Overview

Camera

Sony XC-HR50

Running modes

Freerunning [X]
Restart/Reset [ ]
Ext. Synchronized [ ]
Trigger Shutter [X]
Flash & Reset [ ]

Resolution

Horizontal 648 pixel
Vertical 494 pixel

Binning [ ]
Partial Scan [ ]

Timings

Pixel clock 24.545 MHz
Horizontal 31.468 kHz
Vertical 60 fps

MATRIX VISION GmbH Frame Grabber

Typ mvTITAN-G1
Line Enable by camera [X] Frame Grabber [ ] external [ ]
Frame Enable by camera [X] Frame Grabber [ ] external [ ]
Trigger by external [ ] Frame Grabber [X]
Flash by camera [ ] Frame Grabber [ ] external [ ]

Software

mvAcquireControl [X]
mvIMPACT Go! [ ]
Other [ ]

Imprint

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This document requires the general knowledge of the usage and the technical data of the used frame grabber, camera and application.
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Freerunning Mode

The camera runs with its own timing and sends the VD and HD within the video signal.

Signal map

Camera settings set by hardware

Dip-Switch settings:

<table>
<thead>
<tr>
<th>SW 1</th>
<th>SW 2</th>
<th>SW 3</th>
<th>SW 4</th>
<th>SW 5</th>
<th>SW 6</th>
<th>SW 7</th>
<th>SW 8</th>
<th>SW 9</th>
<th>SW 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

‘ON’: switched on, ‘OFF’: switched off, ‘X’: switch setting not relevant

Pin connection

<table>
<thead>
<tr>
<th>XC-HR50</th>
<th>Direction</th>
<th>mvTITAN-G1</th>
</tr>
</thead>
<tbody>
<tr>
<td>HD26ST</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 GND</td>
<td>(\rightarrow)</td>
<td>10 GND</td>
</tr>
<tr>
<td>2 +12 VDC</td>
<td>(\rightarrow)</td>
<td>1 +12 VDC</td>
</tr>
<tr>
<td>3 Video out</td>
<td>(\rightarrow)</td>
<td>2 Video 1</td>
</tr>
<tr>
<td>4 GND</td>
<td>(\rightarrow)</td>
<td>12 GND</td>
</tr>
</tbody>
</table>

Recommended cable for this mode from MATRIX VISION GmbH: KS41 03.0 or KS41-E1AJ XT 03.0
Cameradefinition

/* -------------------------- Sony XC-HR50 ------------------------------------ */
DefCamType "XC-HR50" VM_CCIR NONINTERLACED 50 31468 24545 PCLK_INTERNAL
DefCamAcquireSetup "XC-HR50" STANDARD NOT_INV NEXT_FIELD
DefCamAnalogParam "XC-HR50" AC 1 0 0 1200
DefHorizontalUnit "XC-HR50" PIXEL
DefCamHorizontalAcquire "XC-HR50" 114L 648L 1
DefCamClamp "XC-HR50" 100L 5L
DefCamZero "XC-HR50" 105L 5L
DefCamFieldGate "XC-HR50" 300L 400L
DefVerticalUnit "XC-HR50" LINES
DefCamVerticalAcquire "XC-HR50" 13L 494L 1

Remarks

none
Trigger Shutter Mode

The camera is reset by the mvTITAN-G1’s digital output GPout 0 and sends the HD and VD within the video signal.
Puls length of the trigger signal (GPout 0) defines shutter time of camera.

Signal map

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Dip-Switch settings:

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<th>SW 7</th>
<th>SW 8</th>
<th>SW 9</th>
<th>SW 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>ON</td>
<td>ON</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

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Pin connection

<table>
<thead>
<tr>
<th>12 pin Hirose</th>
<th>Direction</th>
<th>HD26ST</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 GND</td>
<td>&lt;-&gt;</td>
<td>10 GND</td>
</tr>
<tr>
<td>2 +12VDC</td>
<td>&lt;-&gt;</td>
<td>1 +12VDC</td>
</tr>
<tr>
<td>3 Video out</td>
<td>-&gt;</td>
<td>2 Video 1</td>
</tr>
<tr>
<td>11 Trigger in</td>
<td>&lt;-&gt;</td>
<td>19 GPout0</td>
</tr>
</tbody>
</table>

Recommended cable for this mode from MATRIX VISION GmbH: KS41-0231 03.0
Cameradefinition

/* -------------------------- Sony XC-HR50 ------------------------------------ */
DefCamType "XC-HR50" VM_CCIR NONINTERLACED 50 31468 24545 PCLK_INTERNAL
DefCamAcquireSetup "XC-HR50" STANDARD NOT_INV NEXT_FIELD
DefCamAnalogParam "XC-HR50" AC 1 0 0 1200
DefHorizontalUnit "XC-HR50" PIXEL
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DefCamVerticalAcquire "XC-HR50" 13L 494L 1

Setting up camera trigger

For the camera reset GPout 0 of mvTITAN-G1 is used.
The best way to setup GPout 0 as a trigger signal is to use the shutter control.

In mvAcquireControl switch to register Shutter and do the following settings:
- Enable Shutter Control
- Activate High active
- Deactivate Start acquisition after pulse seq.
- Deactivate Start pulse seq. Vsync synchronous
- Set Shutter mode to One Trigger Mode

The setting in Shuttertime defines the length of the pulse and so the shuttertime of the camera.

Automatically the Autotrigger in register Trigger is activated.
Define in Autotrigger periodo the time between two images to acquire.

IMPORTANT: The Autotrigger periodo can just be defined with 10ms accuracy! So 16ms will result in a period of 10ms. As this is to fast for the camera this will result in faulty images. Therefore with ‘real’ trigger signals up to 60 images per sec. can be achieved while with the simulated method just 50 images per sec. are possible.

If you are using the optional external trigger signal connected to the Trigger In pin of the mvTITAN-G1 switch from autotrigger to ext. trigger and the camera reset signal will be output right after each external trigger pulse.

If using the shuttercontrol in your own software you have to use the functions mvDefPulsSeq() and mvSetTriggerPeriod() to define the shutter control method. You will find more about these functions in the mvTITAN-G1’s manual.
## Glossary

<table>
<thead>
<tr>
<th>Expression</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>VD</td>
<td>Vertical drive, signal is sent to signalize next field (noninterlaced) or frame (interlaced). Also called Frame Enable, VSync or frame start signal.</td>
</tr>
<tr>
<td>HD</td>
<td>Horizontal drive, signal is sent to signalize next line. Also called Line Enable, HSync or line start signal.</td>
</tr>
</tbody>
</table>