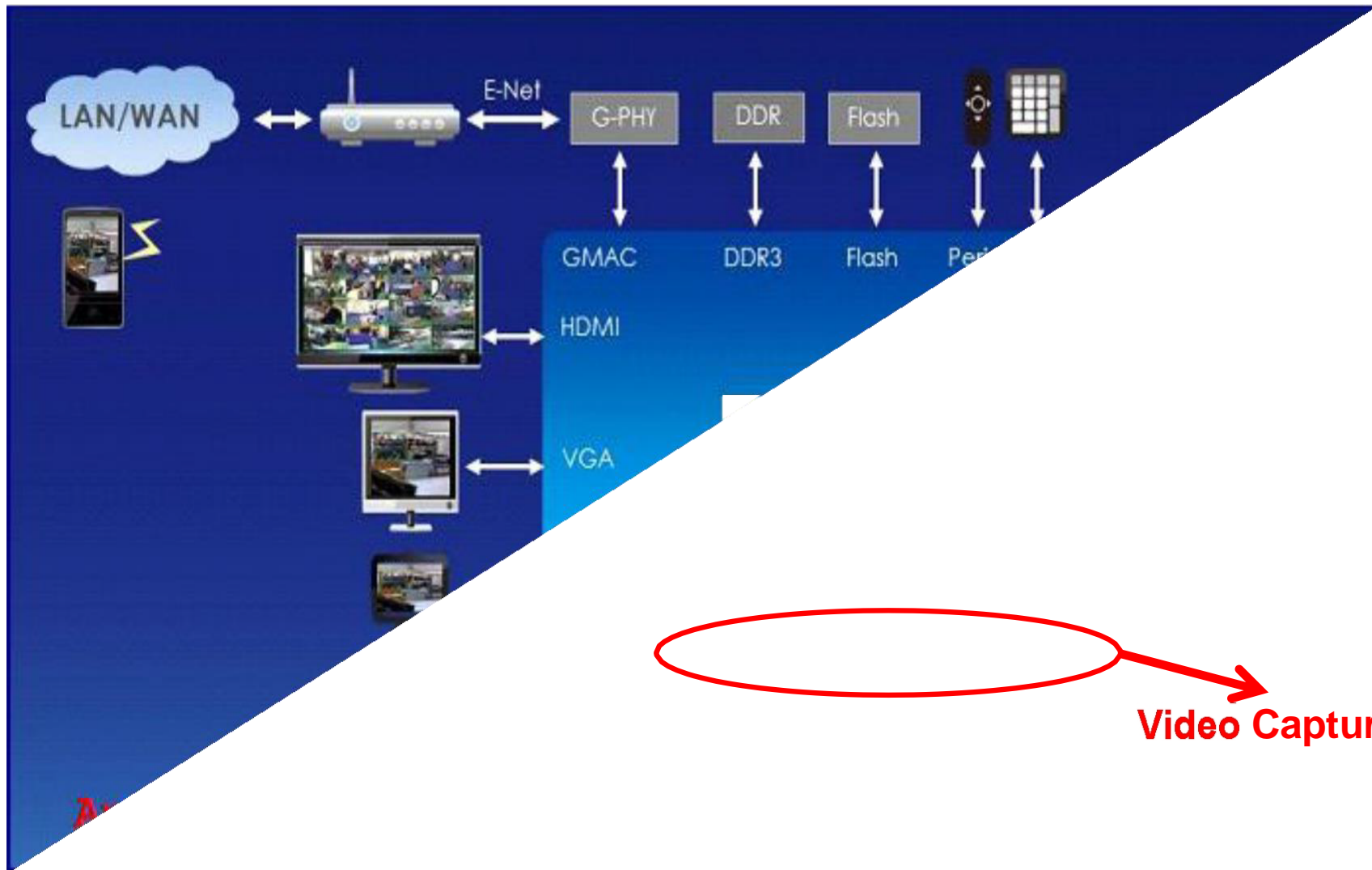
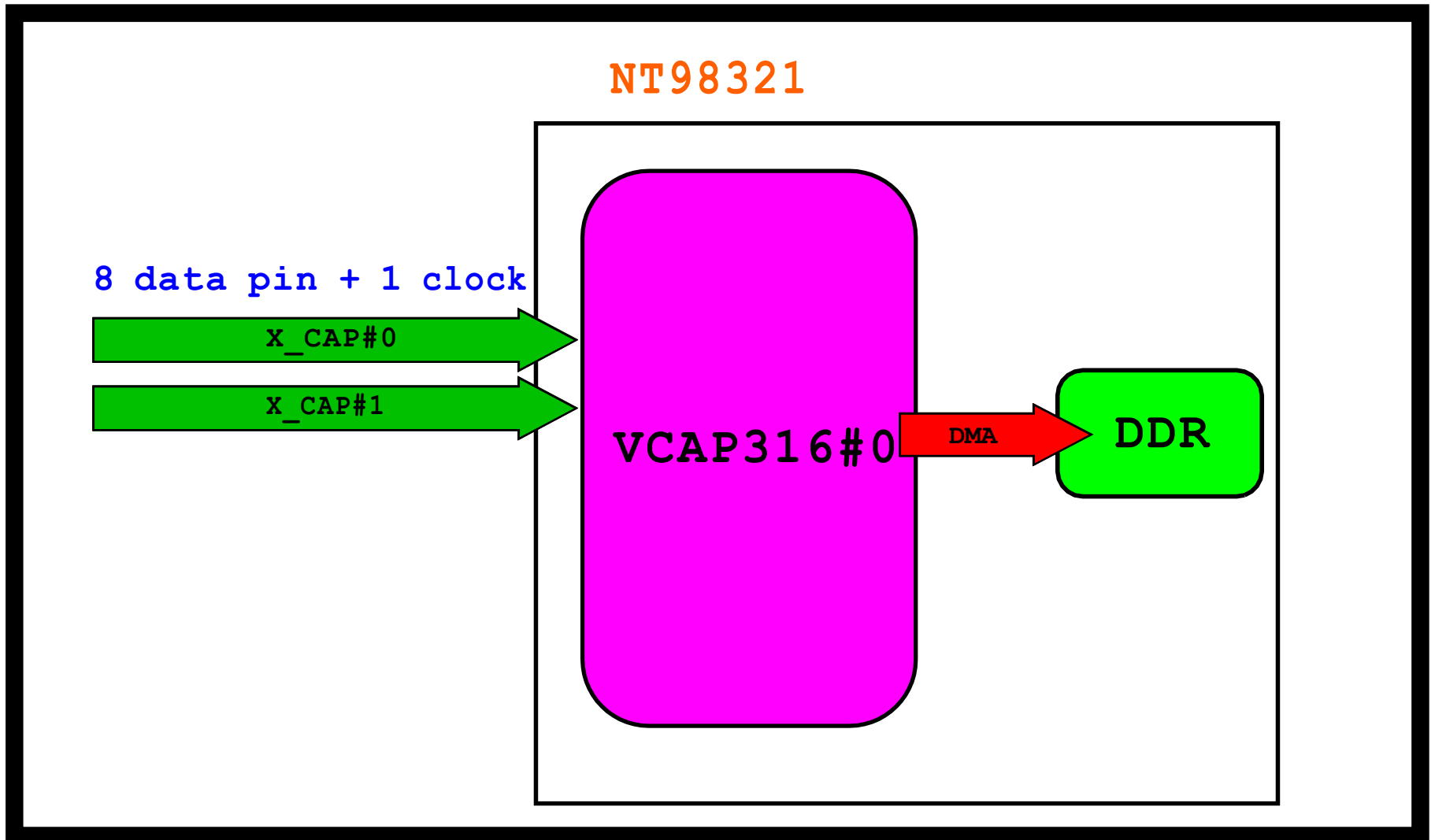


- Overview
- X_CAP# and VCAP VI Mapping
- VCAP316 hardware architecture
- Video Interface
- Video input and output format
- Source Cropping
- Mask
- Scaler
- Target Cropping
- DMA
- Motion/Tamper Detection
- NT98321 vs NT98323
- Driver architecture
- Debug Proc

