# Matrox Radient eCL

## Camera Interface Application Note

## DALSA Piranha4 (P4-CM-08k070) February 24, 2015

*Basics about the camera*

### Camera Descriptions

- Effective resolution: Up to 8192 pixels/line @ up to 70k line per second.
- Camera Link FULL interface (2, 4, 8 taps, and 8, 10 or 12-bit).
- External and internal sync.
- External or internal exposure control.
- 85 MHz pixel clock rate.

*Mode of operations as per Matrox Imaging (in parentheses as per camera manufacturer)*

### Interface Mode

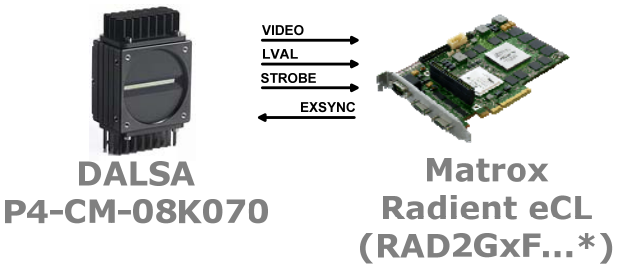
- Fixed line scan rate[1]
- Variable line scan rate[2]
- Variable line scan rate using the Rotary Encoder[2,3]
- Fixed line scan rate with frame trigger[1]
- Variable line scan rate with frame trigger[2]
- Variable line scan rate using the Rotary Encoder with frame trigger[2,3]
- Fixed line scan rate with variable frame size[1]
- Variable line scan rate with variable frame size[2]
- Variable line scan rate using the Rotary Encoder with variable frame size[2,3]

*Basics about the interface modes*

### Camera Interface Briefs

#### *Mode 1: Fixed line scan rate*

- 8192 pixels/line.
- Camera Link FULL interface (eight 8-bit taps).
- DCF configured for 1000 lines per virtual frame.
- Matrox Radient eCL sending periodic EXPOSURE1 (EXSYNC) signal to camera.
- Matrox Radient eCL receiving LVAL, PIXEL CLOCK (@ 85 MHz) and video data from camera.
- DCF used: P4_CM-08K070_8192_8bit8tapsFLS.DCF




[1] EXSYNC, level-controlled or Free Run programmable
[2] EXSYNC, level-controlled.
[3] LVDS line trigger for rotary encoder is 5V tolerant.

# Matrox Radient eCL

## Camera Interface Application Note

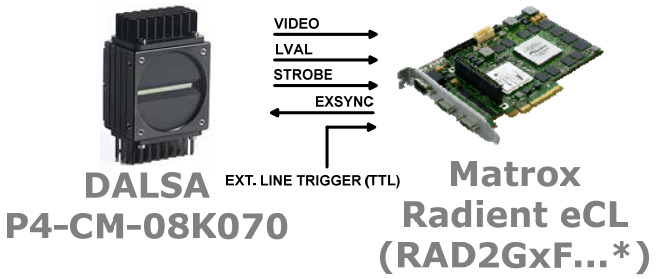
## DALSA Piranha4 (P4-CM-08k070) February 24, 2015

*Basics about the interface modes*

### Camera Interface Briefs

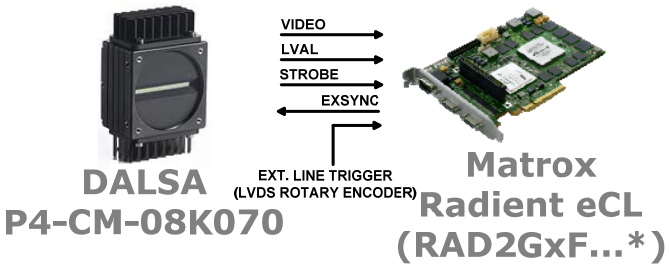
#### *Mode 2: Variable line scan rate*

- 8192 pixels/line.
- Camera Link FULL interface (eight 8-bit taps).
- DCF configured for 1000 lines per virtual frame.
- Matrox Radient eCL receiving external TTL line trigger signal.
- Matrox Radient eCL sending EXPOSURE1 (EXSYNC) signal to camera.
- Matrox Radient eCL receiving LVAL, PIXEL CLOCK (@ 85 MHz) and video data from camera.
- DCF used: P4_CM_08K070_8192_8bit8tapsVls.DCF




#### *Mode 3: Variable line scan rate with rotary encoder*

- 8192 pixels/line.
- Camera Link FULL interface (eight 8-bit taps).
- DCF configured for 1000 lines per virtual frame.
- Matrox Radient eCL receiving external LVDS line trigger (ROTARY ENCODER) signal.
- Matrox Radient eCL sending EXPOSURE1 (EXSYNC) signal to camera.
- Matrox Radient eCL receiving LVAL, PIXEL CLOCK (@ 85 MHz) and video data from camera.
- DCF used: P4_CM_08K070_8192_8bit8tapsVlsRe.DCF



