Matrox Solios eCL/XCL

Camera Interface Application Note

DALSA PC-3x-04k80 March 24, 2009

Basics about the camera

Camera Descriptions

- Effective resolution: up to 4096 pixels/line @ 17.7k line per second.
- Camera Link BASE or MEDIUM interface (RGB 8-bit, dual RGB 8-bit, RGB 12-bit).
- Tri-linear RGB line scan.
- External and internal sync.
- External or internal exposure control.
- 40 or 80 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]
- 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]
- 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 frame trigger[2]

Basics about the interface modes

Camera Interface Briefs

Mode 1: Fixed line scan rate

- Up to 4096 pixels/line.
- Camera Link BASE or MEDIUM interface (RGB 8-bit, dual RGB 8-bit, RGB 12-bit).
- DCF configured for 1000 lines per virtual frame.
- Matrox Solios eCL/XCL sending periodic EXPOSURE1 (EXSYNC) signal to camera.
- Matrox Solios eCL/XCL receiving HSYNC (LVAL), PIXEL CLOCK (STROBE @ 40 or 80 MHz) and video data from camera.
- DCF used: PC3x04k80_4096_8bitRGB_FLS.DCF
- DCF used: PC3x04k80_4096_8bit2Taps_RGBFLS_SolCL.DCF
- DCF used: PC3x04k80_4096_12bitRGB_FLS.DCF

Continued…

[1] Smart EXSYNC or Free Run mode
[2] Smart EXSYNC mode

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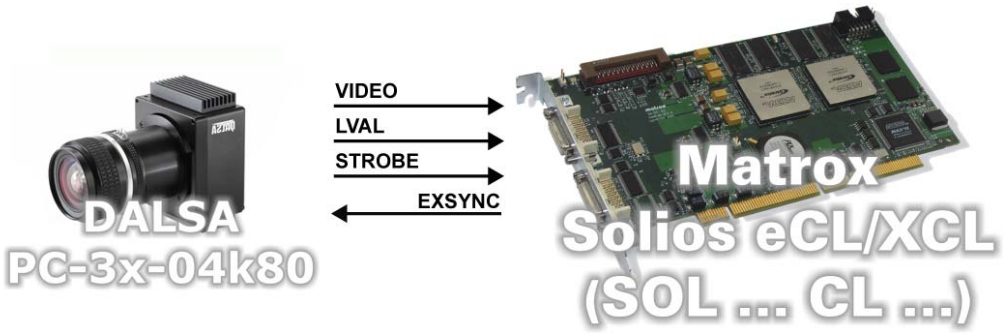
Basics about the interface modes

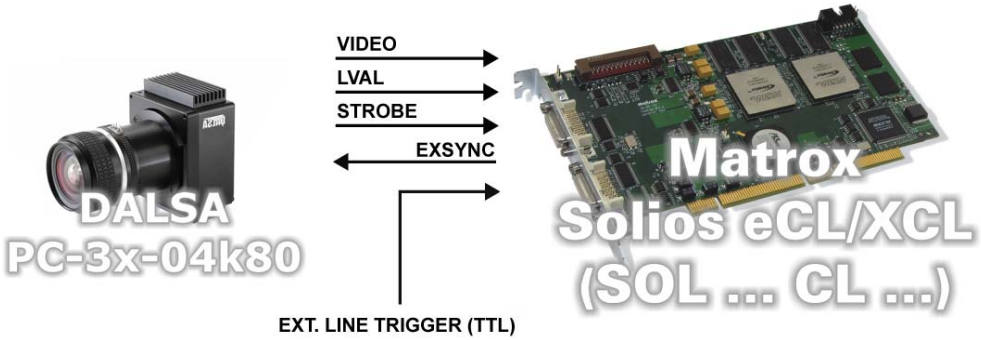
Camera Interface Briefs (cont.)

Mode 1: Fixed line scan rate



Mode 2: Variable line scan rate

- Up to 4096 pixels/line.
- Camera Link BASE or MEDIUM interface (RGB 8-bit, dual RGB 8-bit, RGB 12-bit).
- DCF configured for 1000 lines per virtual frame.
- Matrox Solios eCL/XCL receiving external TTL line trigger signal.
- Matrox Solios eCL/XCL sending EXPOSURE1 (EXSYNC) signal to camera.
- Matrox Solios eCL/XCL receiving HSYNC (LVAL), PIXEL CLOCK (STROBE @ 40 or 80 MHz) and video data from camera.
- DCF used: PC3x04k80_4096_8bitRGB_VLS.DCF
- DCF used: PC3x04k80_4096_8bit2Taps_RGBVLS_SolCL.DCF
- DCF used: PC3x04k80_4096_12bitRGB_VLS.DCF