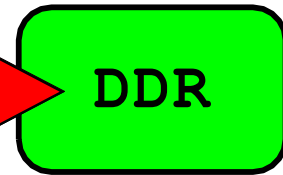
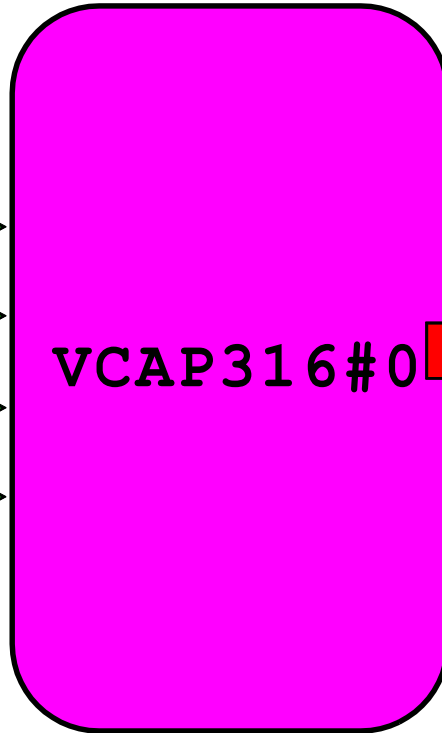
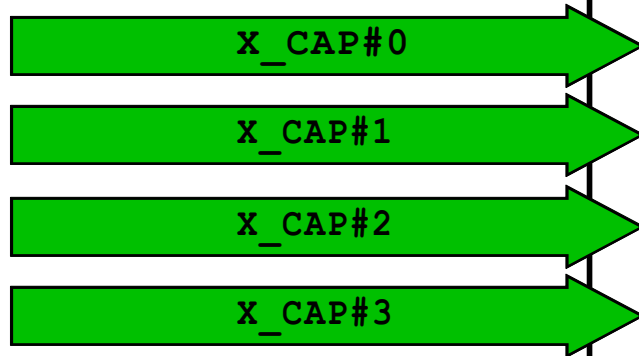