# Matrox Radient eCL

## Camera Interface Application Note

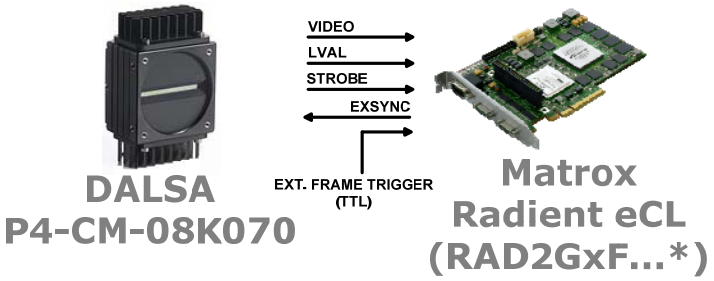
## DALSA Piranha4 (P4-CM-08k070) February 24, 2015

*Basics about the interface modes*

### Camera Interface Briefs

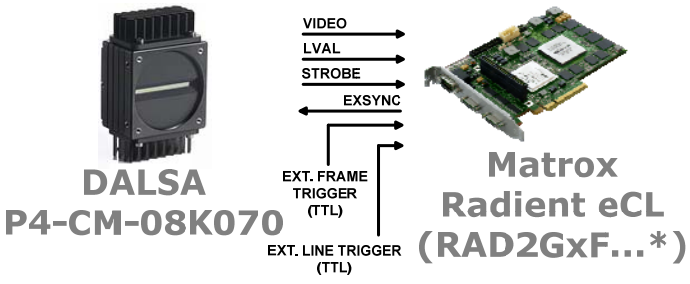
#### *Mode 4: Fixed line scan rate with frame trigger*

- 8192 pixels/line.
- Camera Link FULL interface (eight 8-bit taps).
- DCF configured for 1000 lines per virtual frame.
- Matrox Radient eCL receiving external TTL frame (virtual) trigger signal.
- Matrox Radient eCL sending periodic EXPOSURE1 (EXSYNC) signal to camera.
- Matrox Radient eCL receiving LVAL, PIXEL CLOCK (@ 85 MHz) and video data from camera.
- DCF used: P4_CM_08K070_8192_8bit8tapsFlsft.DCF




#### *Mode 5: Variable line scan rate with frame trigger*

- 8192 pixels/line.
- Camera Link FULL interface (eight 8-bit taps).
- DCF configured for 1000 lines per virtual frame.
- Matrox Radient eCL receiving external TTL frame (virtual) and line trigger signals.
- Matrox Radient eCL sending EXPOSURE1 (EXSYNC) signal to camera.
- Matrox Radient eCL receiving LVAL, PIXEL CLOCK (@ 85 MHz) and video data from camera.
- DCF used: P4_CM_08K070_8192_8bit8tapsVlsft.DCF



# Matrox Radient eCL

## Camera Interface Application Note

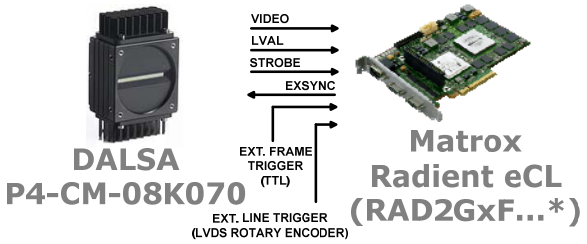
## DALSA Piranha4 (P4-CM-08k070) February 24, 2015

*Basics about the interface modes*

### Camera Interface Briefs

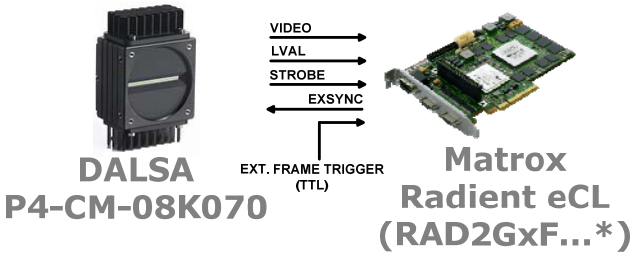
#### *Mode 6: Variable line scan rate with rotary encoder and frame trigger*

- 8192 pixels/line.
- Camera Link FULL interface (eight 8-bit taps).
- DCF configured for 1000 lines per virtual frame.
- Matrox Radient eCL receiving external TTL frame (virtual) and external LVDS line trigger (ROTARY ENCODER) signals.
- Matrox Radient eCL sending EXPOSURE1 (EXSYNC) signal to camera.
- Matrox Radient eCL receiving LVAL, PIXEL CLOCK (@ 85 MHz) and video data from camera.
- DCF used: P4_CM_08K070_8192_8bit8tapsVLSREFT.DCF




#### *Mode 7: Fixed line scan rate with variable frame size*

- 8192 pixels/line.
- Camera Link FULL interface (eight 8-bit taps).
- DCF configured for 1000 lines per virtual frame.
- Matrox Radient eCL receiving external TTL frame (virtual) trigger signal.
- Matrox Radient eCL sending periodic EXPOSURE1 (EXSYNC) signal to camera.
- Matrox Radient eCL receiving LVAL, PIXEL CLOCK (@ 85 MHz) and video data from camera.
- DCF used: P4_CM_08K070_8192_8bit8tapsFlsvf.DCF