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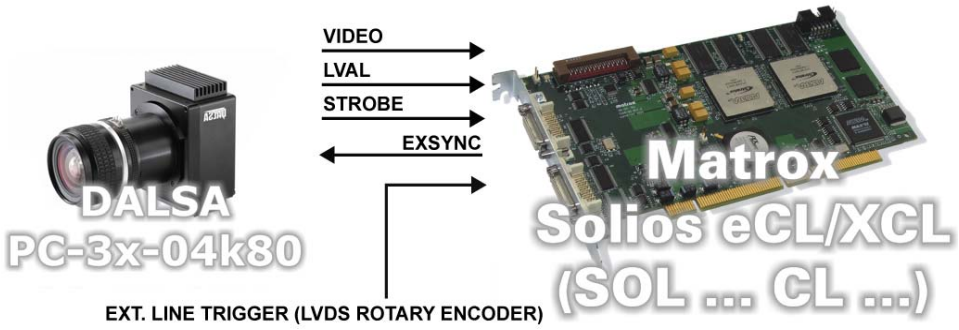
Basics about the interface modes

Camera Interface Briefs (cont.)

Mode 3: Variable line scan rate with rotary encoder

- Up to 4096 pixels/line.
- Camera Link BASE or MEDIUM interface (RGB 8-bit, dual RGB 8-bit, RGB 12-bit).
- DCF configured for 1000 lines per virtual frame.
- Matrox Solios eCL/XCL receiving external LVDS line trigger (ROTARY ENCODER) signal.
- Matrox Solios eCL/XCL sending periodic EXPOSURE1 (EXSYNC) signal to camera.
- Matrox Solios eCL/XCL receiving HSYNC (LVAL), PIXEL CLOCK (STROBE @ 40 or 80 MHz) and video data from camera.
- DCF used: PC3x04k80_4096_8bitRGB_VLSRE.DCF
- DCF used: PC3x04k80_4096_8bit2Taps_RGBVLSRE_SolCL.DCF
- DCF used: PC3x04k80_4096_12bitRGB_VLSRE.DCF



Mode 4: Fixed line scan rate with frame trigger

- Up to 4096 pixels/line.
- Camera Link BASE or MEDIUM interface (RGB 8-bit, dual RGB 8-bit, RGB 12-bit).
- DCF configured for 1000 lines per virtual frame.
- Matrox Solios eCL/XCL receiving external TTL frame (virtual) trigger signal.
- Matrox Solios eCL/XCL sending periodic EXPOSURE1 (EXSYNC) signal to camera.
- Matrox Solios eCL/XCL receiving HSYNC (LVAL), PIXEL CLOCK (STROBE @ 40 or 80 MHz) and video data from camera.
- DCF used: PC3x04k80_4096_8bitRGB_FLSFT.DCF
- DCF used: PC3x04k80_4096_8bit2Taps_RGBFLSFT_SolCL.DCF
- DCF used: PC3x04k80_4096_12bitRGB_FLSFT.DCF

Continued…

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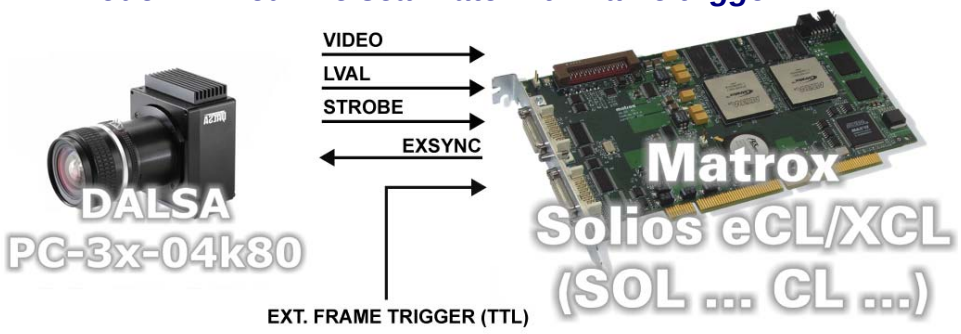
Basics about the interface modes

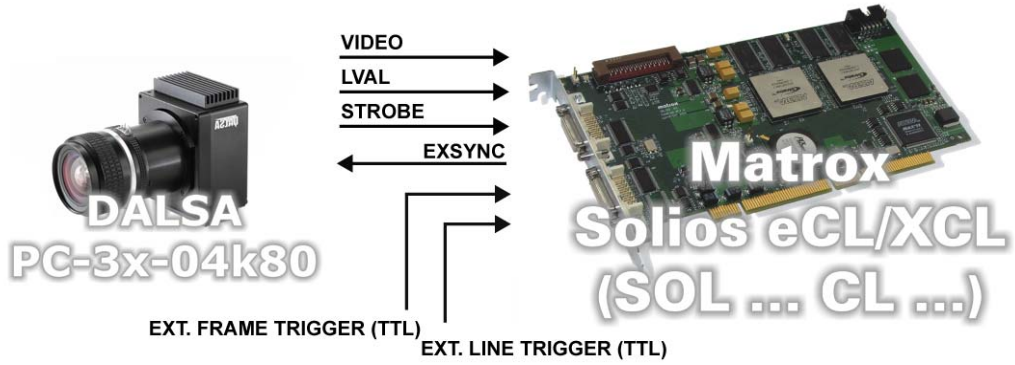
Camera Interface Briefs (cont.)