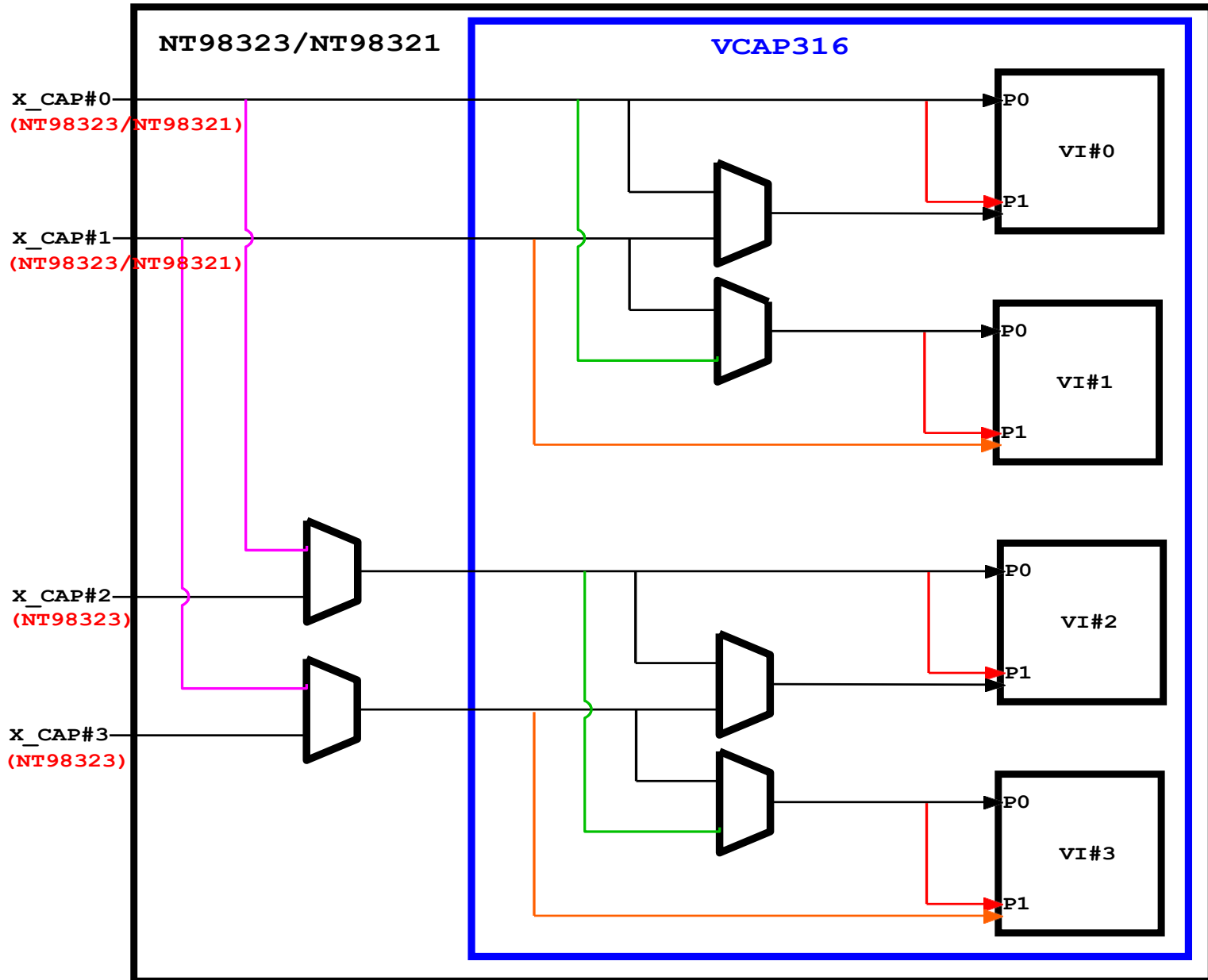
Video Capture

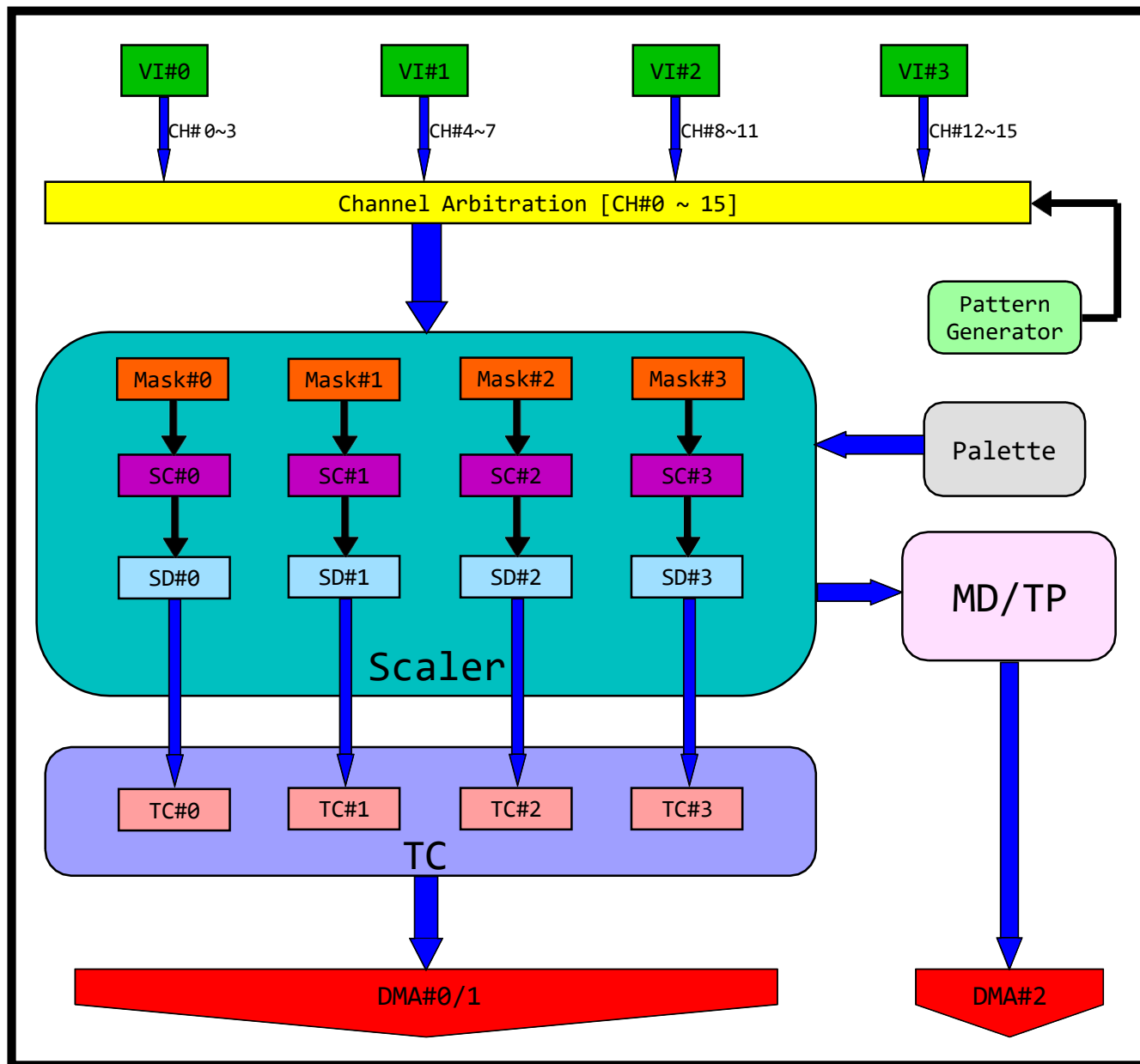


NT98323

8 data pin + 1 clock

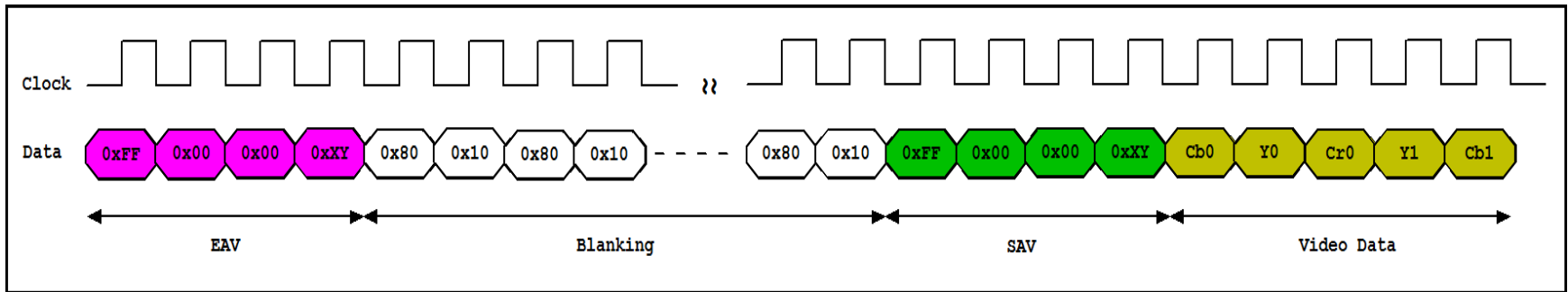




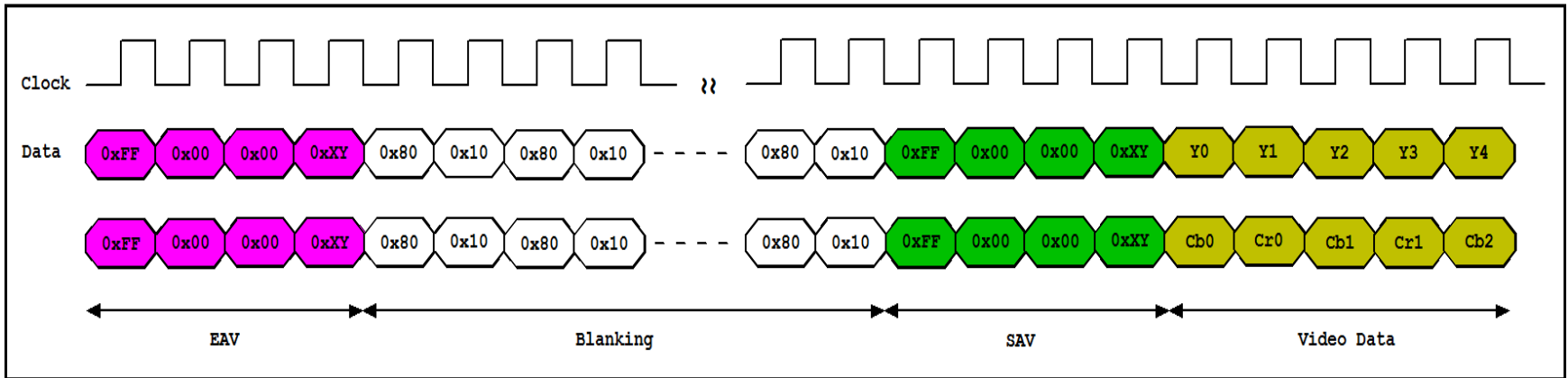


- ITU **BT.656** and ITU **BT.1120**
- VI Maximum frequency up to **300MHz**
- BT656 Single/Dual edge latch mode, **BT1120 single edge only**
- Progressive and Interlace signal
- Channel ID extract from embedded sync(EAV/SAV) or blanking
- Embedded sync header watch (FF 00 00 XY)
- **Pixel clock detection**
- **Pixel and line lack detection**
- Input Y/C and Cb/Cr Swap
- Output Data Range bypass/240/256 Level
- Channel Signal Measure (Active and Blanking Region)
- Channel 2x / 4x skip pixel (**AD pixel duplicate output, 960H=>1920H**)
- Channel 2x_avg (**AD over sampling output, 960H=>1920H**)
- Channel 2x skip byte (**AD byte duplicate output**)
- Channel Rolling Line Buffer (Input Line Buffer)
 - a. VI BT656/1120 1CH mode => **1280x4 = 5120** Pixel
 - b. VI BT656 2CH mode => **1280x2 = 2560** pixel
 - c. VI BT656 4CH mode => **1280x1 = 1280** pixel

BT.656



BT.1120

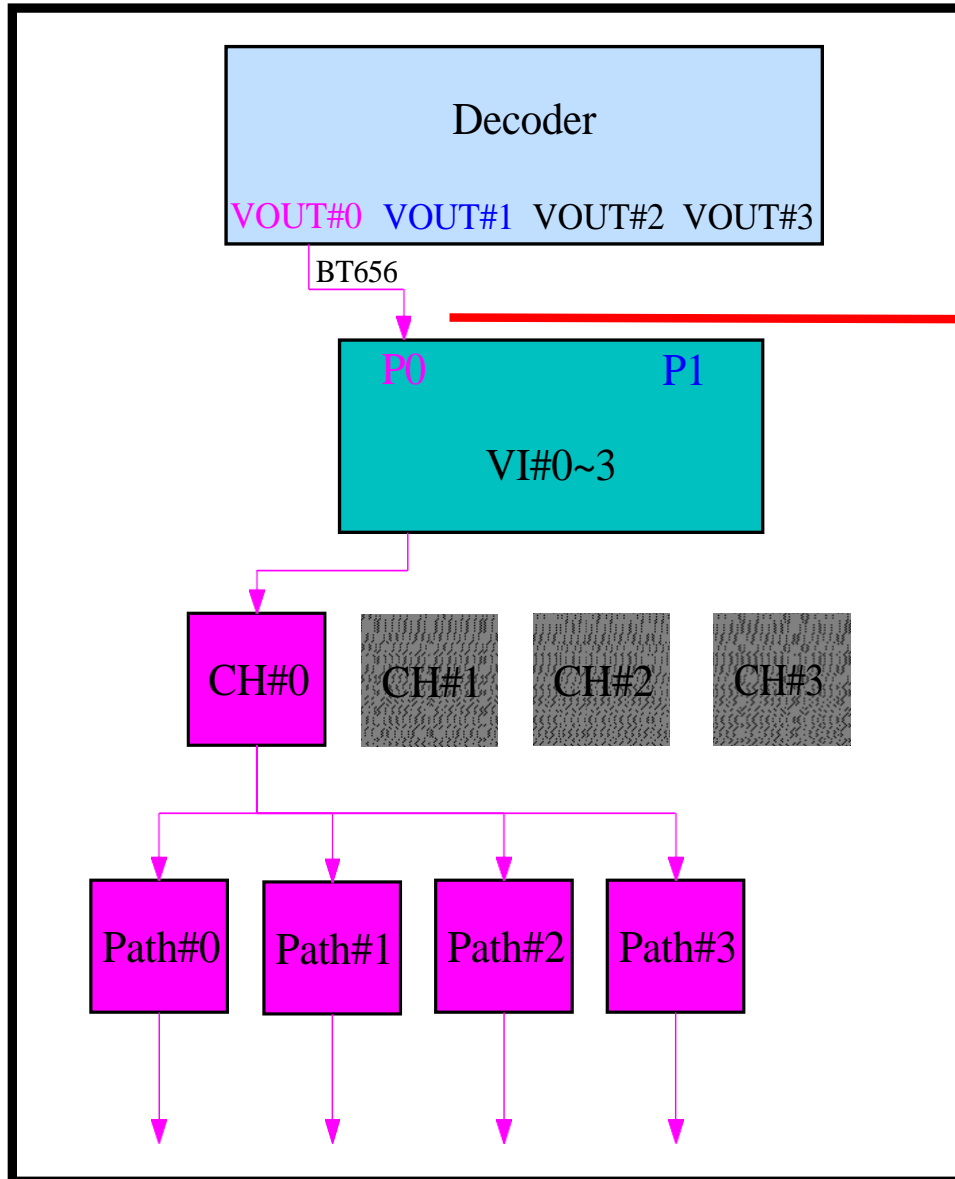


- ◎ 1CH Byte Interleave (1CH Bypass)
 - a. Single Edge / Dual Edge(BT656 only)
 - b. max resolution 3840x2160 (4K2K)