# Matrox Radient eCL

## Camera Interface Application Note

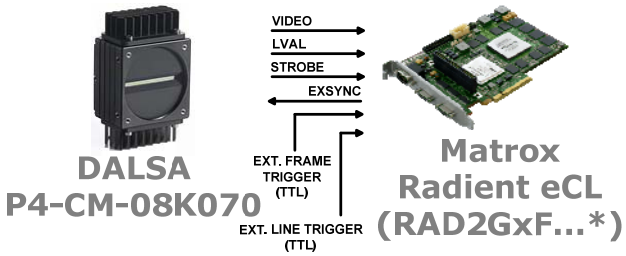
## DALSA Piranha4 (P4-CM-08k070) February 24, 2015

*Basics about the interface modes*

### Camera Interface Briefs

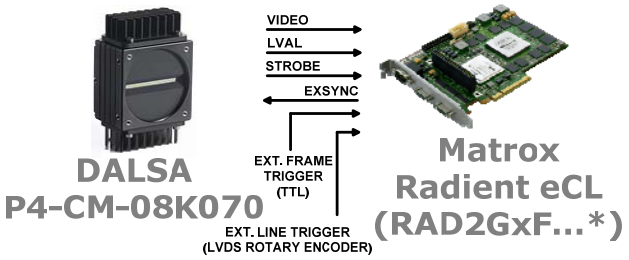
#### *Mode 8: Variable line scan rate with variable frame size*

- 8192 pixels/line.
- Camera Link FULL interface (eight 8-bit taps).
- DCF configured for 1000 lines per virtual frame.
- Matrox Radient eCL receiving external TTL frame (virtual) and line trigger signals.
- Matrox Radient eCL sending EXPOSURE1 (EXSYNC) signal to camera.
- Matrox Radient eCL receiving LVAL, PIXEL CLOCK (@ 85 MHz) and video data from camera.
- DCF used: P4_CM_08K070_8192_8bit8tapsVlsvf.DCF




#### *Mode 9: Variable line scan rate with rotary encoder and variable frame size*

- 8192 pixels/line.
- Camera Link FULL interface (eight 8-bit taps).
- DCF configured for 1000 lines per virtual frame.
- Matrox Radient eCL receiving external TTL frame (virtual) and external LVDS line trigger (ROTARY ENCODER) signals.
- Matrox Radient eCL sending EXPOSURE1 (EXSYNC) signal to camera.
- Matrox Radient eCL receiving LVAL, PIXEL CLOCK (@ 85 MHz) and video data from camera.
- DCF used: P4_CM_08K070_8192_8bit8tapsVLSREVF.DCF



*Specifics about the interface modes*

## Camera Interface Details

### *Mode 1: Fixed line scan rate*

- **Line rate:** The frequency of the periodic EXPOSURE1 (EXSYNC) signal determines the camera's line rate. The maximum line rate for this camera equals **70 kHz**.
- **Exposure time:** When trigger width exposure mode is selected, the length of the exposure for each line acquisition will be directly controlled by the EXSYNC signal (i.e. CC1 signal). If the camera is set for rising edge triggering, the exposure time begins when the EXSYNC signal rises and continues until the EXSYNC signal falls. The default exposure time for this DCF is **24 µs**. Maximum/minimum exposure time per line for this DCF is **197 ms** and **11.7 ns** respectively when the pixel clock of the camera is used to generate the exposure time. The exposure time can be modified in the DCF using Matrox Intellicam or with the MIL MdigControl() function. Consult the respective manual for more information.
- **Camera communication:** This DCF will work with all **Free Run** and **Triggered** modes however **Trigger Width Exposure Mode** is the recommended mode for use with this DCF. Set the mode using the Dalsa camera configuration tool (Sapera). Refer to the camera manual for additional information.

  When the camera is in the **Free Run** mode, the camera will ignore the EXSYNC (i.e. CC1) signal from the board. Please set the parameters as follow from the default configuration:

  Section "Flat Field"

| Parameter | Setting |
|---|---|
| ROI Width | 8192 |
| ROI Offset X | 1 |

  Section "Camera Controls"

| Parameter | Setting |
|---|---|
| Trigger Source | CC1 |
| Trigger Mode | Off |
| Exposure Time Source | Timed |
| CameraLink Configuration | Full |
| Tap Geometry | Geometry_1x8 |

## Camera Interface Details

- When the camera is in Trigger Mode, the EXSYNC (i.e. CC1) signal will control the exposure time and the line rate. Please set the parameters as follow from the default configuration:

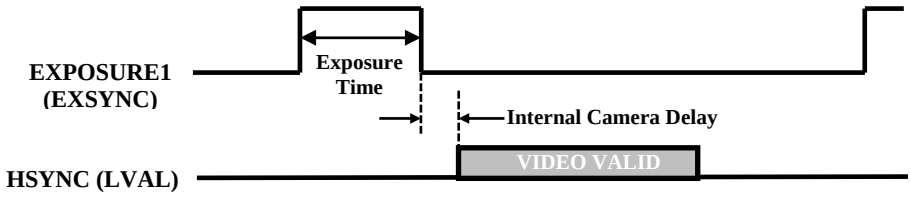
Section “Flat Field”

| Parameter | Setting |
|---|---|
| ROI Width | 8192 |
| ROI Offset X | 1 |

Section “Camera Controls”

| Parameter | Setting |
|---|---|
| Trigger Source | CC1 |
| Trigger Mode | On |
| Exposure Time Source | Trigger Width |
| CameraLink Configuration | Full |
| Tap Geometry | Geometry_1x8 |

- **Timing diagram:**




### *Mode 2: Variable line scan rate*

- **Line rate**: The line rate is controlled by the frequency of the external TTL line trigger signal. The external line trigger signal period must be larger than the total duration of the exposure time (high level duration of the timer), the internal delay of the camera or slower than the maximum line rate of the camera.
- **Exposure time:** Refer to Mode 1: Fixed line scan rate in the “Trigger Width Exposure with Rising Edge Triggering” section.