Mode 4: Fixed line scan rate with frame trigger



Mode 5: Variable line scan rate with frame trigger

- Up to 4096 pixels/line.
- Camera Link BASE or MEDIUM interface (RGB 8-bit, dual RGB 8-bit, RGB 12-bit).
- DCF configured for 1000 lines per virtual frame.
- Matrox Solios eCL/XCL receiving external TTL frame (virtual) and line trigger signals.
- Matrox Solios eCL/XCL sending EXPOSURE1 (EXSYNC) signal to camera.
- Matrox Solios eCL/XCL receiving HSYNC (LVAL), PIXEL CLOCK (STROBE @ 40 or 80 MHz) and video data from camera.
- DCF used: PC3x04k80_4096_8bitRGB_VLSFT.DCF
- DCF used: PC3x04k80_4096_8bit2Taps_RGBVLSFT_SolCL.DCF
- DCF used: PC3x04k80_4096_12bitRGB_VLSFT.DCF

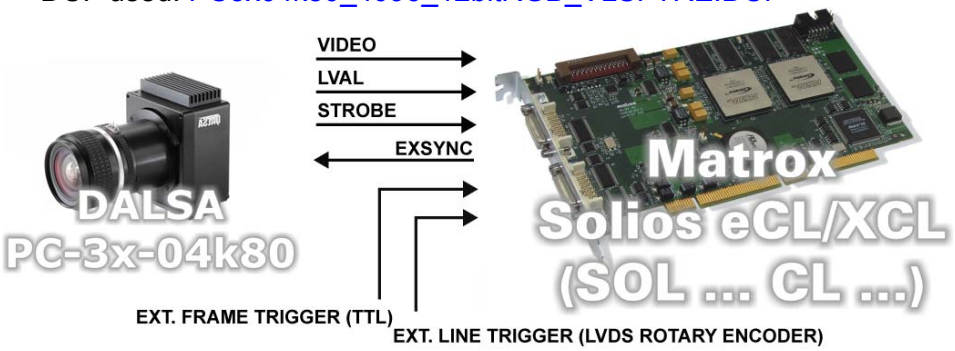


Basics about the interface modes

Camera Interface Briefs (cont.)

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

- Up to 4096 pixels/line.
- Camera Link BASE or MEDIUM interface (RGB 8-bit, dual RGB 8-bit, RGB 12-bit).
- DCF configured for 1000 lines per virtual frame.
- Matrox Solios eCL/XCL receiving external TTL frame (virtual) and external LVDS line trigger (ROTARY ENCODER) signals.
- Matrox Solios eCL/XCL sending EXPOSURE1 (EXSYNC) signal to camera.
- Matrox Solios eCL/XCL receiving HSYNC (LVAL), PIXEL CLOCK (STROBE @ 40 or 80 MHz) and video data from camera.
- DCF used: PC3x04k80_4096_8bitRGB_VLSFTRE.DCF
- DCF used: PC3x04k80_4096_8bit2Taps_RGBVLSFTRE_SolCL.DCF
- DCF used: PC3x04k80_4096_12bitRGB_VLSFTRE.DCF



Mode 7: Fixed line scan rate with variable frame size

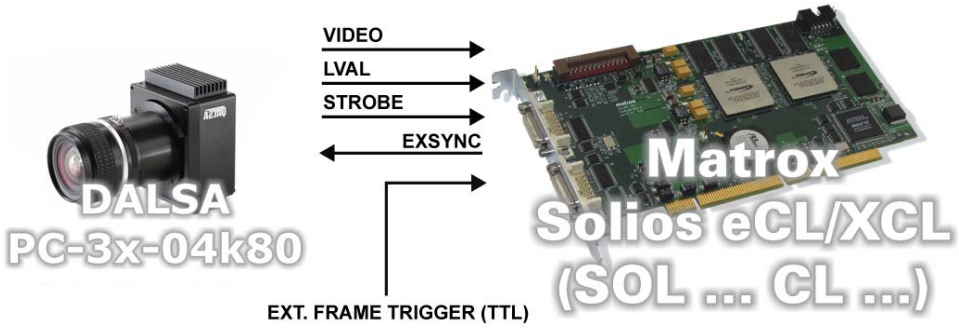
- Up to 4096 pixels/line.
- Camera Link BASE or MEDIUM interface (RGB 8-bit, dual RGB 8-bit, RGB 12-bit).
- DCF configured for 1000 lines per virtual frame.
- Matrox Solios eCL/XCL receiving external TTL frame (virtual) trigger signal.
- Matrox Solios eCL/XCL sending periodic EXPOSURE1 (EXSYNC) signal to camera.
- Matrox Solios eCL/XCL receiving HSYNC (LVAL), PIXEL CLOCK (STROBE @ 40 or 80 MHz) and video data from camera.
- DCF used: PC3x04k80_4096_8bitRGB_FLSVF.DCF
- DCF used: PC3x04k80_4096_8bit2Taps_RGBFLSVF_SolCL.DCF
- DCF used: PC3x04k80_4096_12bitRGB_FLSVF.DCF