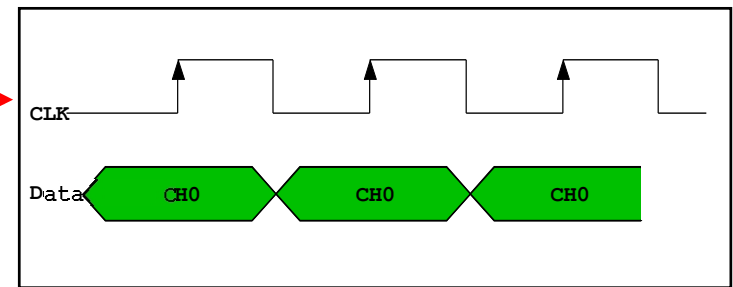
- ◎ 2CH Byte Interleave (2CH Mux, Hybrid Resolution)
 - a. Single Edge / Dual Edge
 - b. max resolution 2560x1944 (5M)

- ◎ 4CH Byte Interleave (4CH Mux, Hybrid Resolution)
 - a. Single Edge / Dual Edge
 - b. max resolution 1280x720 (1M), 1080N(960x1080)

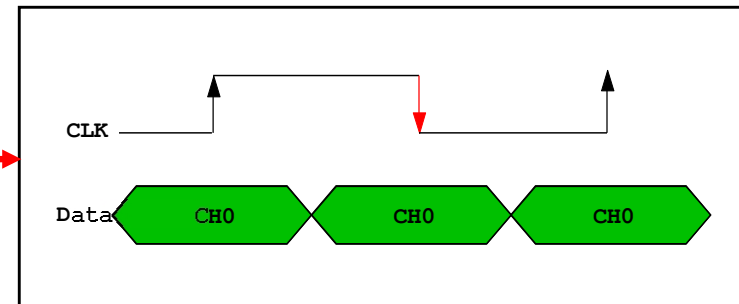
1CH Byte Interleave (1CH Bypass)



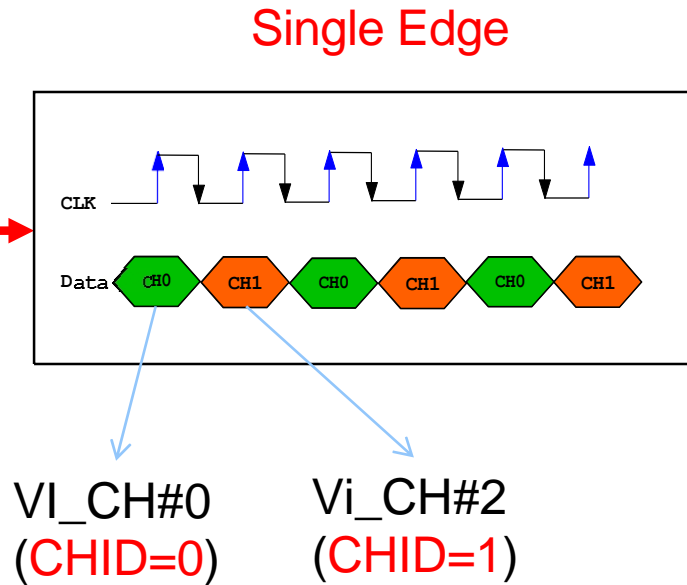
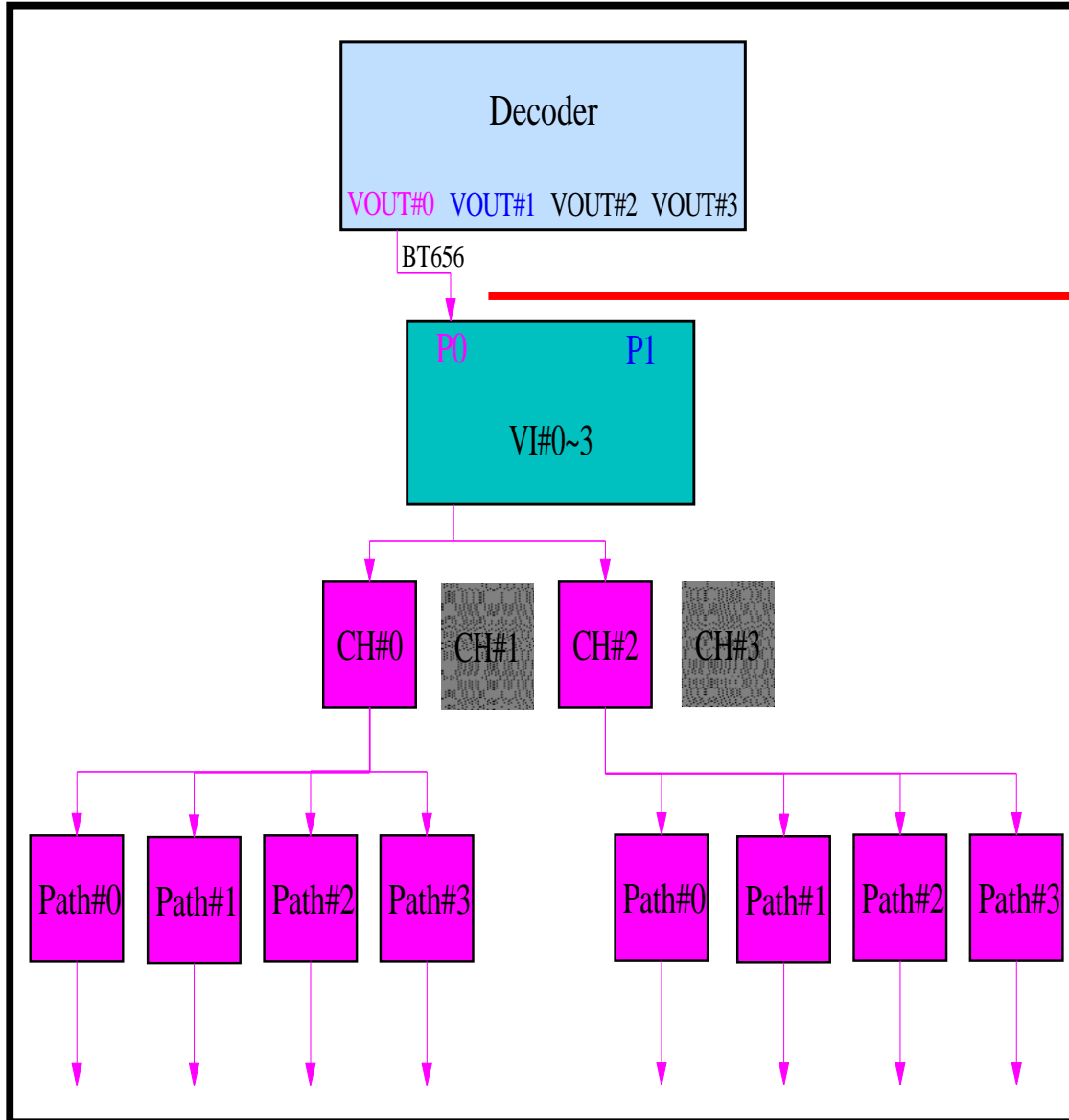
Single Edge