*Specifics about the interface modes*

## Camera Interface Details

### *Mode 2: Variable line scan rate (cont.)*

- **Camera communication:** This DCF works with all **TRIGGERED** modes however **"Trigger Width Exposure Mode"** is the recommended mode for use with this DCF. Set the mode using the Dalsa camera configuration tool (Sapera). Refer to the camera manual for additional information.

  The camera should be in the Trigger Mode. The EXSYNC (i.e. CC1) signal will control the exposure time and the line rate. Please set the parameters as follow from the default configuration:

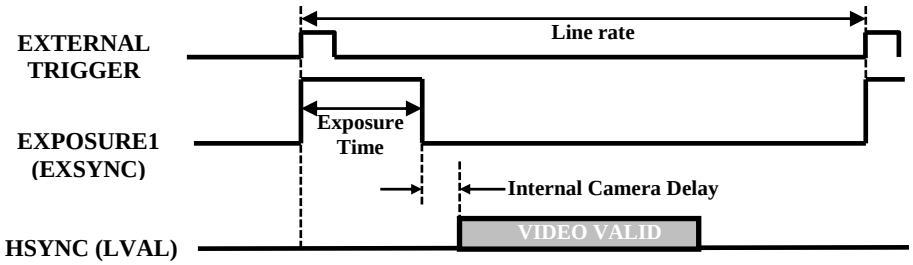
  Section "Flat Field"

| Parameter | Setting |
|---|---|
| ROI Width | 8192 |
| ROI Offset X | 1 |

  Section "Camera Controls"

| Parameter | Setting |
|---|---|
| Trigger Source | CC1 |
| Trigger Mode | On |
| Exposure Time Source | Trigger Width |
| CameraLink Configuration | Full |
| Tap Geometry | Geometry_1x8 |

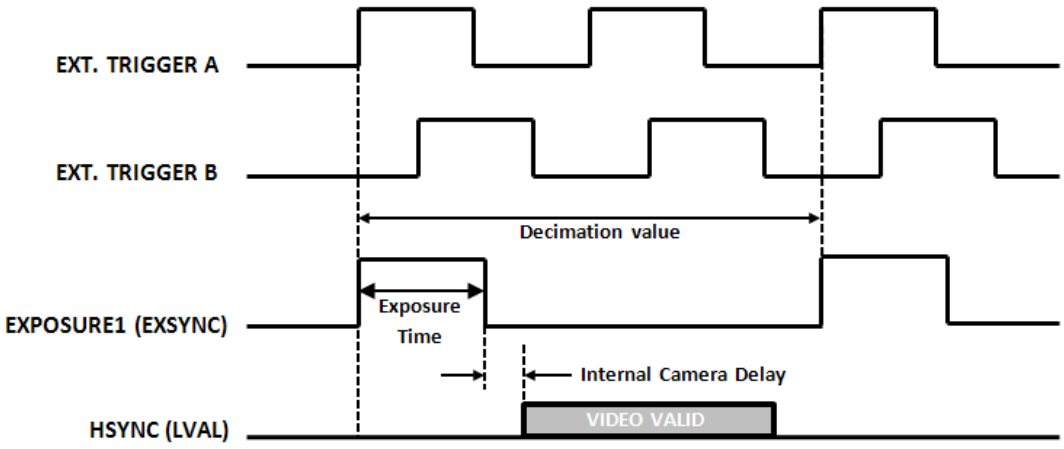
- **Timing diagram:**



### Camera Interface Details

***Mode 3: Variable line scan rate with rotary encoder***

- **Line/frame rate**: The line rate is controlled by the frequency of the external LVDS line trigger signal with a Rotary Encoder format. With the Rotary Encoder approach, it is possible to force a certain decimation value to grab a line every x number of pulses from the line trigger (combination of the A and B signals). The line trigger signal controlled by the decimation value must be larger than the total duration of the exposure time (high level duration of the timer), the internal delay of the camera or slower than the maximum line rate of the camera. The DCF is done for a forward direction from the Rotary Encoder.
- **Exposure time:** Refer to Mode 1: Fixed line scan rate in the “Trigger Width Exposure with Rising Edge Triggering” section.
- **Camera communication:** Refer to Mode 2: Variable line scan rate.
- **Timing diagram:**



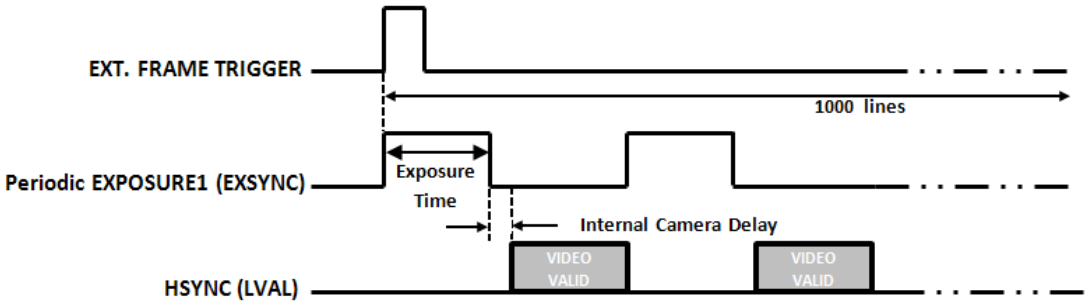

* The decimation value showed in this timing diagram is eight (8).