Continued…

Basics about the interface modes

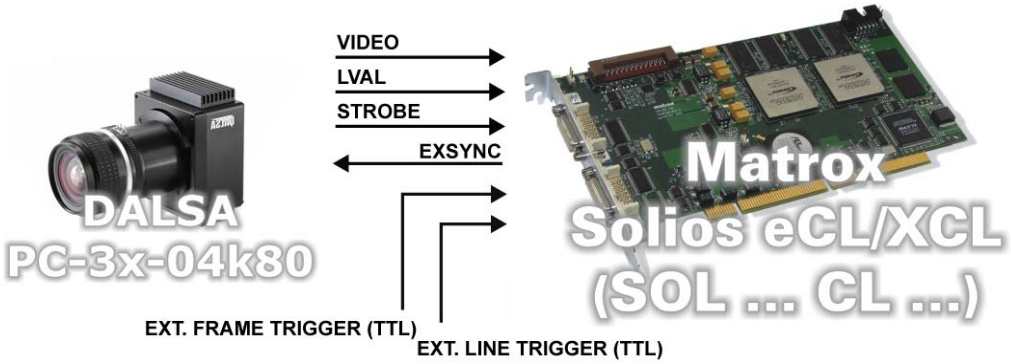
Camera Interface Briefs (cont.)

Mode 7: Fixed line scan rate with variable frame size



Mode 8: Variable line scan rate with variable frame size

- Up to 4096 pixels/line.
- Camera Link BASE or MEDIUM interface (RGB 8-bit, dual RGB 8-bit, RGB 12-bit).
- DCF configured for 1000 lines per virtual frame.
- Matrox Solios eCL/XCL receiving external TTL frame (virtual) and line trigger signals.
- Matrox Solios eCL/XCL sending EXPOSURE1 (EXSYNC) signal to camera.
- Matrox Solios eCL/XCL receiving HSYNC (LVAL), PIXEL CLOCK (STROBE @ 40 or 80 MHz) and video data from camera.
- DCF used: PC3x04k80_4096_8bitRGB_VLSVF.DCF
- DCF used: PC3x04k80_4096_8bit2Taps_RGBVLSVF_SolCL.DCF
- DCF used: PC3x04k80_4096_12bitRGB_VLSVF.DCF



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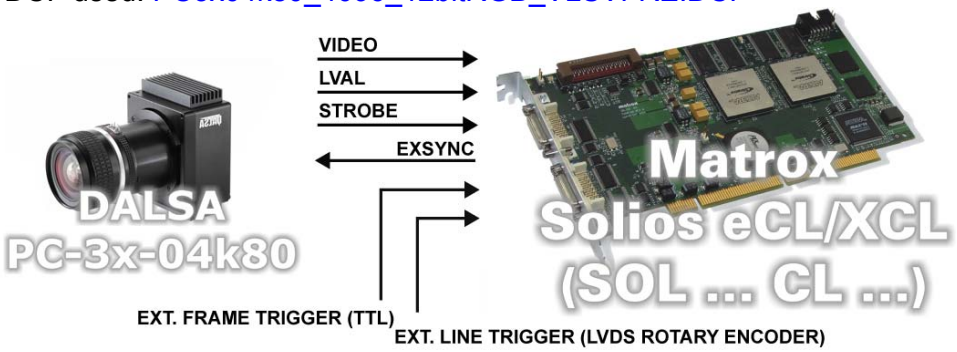
Basics about the interface modes

Camera Interface Briefs (cont.)