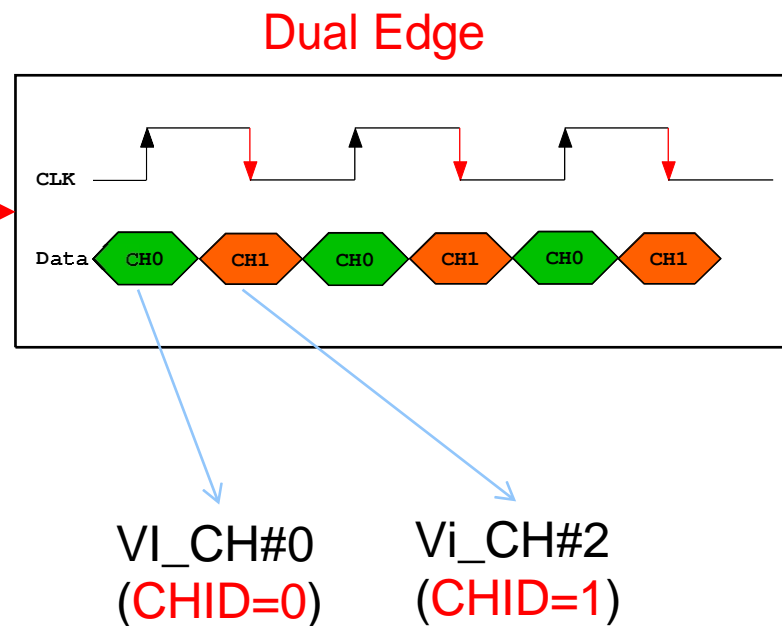
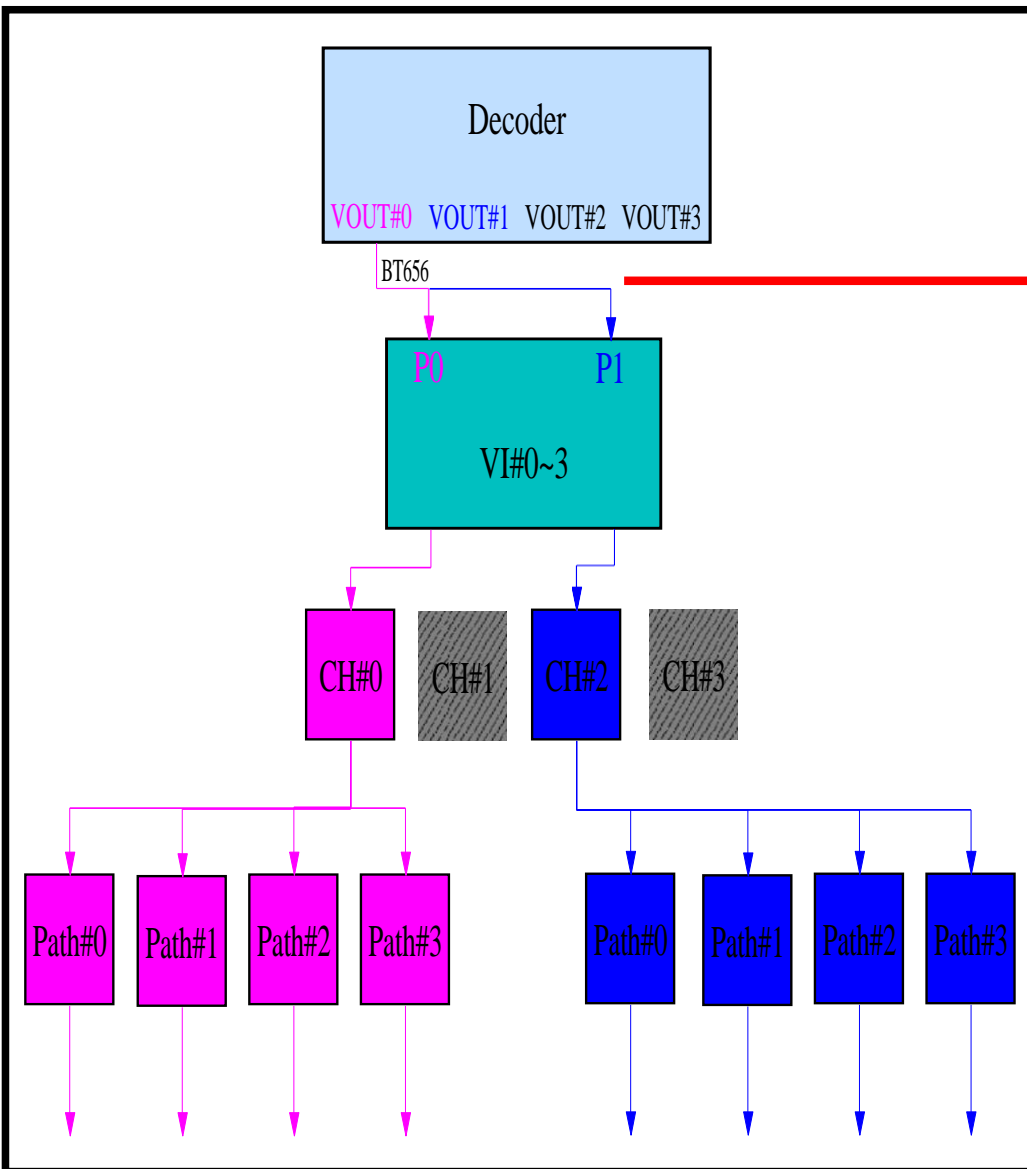
Dual Edge



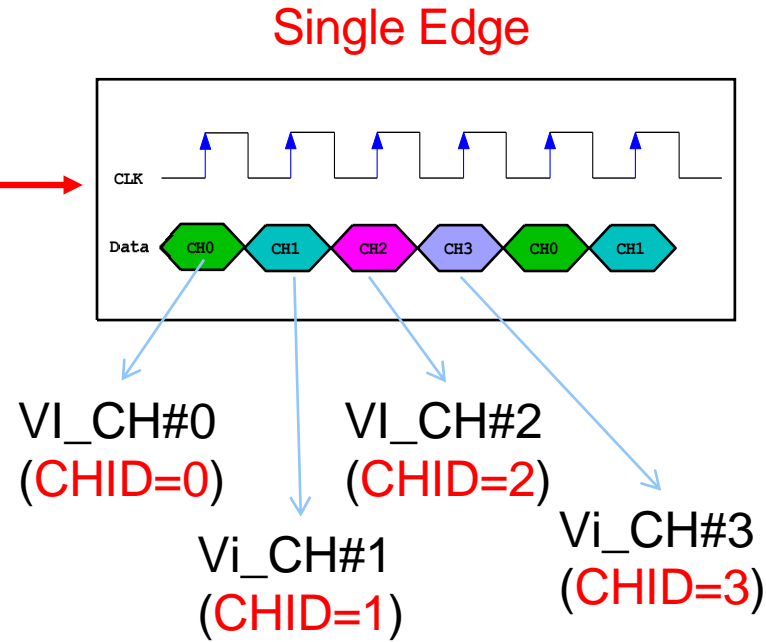
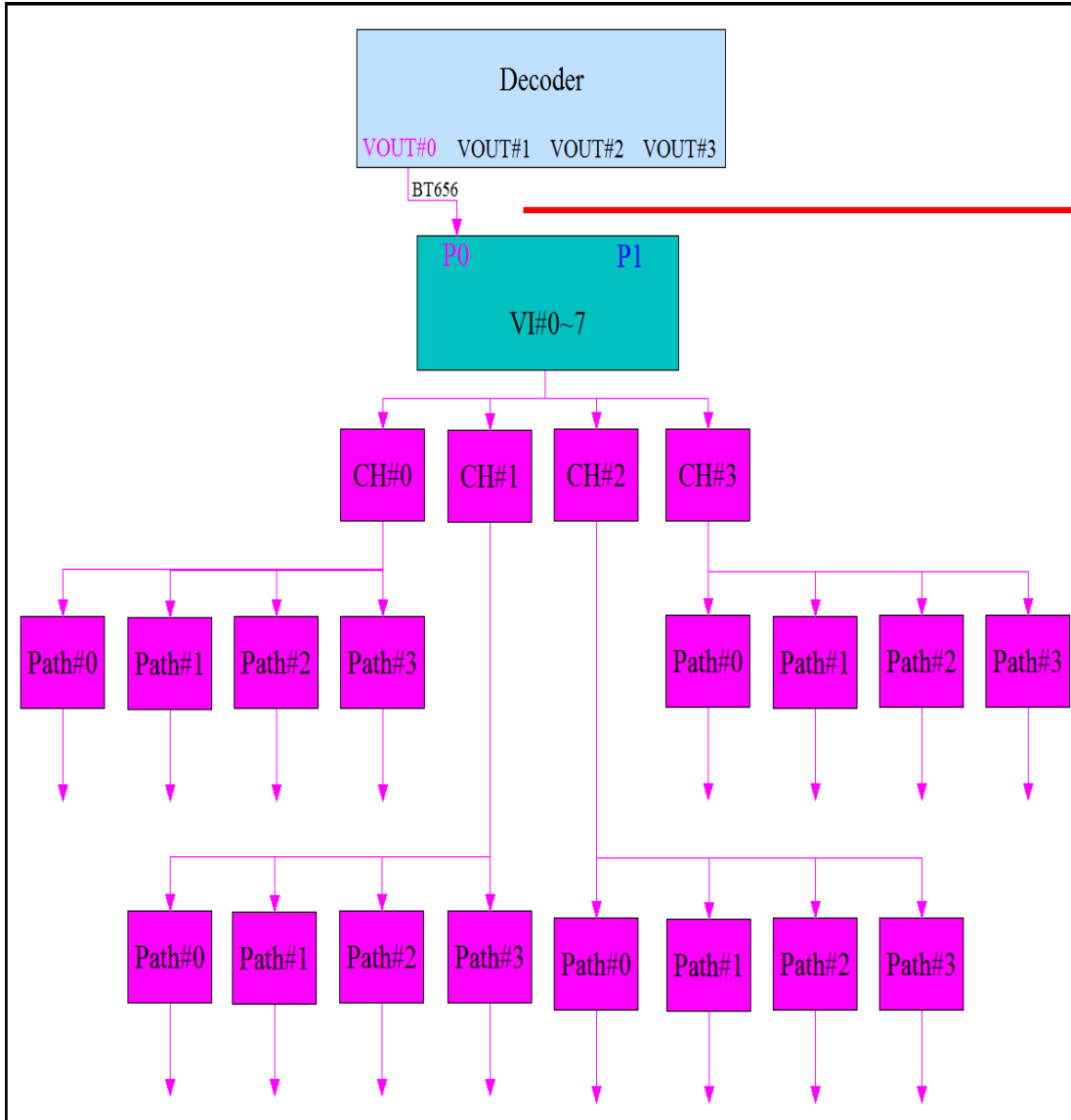
2CH Byte Interleave (Single Edge)



