Matrox Odyssey Xpro
Camera Interface Application Note
HITACHI KP-F230SCL August 31, 2009

Basics about the camera

Camera Descriptions

- Effective resolution: 1628 × 1236 × 10-bit @ 30 fps.
- Camera Link BASE interface (dual tap).
- Progressive scan.
- Internal sync.
- Internal or external exposure control.
- 36 MHz pixel clock rate.

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

Interface Mode

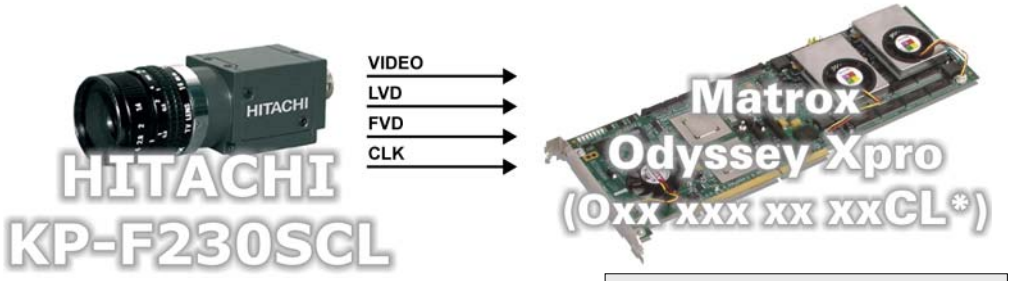
- Continuous
- Pseudo-continuous
- Asynchronous reset (ONE Trigger mode)

Basics about the interface modes

Camera Interface Briefs

Mode 1: Continuous

- 1628 × 1236 × 10-bit @ 30 fps.
- Camera Link BASE interface (dual tap).
- Progressive scan.
- Matrox Odyssey Xpro receiving LDV, FDV, CLK and video signal from camera.
- DCF used: KPF230SCL1628x1236_10bitCon.DCF



***Matrox Odyssey Xpro main board with Camera Link frame grabber module**

Mode 2: Pseudo-continuous

- 1628 × 1236 × 10-bit.
- Camera Link BASE interface (dual tap).
- Progressive scan.
- Matrox Odyssey Xpro sending periodic TIMER1 OUT (CC1) signal to camera to initiate and control exposure time.
- Matrox Odyssey Xpro receiving LDV, FDV, CLK and video signal from camera.

Continued...

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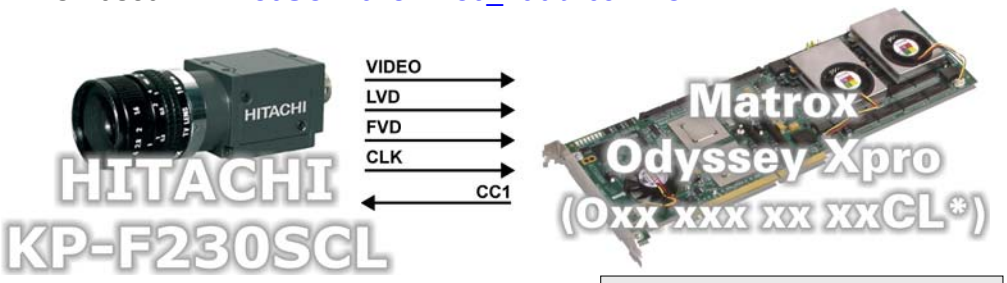
Basics about the interface modes

Camera Interface Briefs (cont.)

Mode 2: Pseudo-continuous

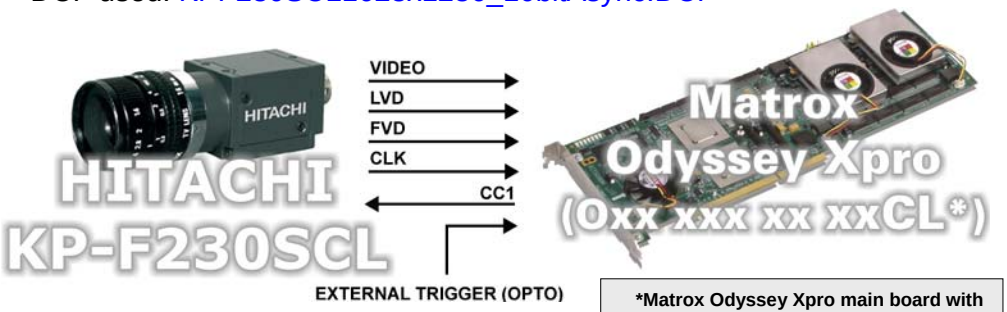
- DCF used: KPF230SCL1628x1236_10bitPcon.DCF



***Matrox Odyssey Xpro main board with Camera Link frame grabber module**

Mode 3: Asynchronous reset

- 1628 × 1236 × 10-bit.
- Camera Link BASE interface (dual tap).
- Progressive scan.
- Matrox Odyssey Xpro receiving external trigger signal.
- Matrox Odyssey Xpro sending TIMER1 OUT (CC1) signal to camera to initiate and control exposure time.
- Matrox Odyssey Xpro receiving LDV, FDV, CLK and video signal from camera.
- DCF used: KPF230SCL1628x1236_10bitAsync.DCF



***Matrox Odyssey Xpro main board with Camera Link frame grabber module**

Specifics about the interface modes

Camera Interface Details

Mode 1: Continuous

- **Frame Rate:** Matrox Odyssey Xpro receives the continuous video from the camera at 30 frames per second.
- **Exposure time:** Exposure time is set using the **Shutter Speed** setting in the Camera Configuration Utility. Refer to the camera manual for more information.
- **Camera Configuration:** The camera mode is set as follows in the Camera Configuration Utility. Refer to the camera manual for more information.

Mode	Trigger	DATA BIT	2xACCEL	VD/LVAL	HD/LVAL
Setting	Mode OFF	10-bits	OFF	FVAL	LVAL

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Specifics about the interface modes

Camera Interface Details (cont.)

Mode 2: Pseudo-continuous

- **Frame rate**: The frame rate is determined by the frequency of the TIMER1 OUT (CC1) signal.
- **Exposure time:** The width (rising edge to falling edge) of the TIMER1 OUT (CC1) signal is the exposure time, which can be modified in the DCF using Matrox Intellicam or with the MIL MdigControl() function. Consult the respective manual for more information.
- **Camera Configuration:** The camera mode is set as follows in the Camera Configuration Utility. Refer to the camera manual for more information.

Mode	Trigger	Trigger	DATA BIT	2xACCEL	VD/LVAL	HD/LVAL
Setting	Mode-1TRIGGER	POLARITY - TRIG-A, POS	10-bits	OFF	FVAL	LVAL

Mode 3: Asynchronous Reset

- **Frame rate**: The frame rate is determined by the frequency of the external trigger signal.
- **Exposure time:** Same as in Mode 2: Pseudo-continuous.
- **Camera Configuration:** Same as in Mode 2: Pseudo-continuous.

Cabling details for the interface modes

Cabling Requirements

Modes 1 and 2: Continuous and Pseudo-continuous

- **Cable and Connection:** Hitachi Camera Link cable - small SDR (Mini-CL).

Mode 3: Asynchronous reset

- **Cable and Connection:** Standard Camera Link.
- **External trigger:** External trigger should be connected to the OPTO TRIG input of the 9-pin connector (pins 7 and 2) on the Expanded I/O adapter bracket.

EXPANDED I/O BRACKET (9-pin connector)			**External Trigger Source**	
OPTOTRIG +	07	←	SIGNAL	--
OPTOTRIG -	02	←	GROUND	--

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