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

- Up to 4096 pixels/line.
- Camera Link BASE or MEDIUM interface (RGB 8-bit, dual RGB 8-bit, RGB 12-bit).
- DCF configured for 1000 lines per virtual frame.
- Matrox Solios eCL/XCL receiving external TTL frame (virtual) and external LVDS line trigger (ROTARY ENCODER) signal.
- Matrox Solios eCL/XCL sending EXPOSURE1 (EXSYNC) signal to camera.
- Matrox Solios eCL/XCL receiving HSYNC (LVAL), PIXEL CLOCK (STROBE @ 40 or 80 MHz) and video data from camera.
- DCF used: PC3x04k80_4096_8bitRGB_VLSVFRE.DCF
- DCF used: PC3x04k80_4096_8bit2Taps_RGBVLSVFRE_SolCL.DCF
- DCF used: PC3x04k80_4096_12bitRGB_VLSVFRE.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. For the RGB 8-bit DCF used for the **Smart EXSYNC** mode, the EXPOSURE1 (EXSYNC) signal period is set to **150 µs** which translates into a **6.66 kHz** line rate. The maximum line rate for this camera equals **17.7 kHz**.
- **Exposure time:** The exposure time is the inactive (high level) period between the rising and falling edges of the EXPOSURE1 (EXSYNC) signal. The default exposure time for the RGB 8-bit DCF used for **Smart EXSYNC** mode equals **100 µs**. Maximum/minimum exposure time per line for this DCF is **420 ms** and **25 ns** respectively. 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.

Continued…

Specifics about the interface modes

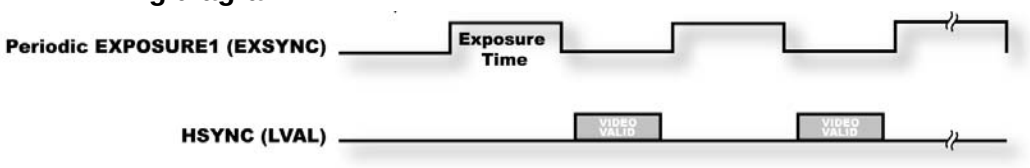
Camera Interface Details

Mode 1: Fixed line scan rate

- **Camera communication:** These DCFs will work with **Free Run** and **Smart EXSYNC** modes. Set the mode (as shown in table below) via the Camera Link communication. Refer to the camera manual for additional information.

Command	Short Form	Parameter	Description
Set_exposure_mode	sem	2	Free Run
Set_exposure_mode	sem	4	Smart EXSYNC mode
Camera_link_mode	clm	16	RGBY, 12bit
Camera_link_mode	clm	5	RGB, 8bit
Camera_link_mode	clm	14	2xRGB, 8bit

- **Timing diagram:**

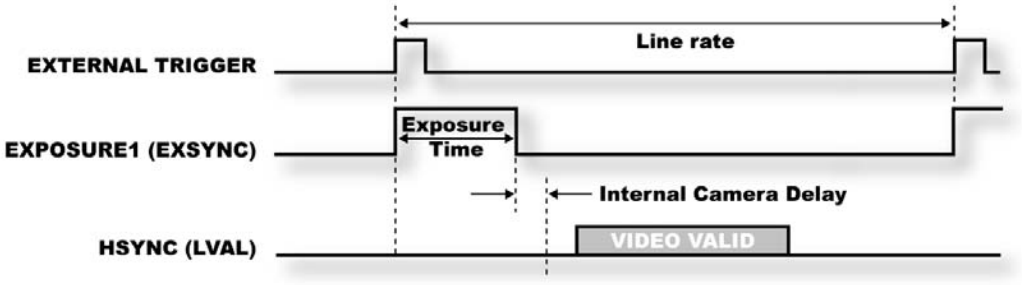


Mode 2: Variable line scan rate

- **Line rate**: The line rate is controlled by the frequency of the external TTL line trigger signal. The 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 (**≈2.5 µs**) or slower than the maximum line read of the camera.
- **Exposure time:** Refer to Mode 1: Fixed line scan rate.
- **Camera communication:** Set the mode (as shown in table below) via the Camera Link communication. Refer to the camera manual for additional information.

Command	Short Form	Parameter	Description
Set_exposure_mode	sem	4	Smart EXSYNC mode
Camera_link_mode	clm	16	RGBY, 12bit
Camera_link_mode	clm	5	RGB, 8bit
Camera_link_mode	clm	14	2xRGB, 8bit

- **Timing diagram:**

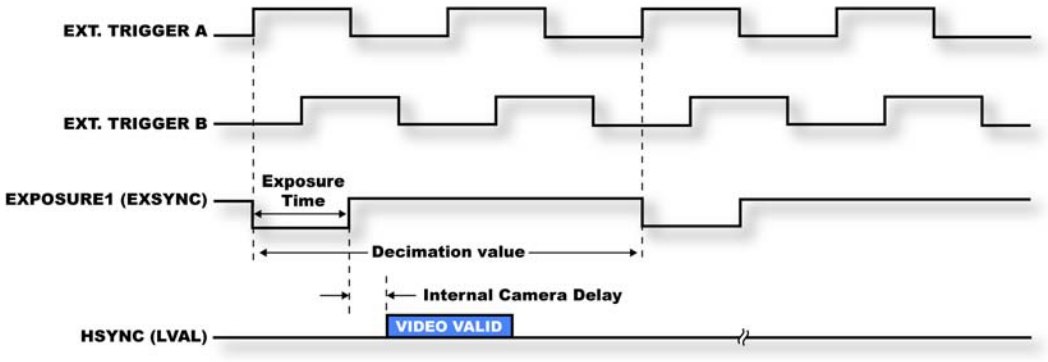


Specifics about the interface modes

Camera Interface Details (cont.)