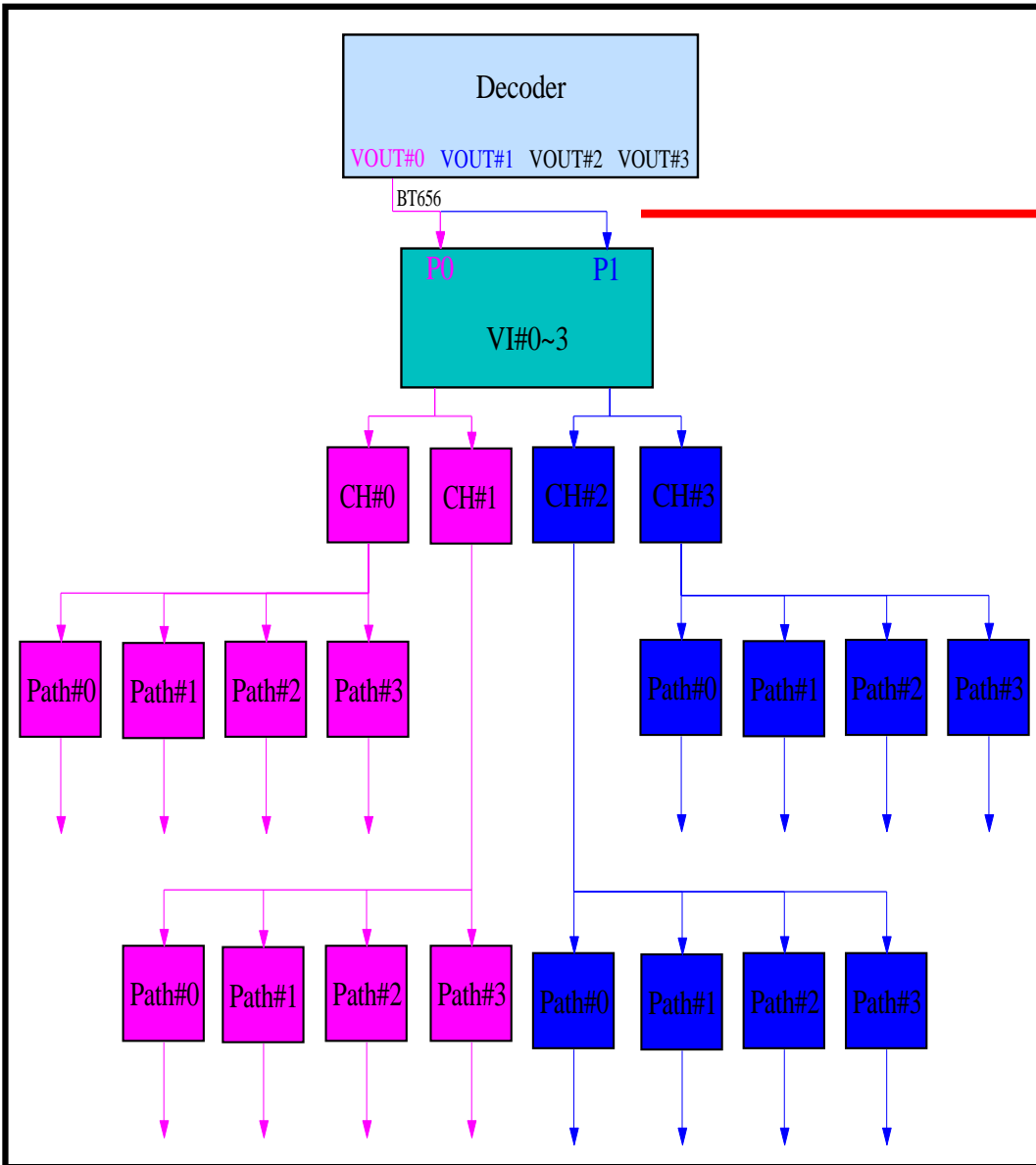
2CH Byte Interleave (Dual Edge)



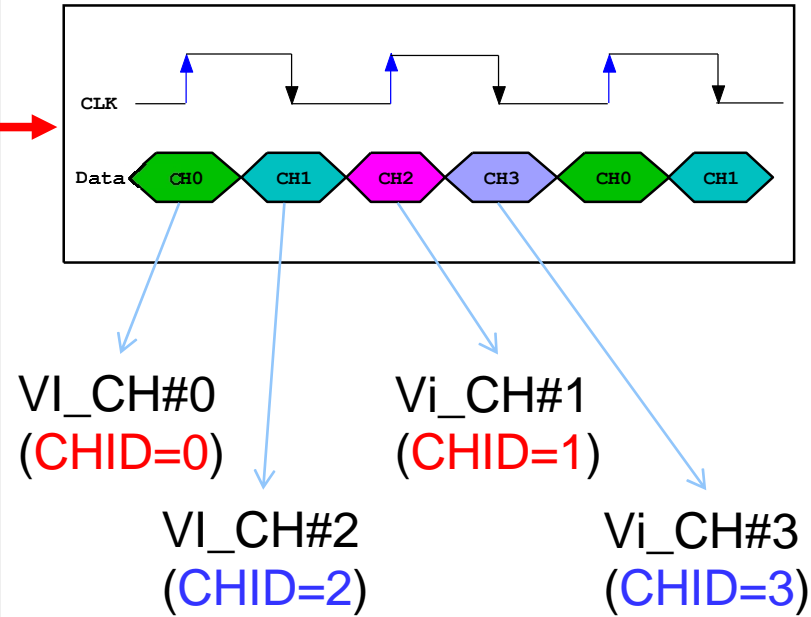
4CH Byte Interleave (Single Edge)



4CH Byte Interleave (Dual Edge)

