

M29739/JCTVC-N0116

# RGB4:4:4 video coding using HEVC multi-view extensions

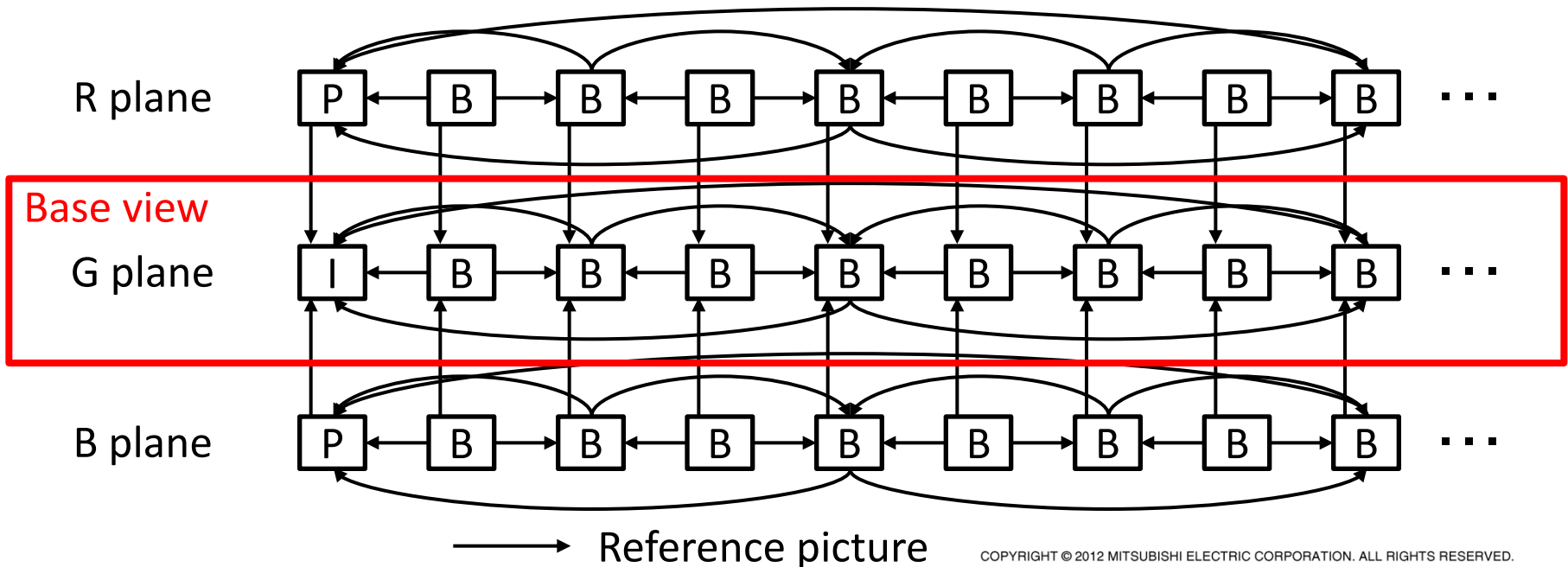
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- Presents a new RGB-domain coding architecture using HEVC multi-view extensions
  - Decompose RGB signal into three 4:0:0 views
  - Significant coding gain for RGB/screen contents only with inter prediction between G and R/B plane
- Could be seen as a technical evidence for coding of non-camera captured contents
  - Possibility of further coding gain
  - Affinity with multi-spectrum video/image sources

# Proposed RGB coding

- The performance of direct RGB coding is better than that of YCbCr coding for high fidelity video coding (refer to m29738/JCTVC-N115)
- Propose a new architecture for RGB video coding by using MV-HEVC
  - Apply each color plane into a monochrome view source
  - G plane is used as one of reference pictures of inter prediction for corresponding R and B plane
- The proposed 4:4:4 coding requires no block-level changes from HEVC version 1 specification



- Test conditions
  - Anchor: HM10.1\_RExt3.0
  - PSNR: 
$$PSNR_{average} = \frac{PSNR_G + PSNR_B + PSNR_R}{3}$$
- Achieve 19.3% to 33.0% average BD-rate gains for screen contents

	All Intra		
	Main-tier	High-tier	Super High-tier
<b>SC average</b>	<b>-33.0%</b>	<b>-29.8%</b>	<b>-26.9%</b>
	Random Access		
	Main-tier	High-tier	Super High-tier
<b>SC average</b>	<b>-28.3%</b>	<b>-25.5%</b>	<b>-23.0%</b>
	Low Delay B		
	Main-tier	High-tier	Super High-tier
<b>SC average</b>	<b>-22.9%</b>	<b>-20.9%</b>	<b>-19.3%</b>