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 (≈2.50 µs) or slower than the maximum line rate of the camera. The DCF is designed for a forward direction from the Rotary Encoder.
- **Exposure time:** Refer to Mode 1: Fixed line scan rate.
- **Camera communication:** Refer to Mode 2: Variable line scan rate.
- **Timing diagram:**



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

Mode 4: Fixed line scan rate with frame trigger

- **Line/frame rate**: The line rate is fixed and controlled by the period of EXPOSURE1 (EXSYNC) signal. 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 (maximum of 1000 for the DCFs) 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.

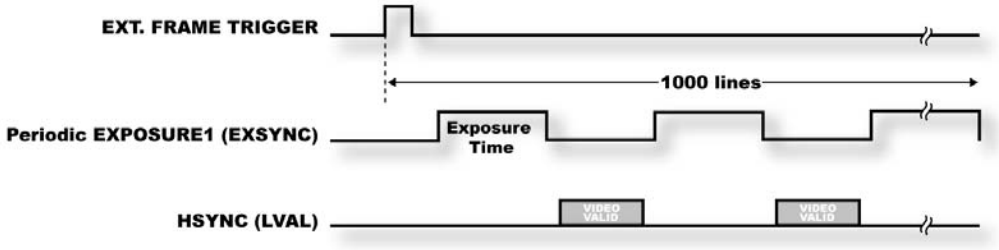
Continued…

Specifics about the interface modes

Camera Interface Details (cont.)

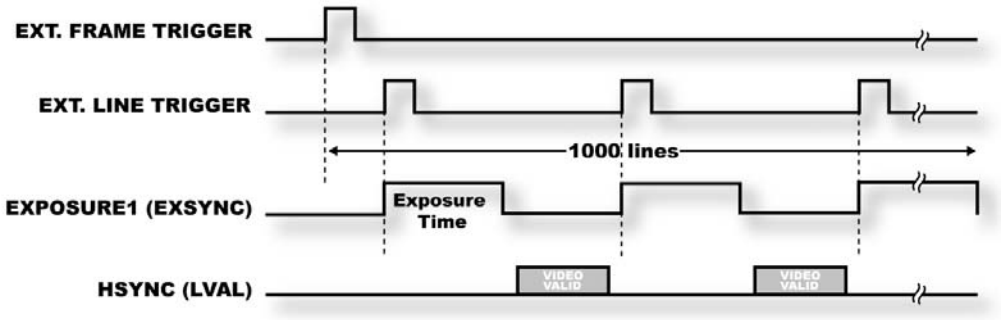
Mode 4: Fixed line scan rate with frame trigger

- **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 (**≈2.5 µs**) or slower than the maximum line read of the camera. 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 (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 2: Variable line scan rate.
- **Timing diagram:**

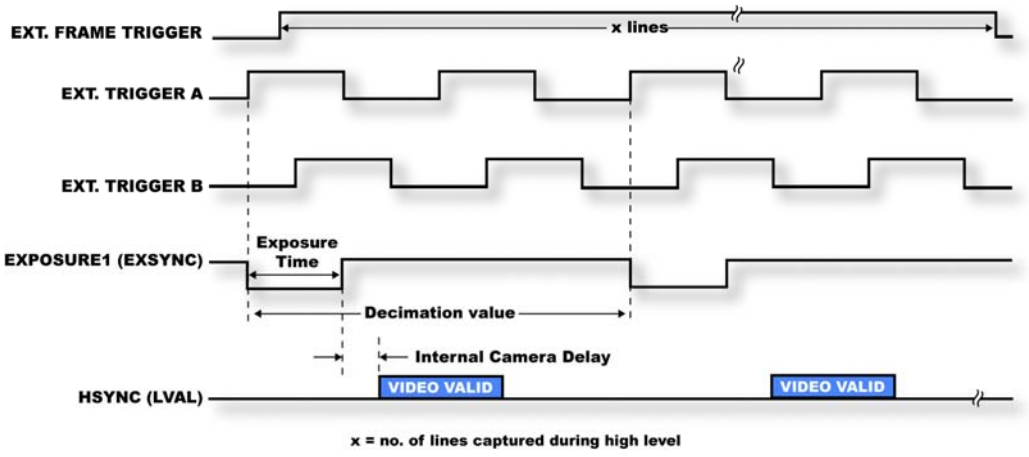


Specifics about the interface modes

Camera Interface Details (cont.)

