

## Digital PCI Express® x1 CameraLink frame grabber - mvHYPERION-CLb



- Digital PCI Express® x1 frame grabber
- Interfaces for BASE CameraLink cameras
- Trigger and flash control for cameras on-board

The mvHYPERION-CLb is a frame grabber for PCI Express®. Due to PCI Express® the mvHYPERION-CLb offers a continuous capture bandwidth of 200 MB/s.

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- Summary
- Features
- Product comparison PCI-E frame grabbers
- Application areas
- Downloads

Product	mvHYPERION-CLb
PCI Express®	x1
Interfaces	1x BASE
Continuous data rate	Approx. 200 MB/s
Payload size	Up to 512 Bytes
Max. CL data clock	85 MHz
Digital In/Out	1x 2/1
Permissible ambient temperature	0 .. 45 °C
Permissible storage temperature	-20 .. 70 °C
Supported standards	



- 1-channel multistandard CameraLink frame grabber for PCI Express® (x1 lane PCI-E)
- Trigger/sync input opto-isolated, 5..24 V
- Switchable input threshold of trigger and sync inputs between 2 V (TTL) and 12 V (PLC)
- PCI scatter gather DMA controller with PCI bus master feature and 0 Wait State Burst access
- Serial interface (LVDS level) per channel
- 1 MiniCL connector
- 1 connector for trigger + sync input, flash outputs and 12 V camera power
- Flash outputs opto-isolated, max. 30 V
- Retriggerable (asynchronous resetable)
- Intelligent creation of four camera control signals and strobe output per channel with independent video timing

- Diverse data storage formats
- Supported CL spec.: 1.2

- generators
- E2PROM
- Power over CameraLink (PoCL)

## Signal input

Family		mvDELTA		mvSIGMA	mvHYPERI		
Product		e			ON		
Inputs		(Cinch)	BNC	SQe	CLb	CLm	CLf
	CVBS	4	4	16	-	-	-
	YC	1 + 3 x	-	4	-	-	-
	CVBS						
	Gray/VBS	4	4	16	-	-	-
	RGB	-	-	-	-	-	-
	Digital	-	-	-	1	2	2
Parallel acquisition inputs	Number	1	1	4	1	2	2
	RGB/ Multi-spectral	-	-	-	1	2	2
	Synchronous / asynchronous	-/-	-/-	yes/yes	-	yes/yes	-/-
A/D converter	(bit)	8	8	8	-	-	-
Standards	CCIR-601, RS-170	yes	yes	yes	-	-	-
	Variable/Slow Scan	-	-	-	-	-	-
	PAL,	yes	yes	yes	-	-	-

Low pass filter (analog) switchable		-	-	-	-	-	-	
Restart / Reset		-	-	-	yes	yes	yes	
Sensor geometry	Area	ja	yes	yes	yes	yes	yes	
Termination	Line Ohm / switchable	- / 75	- / no	- / 75	- / no	yes / 100	yes / no	yes / 100
Coupling / Level		AC	AC	AC	Digital differential / LVDS	Digital differential / LVDS	Digital differential / LVDS	
Offset		-	-	-	-	-	-	
Analog Gain	Manual / AGC	yes/yes	yes/yes	yes/yes	-	-	-	
Plug connector		4 x Cinch + 1 x Mini-DIN4	4 x BNC	2x D-Sub 26	1 x MiniCL (1x BASE) 1x Binder 8pin	2 x MiniCL (2x BASE or 1x MED.) 2x Binder 8pin	2 x MiniCL (1x BASE or 1x MED. FULL) 2x Binder 8pin	

## Resolution

Family		mvDELTA	mvSIGMA	mvHYPERION			
Product		(Cinch)	BNC	SQe	CLb	CLm	CLf
Digitalization	Pixels H x V	768 x 576 (50 Hz)	768 x 576 (50 Hz)	768 x 576 (50 Hz)	-	-	-
		640 x 480 (60 Hz)	640 x 480 (60 Hz)	640 x 480 (60 Hz)			
Memory	Pixels H x	0..768 x	0..768 x	0..768 x	64K x	64K x	64K x