*Specifics about the interface modes*

## Camera Interface Details

### *Mode 4: Fixed line scan rate with frame trigger*

- **Line/frame rate**: The line rate is fixed and controlled by the frequency of EXPOSURE1 (i.e. EXSYNC) signal. The default exposure time for this DCF is **24 µs**. The virtual frame rate is variable and controlled by the period of the external frame trigger signal, however the external frame trigger period must always be greater than the total time of the number of lines captured. The number of lines per virtual frame (maximum of 1000 for this DCF) is fixed and controlled by the vertical timing of the DCF. Capture of the lines will start with the rising edge of the frame trigger signal.
- **Exposure time:** Refer to Mode 1: Fixed line scan rate.
- **Camera communication:** Refer to Mode 1: Fixed line scan rate.
- **Timing diagram:**




### *Mode 5: Variable line scan rate with frame trigger*

- **Line/frame rate**: The line rate is controlled by the frequency of the external TTL line trigger signal. The line trigger signal period must be larger than the total duration of the exposure time (high level duration of the timer), the internal delay of the camera or slower than the maximum line rate of the camera. The default exposure time for this DCF is **24 µs**. The virtual frame rate is variable and controlled by the period of the external frame trigger signal, however the external trigger period must always be greater than the total time of the number of lines captured. The number of lines per virtual frame (1000 for this DCF) is fixed and controlled by the vertical timing of the DCF. Capture of the lines will start with the rising edge of the frame trigger signal.
- **Exposure time:** Refer to Mode 1: Fixed line scan rate in the “Trigger Width Exposure with Rising Edge Triggering” section.
- **Camera communication:** Refer to Mode 2: Variable line scan rate.

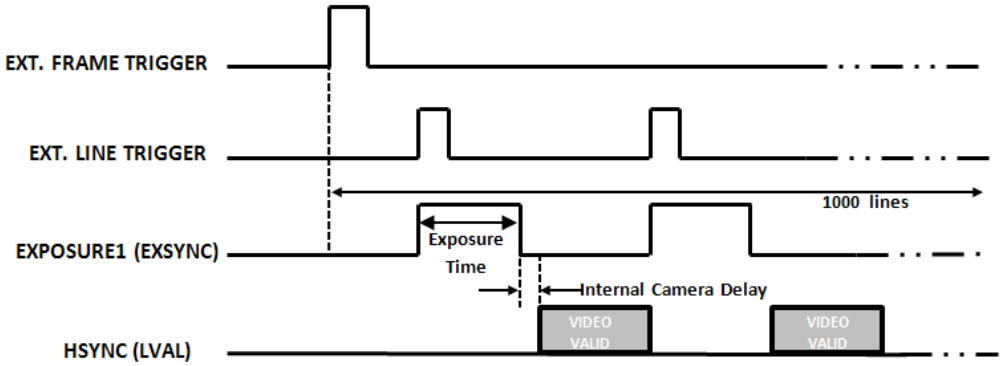
Continued....