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 TTL 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 (≈2.50 µs) or slower than the maximum line rate of the camera. The DCF is designed 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 Solios eCL/XCL 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 2: Variable line scan rate.
- **Timing diagram:**



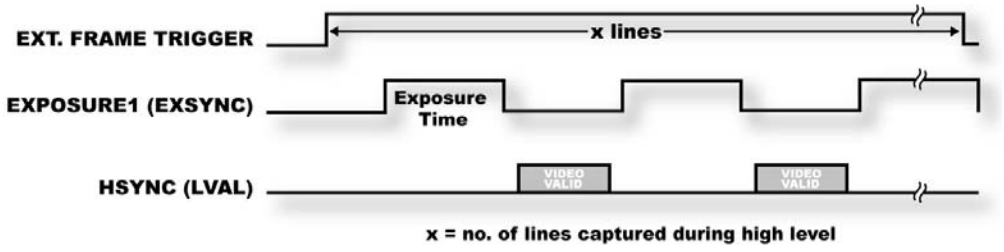
* The decimation value showed in this timing diagram is eight (8).

Specifics about the interface modes

Camera Interface Details (cont.)

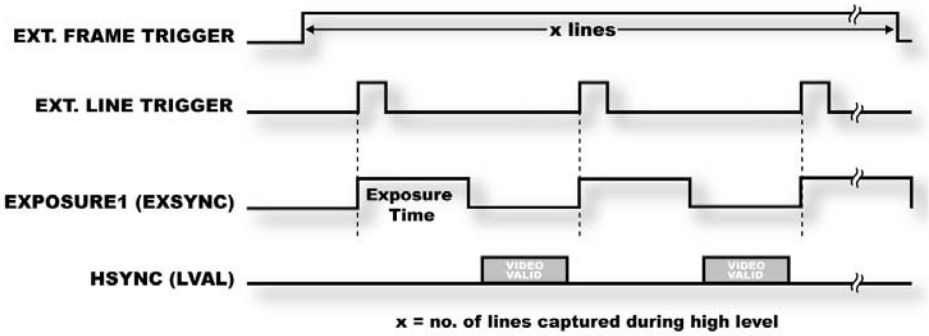
Mode 7: Fixed line scan rate with variable frame size

- **Line/frame rate**: The line rate is fixed and controlled by the period of EXPOSURE1 (EXSYNC) signal. The number of lines per virtual frame (maximum of 1000 for this DCF) is variable and controlled by the frame trigger signal. Matrox Solios 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:**



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 (**≈2.5 µs**) or slower than the maximum line read of the camera. The number of lines per virtual frame (maximum of 1000 for this DCF) is variable and controlled by the frame trigger signal. Matrox Solios 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 2: Variable line scan rate.
- **Timing diagram:**



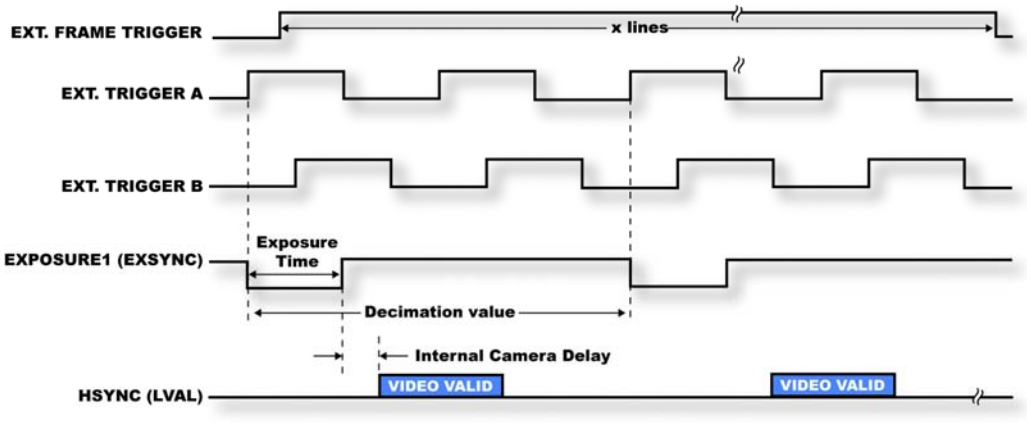
Specifics about the interface modes

Camera Interface Details (cont.)

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 (≈2.50 µs) or slower than the maximum line rate of the camera.

  The DCF is designed 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 Solios eCL/XCL 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 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).