### Pixel clock

Family	mvDELTA		mvSIGMA	mvHYPERION			
Product	(Cinch)	BNC	SQe	CLb	CLm	CLf	
Frequency	with 50 Hz	17.7 MHz	17.7 MHz	17.7 MHz	-	-	-
	with 60 Hz	14.3 MHz	14.3 MHz	14.3 MHz	-	-	-
	External	-	-	-	CL clock: 85 MHz	CL clock: 85 MHz	CL clock: 85 MHz

### Digital ports

Family	mvDELTA		mvSIGMA	mvHYPERION			
Product	(Cinch)	BNC	SQe	CLb	CLm	CLf	
Inputs	Ext. pixel clock	-	-	-	1	2	2
	HD, VD	-	-	-	1	2	2
	Trigger	-	-	4	1	2	2
				= 1 DigIn trigger capable			
	Threshold programmable	-	-	yes	no	no	no

Outputs	General inputs	-	-	16	2	4	4
	TTL outputs	-	-	-	-	-	-
	Relay	-	-	-	-	-	-
	Highside drivers	-	-	8 (12V) or ext. VDD > 12V	-	-	-
	General outputs	-	-	8	1	2	2

### FPGA

Family	mvDELTA		mvSIGMA	mvHYPERION		
Product FPGA	(Cinch)	BNC	SQe	CLb	CLm	CLf
	-	-	-	yes	yes	yes

### Bus

Family	mvDELTA		mvSIGMA	mvHYPERION		
Product System	(Cinch)	BNC	SQe	CLb	CLm	CLf
Transfer	PCI Express x1	PCI Express x1	PCI Express x1	PCI Express x1	PCI Express x4	PCI Express x4
	up to 200 MB/s	up to 200 MB/s	up to 200 MB/s	up to 200 MB/s	up to 620 MB/s	up to 620 MB/s

## Output processing

Family		mvDELTA		mvSIGMA	mvHYPERION		
Product		(Cinch)	BNC	SQe	CLb	CLm	CLf
Scaling		only down-scaling 1:16	only down-scaling 1:16	only down-scaling 1:16	-	-	-
Filtering		2,3,4 or 5 tap vertical filter	2,3,4 or 5 tap vertical filter	2,3,4 or 5 tap vertical filter	-	-	-
Pixel formats	RGB	8 / 15/ 16 / 24 / 32 bit	8 / 15/ 16 / 24 / 32 bit	8 / 15/ 16 / 24 / 32 bit	24 / 30 / 32 bit	24 / 30 / 32 bit	24 / 30 / 32 bit
	YC	16 bit planar / packed	16 bit planar / packed	16 bit planar / packed	-	-	-
	Gray	8 bit	8 bit	8 bit	8 / 10 / 12 / 14 / 16 bit	8 / 10 / 12 / 14 / 16 bit	8 / 10 / 12 / 14 / 16 bit

## Video output

Family		mvDELTA		mvSIGMA	mvHYPERION		
Product		(Cinch)	BNC	SQe	CLb	CLm	CLf
Signal	RGB	-	-	-	-	-	-
	CVBS, YC	-	-	-	-	-	-

## Sync output

Family	mvDELTA		mvSIGMA	mvHYPERI ON		
Product Signal	(Cinch)	BNC	SQe	CLb	CLm	CLf
	-	-	-	-	-	-

### Camera power supply

Family	mvDELTA		mvSIGMA	mvHYPERI ON		
Product	(Cinch)	BNC	SQe	CLb	CLm	CLf
Via PCI-E 12V	-	-	700mA	700mA	700mA	700mA
Via 12V	-	-	1.5A	2A	2A	2A
additional power plug						

### Power requirements

Family	mvDELTA		mvSIGMA	mvHYPERI ON		
Product	(Cinch)	BNC	SQe	CLb	CLm	CLf
PCI-E 3.3V	0.15A	0.15A	0.15A	1A	1A	1A
12V	0.2A	0.2A	0.6A	0.05A	0.05A	0.05A