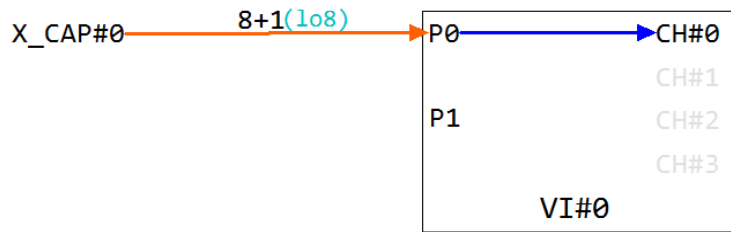


Dual Edge

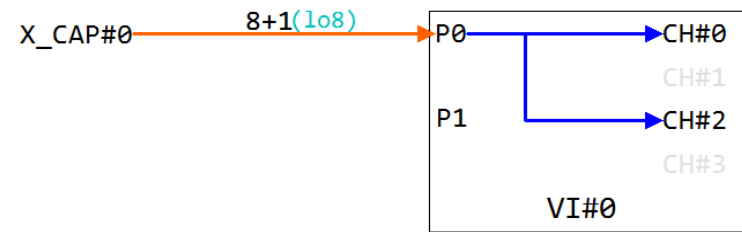




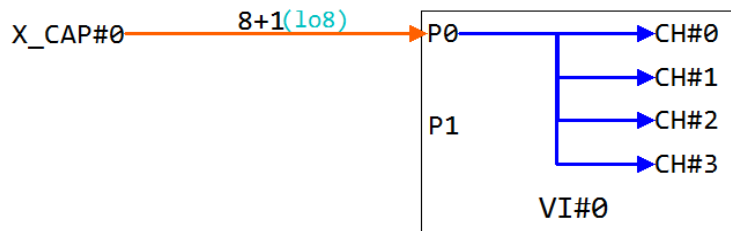
BT656 1CH ByPass



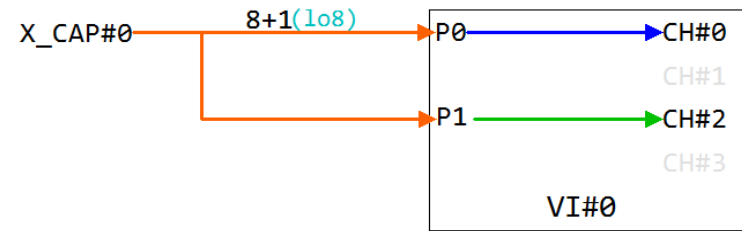
BT656 2CH Byte Interleave



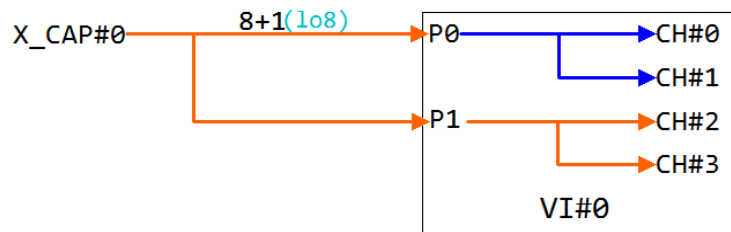
BT656 4CH Byte Interleave



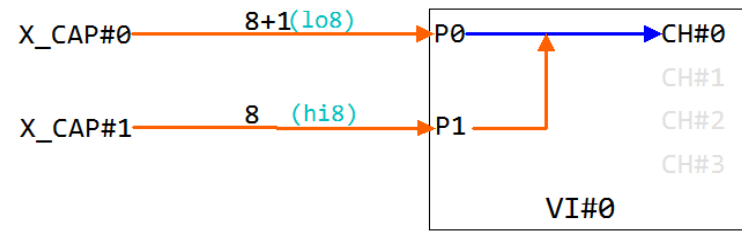
BT656 2CH Dual Edge



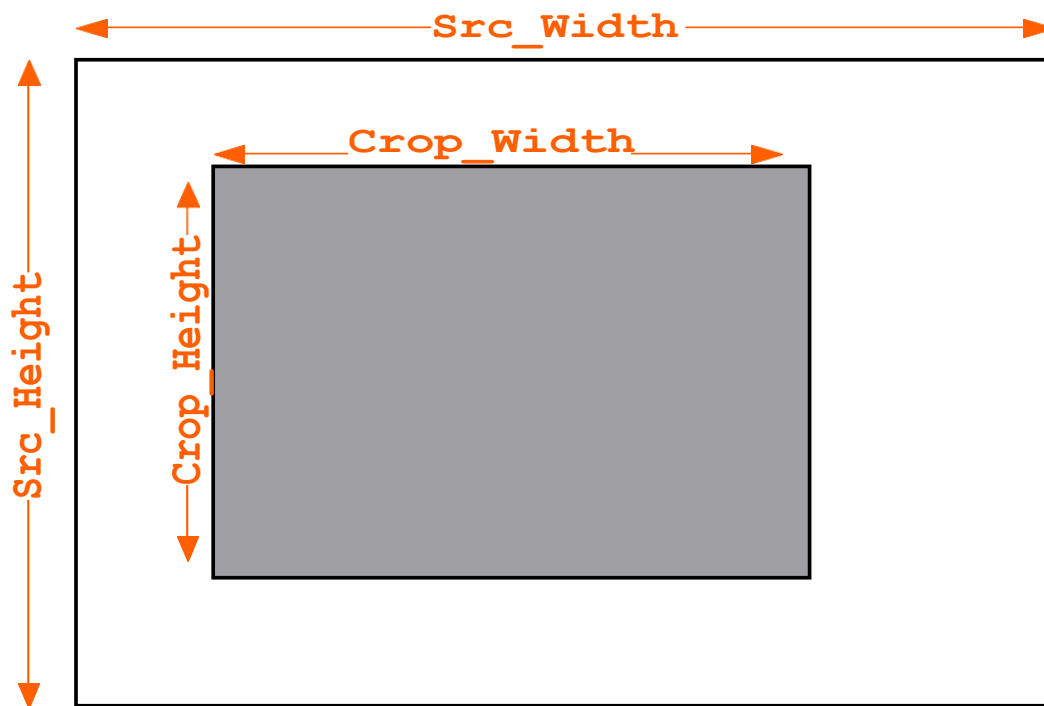
BT656 4CH Dual Edge



BT1120 1CH ByPass



- Path base
- 2 pixels alignment for x start position
- 4 pixels alignment for cropping output width
- cropping dimension maximum to 4096x4096



- Path Base
- Before source cropping
- Mask any image region in each channel
- 16 mask windows in each channel
- transparency => 0%, 25%, 37.5%, 50%, 62.5%, 75%, 87.5%, and 100%
- Window Color => 8 palette
- 2 pixels alignment for mask window x start position
- 4 pixels alignment for mask window width
- mask window dimension up to 4096x4096