Cabling details for the interface modes

Cabling Requirements

Mode 1: Fixed line scan rate

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

Mode 2: Variable line scan rate

- **Cable and Connection:** Standard Camera Link.
- **External trigger:** External line trigger should be connected to the OPTO TRIG input of the 9-pin connector on the External I/O adapter bracket:

EXTERNAL I/O BRACKET (9-pin connector) Pin Name	Pin no.		External Trigger Source Pin Name
OPTO_AUX_IN0 +	07	←	LINE TRIGGER (TTL FORMAT)
OPTO_AUX_IN0 -	02	←	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 9-pin and 44-pin connectors on the External I/O adapter bracket:

EXTERNAL I/O BRACKET (9-pin connector) Pin Name	Pin no.		External Trigger Source Pin Name
P0_LVDS_AUX_IN0 +	08	←	Line TRIGGER A + (LVDS FORMAT)
P0_LVDS_AUX_IN0 -	03	←	Line TRIGGER A - (LVDS FORMAT)

(44-pin connector) Pin Name	Pin no.		External Trigger Source Pin Name
P0_LVDS_AUX_IN1 +	37	←	Line TRIGGER B + (LVDS FORMAT)
P0_LVDS_AUX_IN1 -	23	←	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 9-pin (OPTO TRIG input) connector on the External I/O adapter bracket:

EXTERNAL I/O BRACKET (9-pin connector) Pin Name	Pin no.		External Trigger Source Pin Name
OPTO_AUX_IN1 +	04	←	FRAME TRIGGER (TTL FORMAT)
OPTO_AUX_IN1 -	05	←	FRAME TRIGGER (GROUND)

Cabling details for the interface modes

Cabling Requirements (cont.)

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 9-pin (OPTO TRIG input) connector on the External I/O adapter bracket:

EXTERNAL I/O BRACKET (9-pin connector)			**External Trigger Sources**
Pin name	**Pin no.**		**Pin name**
OPTO_AUX_IN1 +	04	←	FRAME TRIGGER (TTL FORMAT)
OPTO_AUX_IN1 -	05	←	FRAME TRIGGER (GROUND)
OPTO_AUX_IN0 +	07	←	LINE TRIGGER (TTL FORMAT)
OPTO_AUX_IN0 -	02	←	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 9-pin (OPTO TRIG input) and 44-pin connectors on the External I/O adapter bracket:

EXTERNAL I/O BRACKET (9-pin connector)			**External Trigger Sources**
Pin name	**Pin no.**		**Pin name**
OPTO_AUX_IN1 +	04	←	FRAME TRIGGER (TTL FORMAT)
OPTO_AUX_IN1 -	05	←	FRAME TRIGGER (GROUND)
P0_LVDS_AUX_IN0 +	08	←	Line TRIGGER A + (LVDS FORMAT)
P0_LVDS_AUX_IN0 -	03	←	Line TRIGGER A - (LVDS FORMAT)

(44-pin connector)			**External Trigger Sources**
Pin name	**Pin no.**		**Pin name**
P0_LVDS_AUX_IN1 +	37	←	Line TRIGGER B + (LVDS FORMAT)
P0_LVDS_AUX_IN1 -	23	←	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 9-pin (OPTO TRIG input) connector on the External I/O adapter bracket:

EXTERNAL I/O BRACKET (9-pin connector)			**External Trigger Sources**
Pin name	**Pin no.**		**Pin name**
OPTO_AUX_IN1 +	04	←	FRAME TRIGGER (TTL FORMAT)
OPTO_AUX_IN1 -	05	←	FRAME TRIGGER (GROUND)

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Cabling details for the interface modes

Cabling Requirements (cont.)

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 9-pin (OPTO TRIG input) connector on the External I/O adapter bracket:

EXTERNAL I/O BRACKET (9-pin connector)			**External Trigger Sources**
Pin name	**Pin no.**		**Pin name**
OPTO_AUX_IN1 +	04	←	FRAME TRIGGER (TTL FORMAT)
OPTO_AUX_IN1 -	05	←	FRAME TRIGGER (GROUND)
OPTO_AUX_IN0 +	07	←	LINE TRIGGER (TTL FORMAT)
OPTO_AUX_IN0 -	02	←	LINE TRIGGER (GROUND)

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

- **Cable and Connection:** Standard Camera Link.
- **External trigger:** External line trigger should be connected to the 9 and 44-pin (OPTO TRIG input) connector on the External I/O adapter bracket:

EXTERNAL I/O BRACKET (9-pin connector)			**External Trigger Sources**
Pin name	**Pin no.**		**Pin name**
OPTO_AUX_IN1 +	04	←	FRAME TRIGGER (TTL FORMAT)
OPTO_AUX_IN1 -	05	←	FRAME TRIGGER (GROUND)
P0_LVDS_AUX_IN0 +	08	←	Line TRIGGER A + (LVDS FORMAT)
P0_LVDS_AUX_IN0 -	03	←	Line TRIGGER A - (LVDS FORMAT)

(44-pin connector)			**External Trigger Sources**
Pin name	**Pin no.**		**Pin name**
P0_LVDS_AUX_IN1 +	37	←	Line TRIGGER B + (LVDS FORMAT)
P0_LVDS_AUX_IN1 -	23	←	Line TRIGGER B - (LVDS FORMAT)

Matrox Electronic Systems Ltd.
1055 St. Regis Blvd.
Dorval, Quebec H9P 2T4
Canada
Tel: (514) 685-2630
Fax: (514) 822-6273

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