*Specifics about the interface modes*

## Camera Interface Details

### *Mode 5: Variable line scan rate with frame trigger*

- **Timing diagram:**




### *Mode 6: Variable line scan rate with rotary encoder and frame trigger*

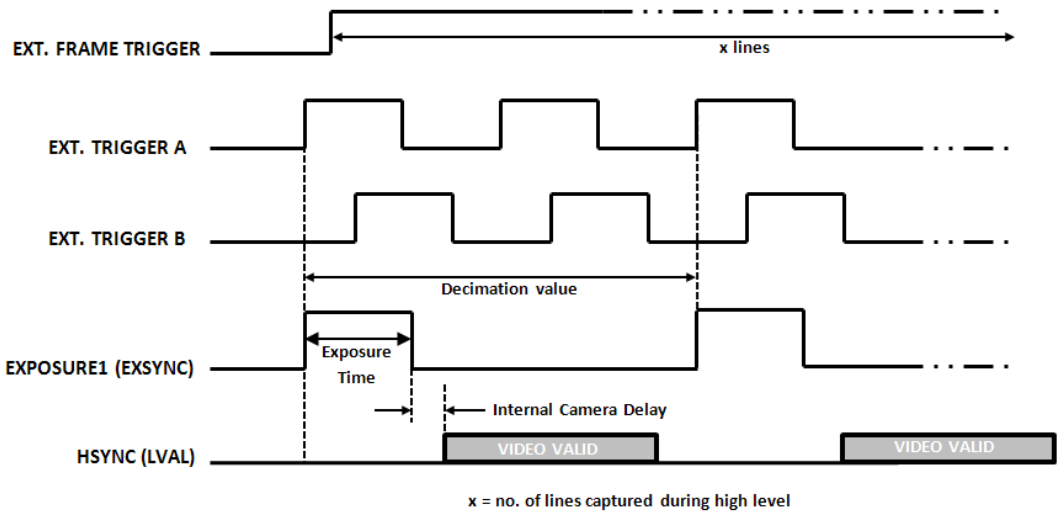
- **Line/frame rate**: The line rate is controlled by the frequency of the external LVDS line trigger signal with a Rotary Encoder format. With the Rotary Encoder approach, it is possible to force a certain decimation value to grab a line every x number of pulses from the line trigger (combination of the A and B signals). The line trigger signal controlled by the decimation value must be larger than the total duration of the exposure time (high level duration of the timer), the internal delay of the camera or slower than the maximum line rate of the camera. The DCF is done for a forward direction from the Rotary Encoder. The number of lines per virtual frame (maximum of 1000 for this DCF) is variable and controlled by the frame trigger signal. Matrox Radient eCL captures lines during the high level of the frame trigger signal. To modify the maximum amount of lines captured, change the active vertical timing period in the DCF. Capture of the lines will start with the rising edge of the frame trigger signal.
- **Exposure time:** Refer to Mode 1: Fixed line scan rate in the “Trigger Width Exposure with Rising Edge Triggering” section.
- **Camera communication:** Refer to Mode 1: Fixed line scan rate.

*Specifics about the interface modes*

### Camera Interface Details

***Mode 6: Variable line scan rate with rotary encoder and frame trigger***

- **Timing diagram:**



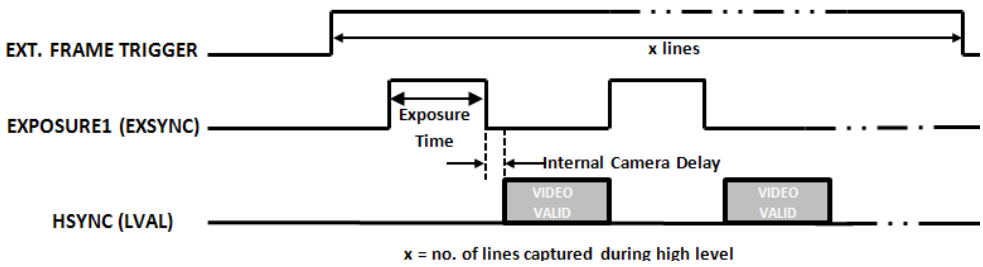

x = no. of lines captured during high level

* The decimation value showed in this timing diagram is eight (8).

### Camera Interface Details

#### *Mode 7: Fixed line scan rate with variable frame size*

- **Line/frame rate**: The line rate is fixed and controlled by the frequency of EXPOSURE1 (i.e. EXSYNC) signal. The default exposure time for this DCF is **24 µs**. The number of lines per virtual frame (maximum of 1000 for this DCF) is variable and controlled by the frame trigger signal. Matrox Radient eCL captures lines during the high level of the frame trigger signal. To modify the maximum amount of lines captured, change the active vertical timing period in the DCF. Capture of the lines will start with the rising edge of the frame trigger signal.
- **Exposure time:** Refer to Mode 1: Fixed line scan rate.
- **Camera communication:** Refer to Mode 1: Fixed line scan rate.
- **Timing diagram:**

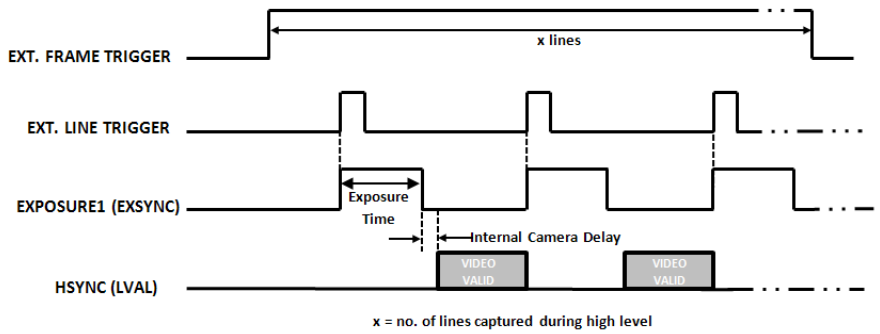


*Specifics about the interface modes*

## Camera Interface Details

### *Mode 8: Variable line scan rate with variable frame size*

- **Line/frame rate**: The line rate is variable and controlled by the external line trigger frequency. The line trigger signal period must be larger than the total duration of the exposure time (high level duration of the timer), the internal delay of the camera or slower than the maximum line rate of the camera. The default exposure time for this DCF is **24 µs**. The number of lines per virtual frame (maximum of 1000 for this DCF) is variable and controlled by the frame trigger signal. Matrox Radient eCL captures lines during the high level of the frame trigger signal. To modify the maximum amount of lines captured, change the active vertical timing period in the DCF. Capture of the lines will start with the rising edge of the frame trigger signal.
- **Exposure time:** Refer to Mode 1: Fixed line scan rate in the “Trigger Width Exposure with Rising Edge Triggering” section.
- **Camera communication:** Refer to Mode 2: Variable line scan rate.
- **Timing diagram:**