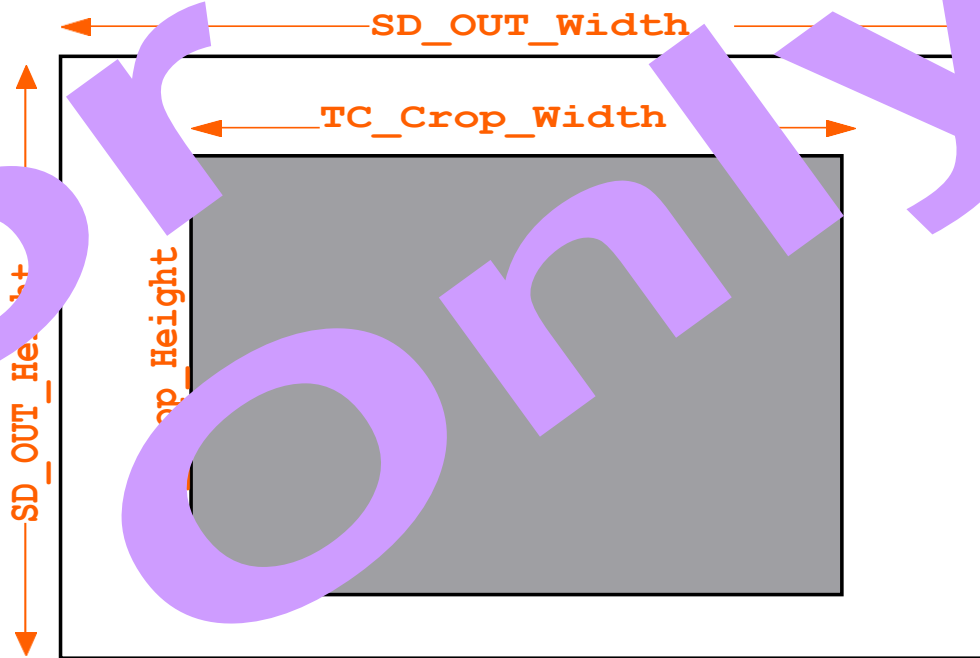


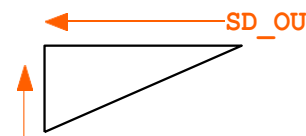
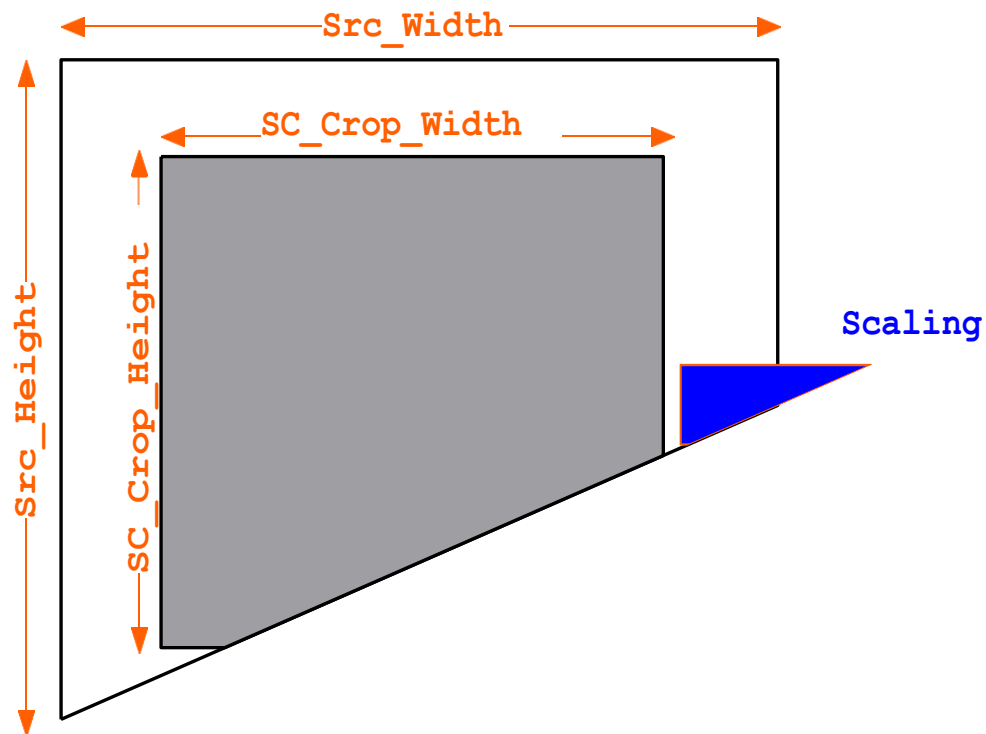
- **4 scaler** (path) per one channel
- Output 4 resolution simultaneously
- Linear scaling capability
- Independent scaling ratio for each path
- Scaling ratio from **1/16** to **16** on vertical or horizontal
- maximum to **4088** pixels scaling output

Channel Line Buffer

	Management Memory		Scaler input	Scaler Output to TC
VI#0~3	CH#0	1.5 x 1280 pixel	(1+3) x 1280 pixel	4088 pixel
	CH#1	1.5 x 1280 pixel	(1+3) x 1280 pixel	4088 pixel
	CH#2	1.5 x 1280 pixel	(1+3) x 1280 pixel	4088 pixel
	CH#3	1.5 x 1280 pixel	(1+3) x 1280 pixel	4088 pixel

- Path base
- Crop any interest region from scaler output image
- 2 pixels alignment for x start position
- 4 pixels alignment for YUV422 cropping output width
- 8 pixels alignment for YUV420 cropping output width
- cropping dimension maximum to 4096x4096
- Data Range Convert, bypass 240/256 level



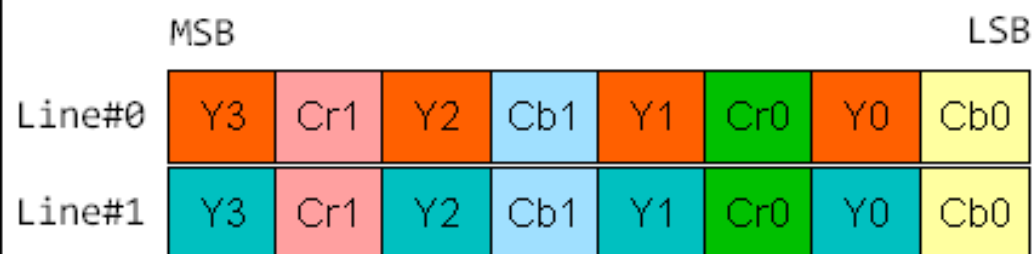


- **3 DMA Channel**
 - 0/1 => image data, 2 => MD statistic data
- YUV422 and YUV420 Output
- Data Compression Output (SCE)
- MB Scan Output for image rotation
- mirror and flip
- Extend Border

Border



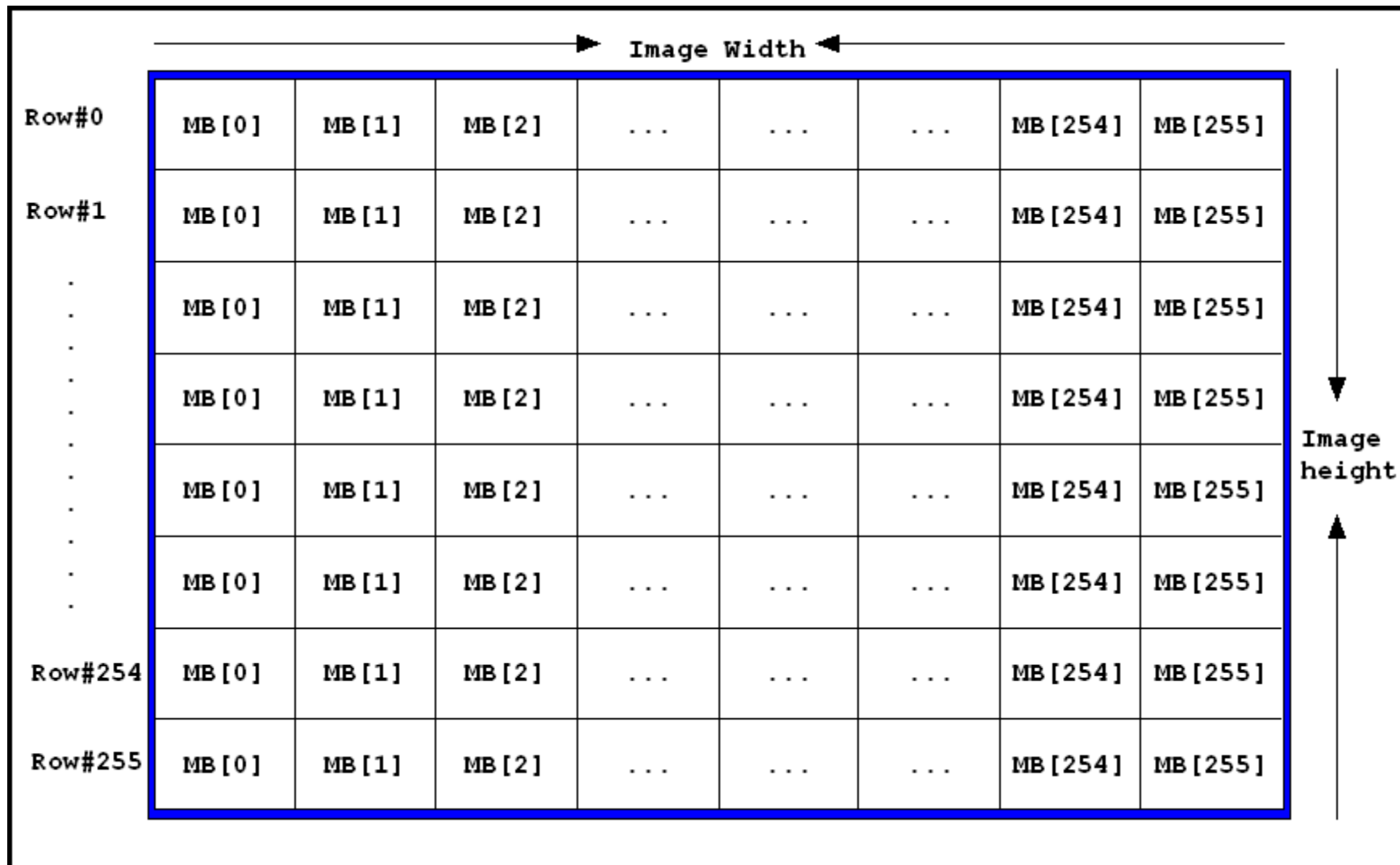
YUV422



YUV420



- **Channel Base** (source resolution)
- Motion Block Number Max to
256(Row) x 256(Col)
- Motion Block size
16(pixel) x 16(Line)
32(pixel) x 32(Line)
- 4 Motion Level
- Motion Type
 - a. **Learning Base (default)**
 - b. Difference Base
- Tamper Type
 - a. **Edge Base (default)**



以上内容仅为本文档的试下载部分，为可阅读页数的一半内容。如要下载或阅读全文，请访问：<https://d.book118.com/26712113320006036>