-79.1	-79.2
Kendo	-21.8	-14.3	-19.3	-51.8	-46.1	-48.0
Balloons	-30.4	-25.6	-27.3	-51.5	-47.8	-50.7
Lovebird1	-36.3	-32.2	-33.0	-52.1	-48.7	-49.5
Newspaper	-16.0	-13.8	-15.3	-50.3	-45.7	-46.9
Overall	-33.4	-30.9	-31.9	-58.5	-56.2	-56.8