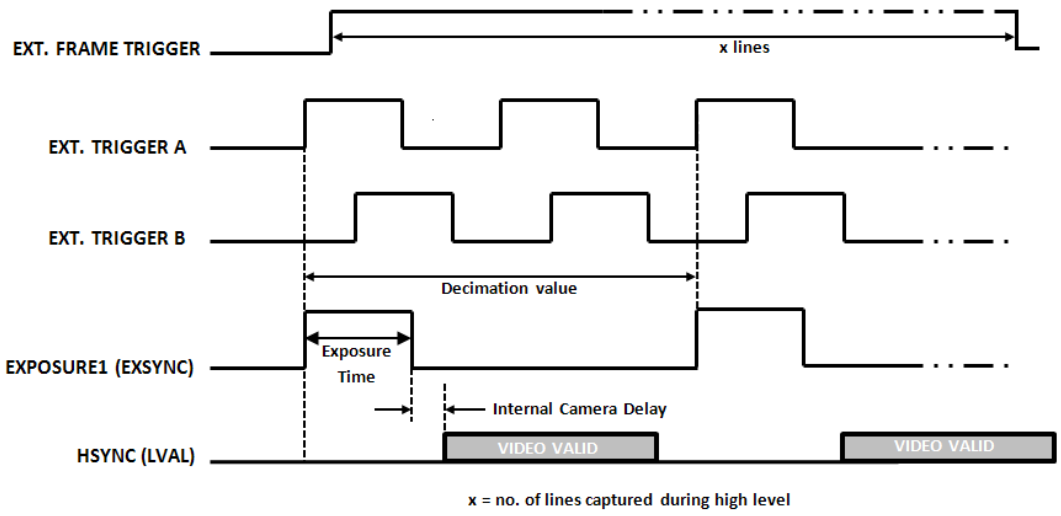


*Specifics about the interface modes*

## Camera Interface Details

### *Mode 9: Variable line scan rate with rotary encoder and variable frame size*

- **Line/frame rate**: The line rate is controlled by the frequency of the external LVDS line trigger signal with a Rotary Encoder format. With the Rotary Encoder approach, it is possible to force a certain decimation value to grab a line every x number of pulses from the line trigger (combination of the A and B signals). The line trigger signal controlled by the decimation value must be larger than the total duration of the exposure time (high level duration of the timer), the internal delay of the camera or slower than the maximum line rate of the camera. The DCF is done for a forward direction from the Rotary Encoder. The number of lines per virtual frame (maximum of 1000 for this DCF) is variable and controlled by the frame trigger signal. Matrox Radient eCL captures lines during the high level of the frame trigger signal. To modify the maximum amount of lines captured, change the active vertical timing period in the DCF. Capture of the lines will start with the rising edge of the frame trigger signal.
- **Exposure time:** Refer to Mode 1: Fixed line scan rate in the “Trigger Width Exposure with Rising Edge Triggering” section.
- **Camera communication:** Refer to Mode 2: Variable line scan rate.
- **Timing diagram:**




x = no. of lines captured during high level

* The decimation value showed in this timing diagram is eight (8).

# Matrox Radient eCL

## Camera Interface Application Note

## DALSA Piranha4 (P4-CM-08k070) February 24, 2015

*Cabling details for the interface modes*

### Cabling Requirements

#### *Mode 1: Fixed line scan rate*

- **Cable and Connection:** Standard Camera Link

#### *Mode 2: Variable line scan rate*

- **Cable and Connection:** Standard mini to mini Camera Link cable.
- **External trigger:** External line trigger should be connected to the external auxiliary I/O (connector A on the Matrox Radient eCL bracket)

| **EXTERNAL AUX. I/O (connector A)** | | | **External Trigger Source** |
|---|---|---|---|
| **Pin Name** | **Pin no.** | | **Pin Name** |
| OPTO_AUX_IN0 + | 15 | ← | LINE TRIGGER (TTL FORMAT) |
| OPTO_AUX_IN0 - | 09 | ← | LINE TRIGGER (GROUND) |

#### *Mode 3: Variable line scan rate with rotary encoder*

- **Cable and Connection:** Standard Camera Link
- **External trigger:** External line trigger should be connected to the external auxiliary I/O (connector A on the Matrox Radient eCL bracket).

| **EXTERNAL AUX. I/O (connector A)** | | | **External Trigger Source** |
|---|---|---|---|
| **Pin Name** | **Pin no.** | | **Pin Name** |
| LVDS_AUX_IN2+ | 04 | ← | LINE TRIGGER A + (LVDS FORMAT) |
| LVDS_AUX_IN2- | 05 | ← | LINE TRIGGER A - (LVDS FORMAT) |
| LVDS_AUX_IN3 + | 06 | ← | LINE TRIGGER B + (LVDS FORMAT) |
| LVDS_AUX_IN3- | 08 | ← | LINE TRIGGER B - (LVDS FORMAT) |

#### *Mode 4: Fixed line scan rate with frame trigger*

- **Cable and Connection:** Standard Camera Link
- **External trigger:** External line trigger should be connected to the external auxiliary I/O (connector A on the Matrox Radient eCL bracket).

| **EXTERNAL AUX. I/O (connector A)** | | | **External Trigger Source** |
|---|---|---|---|
| **Pin Name** | **Pin no.** | | **Pin Name** |
| OPTO_AUX_IN1 + | 12 | ← | FRAME TRIGGER (TTL FORMAT) |
| OPTO_AUX_IN1 - | 11 | ← | FRAME TRIGGER (GROUND) |

#### *Mode 5: Variable line scan rate with frame trigger*

- **Cable and Connection:** Standard Camera Link
- **External trigger:** External line trigger should be connected to the external auxiliary I/O (connector A on the Matrox Radient eCL bracket).

| **EXTERNAL AUX. I/O (connector A)** | | | **External Trigger Sources** |
|---|---|---|---|
| **Pin name** | **Pin no.** | | **Pin name** |
| OPTO_AUX_IN1 + | 12 | ← | FRAME TRIGGER (TTL FORMAT) |

| | | | |
|---|---|---|---|
| OPTO_AUX_IN1 - | 11 | ← | FRAME TRIGGER (GROUND) |
| OPTO_AUX_IN0 + | 15 | ← | LINE TRIGGER (TTL FORMAT) |
| OPTO_AUX_IN0 - | 09 | ← | LINE TRIGGER (GROUND) |

#### *Mode 6: Variable line scan rate with rotary encoder and frame trigger*

- **Cable and Connection:** Standard Camera Link
- **External trigger:** External line trigger should be connected to the external auxiliary I/O (connector A on the Matrox Radient eCL bracket).

| **EXTERNAL AUX. I/O (connector A)** | | | **External Trigger Sources** |
|---|---|---|---|
| **Pin name** | **Pin no.** | | **Pin name** |
| OPTO_AUX_IN1 + | 12 | ← | FRAME TRIGGER (TTL FORMAT) |
| OPTO_AUX_IN1 - | 11 | ← | FRAME TRIGGER (GROUND) |
| LVDS_AUX_IN2 + | 04 | ← | LINE TRIGGER A + (LVDS FORMAT) |
| LVDS_AUX_IN2 - | 05 | ← | LINE TRIGGER A - (LVDS FORMAT) |
| LVDS_AUX_IN3 + | 06 | ← | LINE TRIGGER B + (LVDS FORMAT) |
| LVDS_AUX_IN3 - | 08 | ← | LINE TRIGGER B - (LVDS FORMAT) |

#### *Mode 7: Fixed line scan rate with variable frame size*

- **Cable and Connection:** Standard Camera Link
- **External trigger:** External line trigger should be connected to the external auxiliary I/O (connector A on the Matrox Radient eCL bracket).

| **EXTERNAL AUX. I/O (connector A)** | | | **External Trigger Sources** |
|---|---|---|---|
| **Pin name** | **Pin no.** | | **Pin name** |
| OPTO_AUX_IN1 + | 12 | ← | FRAME TRIGGER (TTL FORMAT) |
| OPTO_AUX_IN1 - | 11 | ← | FRAME TRIGGER (GROUND) |

#### *Mode 8: Variable line scan rate with variable frame size*

- **Cable and Connection:** Standard Camera Link
- **External trigger:** External line trigger should be connected to the external auxiliary I/O (connector A on the Matrox Radient eCL bracket).

| **EXTERNAL AUX. I/O (connector A)** | | | **External Trigger Sources** |
|---|---|---|---|
| **Pin name** | **Pin no.** | | **Pin name** |
| OPTO_AUX_IN1 + | 12 | ← | FRAME TRIGGER (TTL FORMAT) |
| OPTO_AUX_IN1 - | 11 | ← | FRAME TRIGGER (GROUND) |
| OPTO_AUX_IN0 + | 15 | ← | LINE TRIGGER (TTL FORMAT) |
| OPTO_AUX_IN0 - | 09 | ← | LINE TRIGGER (GROUND) |

# Matrox Radient eCL

## Camera Interface Application Note

## DALSA Piranha4 (P4-CM-08k070) February 24, 2015

*Cabling details for the interface modes*

### Cabling Requirements

#### *Mode 9: Variable line scan rate with rotary encoder and variable frame size*

- **Cable and Connection:** Standard Camera Link cable
- **External trigger:** External line trigger should be connected to the external auxiliary I/O (connector A on the Matrox Radient eCL bracket).

| **EXTERNAL AUX. I/O (connector A)** | | | **External Trigger Sources** |
|---|---|---|---|
| **Pin name** | **Pin no.** | | **Pin name** |
| OPTO_AUX_IN1 + | 12 | ← | FRAME TRIGGER (TTL FORMAT) |
| OPTO_AUX_IN1 - | 11 | ← | FRAME TRIGGER (GROUND) |
| LVDS_AUX_IN2 + | 04 | ← | LINE TRIGGER A + (LVDS FORMAT) |
| LVDS_AUX_IN2 - | 05 | ← | LINE TRIGGER A – (LVDS FORMAT) |
| LVDS_AUX_IN3 + | 06 | ← | LINE TRIGGER B + (LVDS FORMAT) |
| LVDS_AUX_IN3 - | 08 | ← | LINE TRIGGER B - (LVDS FORMAT) |



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