### Dimensions



Family	mvDELTA		mvSIGMA	mvHYPERION		
Product Board	(Cinch)	BNC	SQe	CLb	CLm	CLf
Length (mm)	123	123	170	147	155	155
Width (mm)	95	95	111	95	111.5	111.5

### Ambient conditions

Family	mvDELTA		mvSIGMA	mvHYPERION		
Product	(Cinch)	BNC	SQe	CLb	CLm	CLf
Permissible ambient temperature	0 .. 50 °C	0 .. 50 °C	0 .. 50 °C	0 .. 45 °C	0 .. 45 °C	0 .. 45 °C
Permissible storage temperature	-20 .. 70 °C	-20 .. 70 °C	-20 .. 70 °C	-20 .. 70 °C	-20 .. 70 °C	-20 .. 70 °C
Relative humidity	10-90%, no n-	10-90%, no n-	10-90%, no n-	10-90%, no n-	10-90%, no n-	10-90%, no n-
	condensing	condensing	condensing	condensing	condensing	condensing

### Software

Family	mvDELTA		mvSIGMA	mvHYPERION		
Product Drivers	(Cinch)	BNC	SQe	CLb	CLm	CLf
Windows®	XP / Vista / 7 (32 bit / 64 bit	XP / Vista / 7 (32 bit / 64 bit	XP / Vista / 7 (32 bit / 64 bit	XP / Vista / 7 (32 bit / 64 bit)	XP / Vista / 7 (32 bit / 64 bit)	XP / Vista / 7 (32 bit / 64 bit)

Linux®	yes	yes	yes	yes	yes	yes
Twain	yes	yes	yes	yes	yes	yes

All data refer to the current revision.

Area/Application	32R16	HD-SDI	CLx
<b>Industrial Image Processing</b>			
▶ 2D/3D measurement	■ ■ ■	■ ■ ■	■ ■ ■
▶ OCR, Pattern recognition	■ ■ ■	■ ■ ■	■ ■ ■
▶ control, robotics	■ ■ ■	■ ■ ■	■ ■ ■
▶ visualisation	■ ■ ■	■ ■ ■	■ ■ ■
▶ line camera applications	■ ■ ■	■ ■ ■	■ ■ ■
<b>Security</b>			
▶ object surveillance	■ ■ ■	■ ■ ■	■ ■ ■
▶ traffic surveillance	■ ■ ■	■ ■ ■	■ ■ ■
▶ compressed recording	■ ■ ■	■ ■ ■	■ ■ ■
▶ Video sensoric	■ ■ ■	■ ■ ■	■ ■ ■
<b>Microscopy/Diagnostic</b>			
▶ light microscopy	■ ■ ■	■ ■ ■	■ ■ ■
▶ laser scan systems	■ ■ ■	■ ■ ■	■ ■ ■
▶ electron microscopy	■ ■ ■	■ ■ ■	■ ■ ■
<b>Medicine</b>			
▶ visual dignostic	■ ■ ■	■ ■ ■	■ ■ ■
▶ laboratory systems	■ ■ ■	■ ■ ■	■ ■ ■
<b>Image Capture/Recording</b>			
▶ document line scanner	■ ■ ■	■ ■ ■	■ ■ ■
▶ high res area cameras	■ ■ ■	■ ■ ■	■ ■ ■
▶ broadcasting	■ ■ ■	■ ■ ■	■ ■ ■


■ ■ ■ optimum usage due to special features ■ ■ ■ very suitable ■ ■ ■ suitable

mvHYPERION - application areas

## Drivers and applications for Windows 7, 8.1 (mvIMPACT Acquire)

Since version 2.10.1 of mvIMPACT Acquire the "Merge Modules for mvIMPACT Acquire" are available as a separate download.

For this reason the installation packages are smaller now. The Merge Modules are needed for private setup routines, which shall include mvIMPACT Acquire drivers. More details are available in the [mvIMPACT Acquire manuals](#).

 [mvHYPERION x86 2.35.0.msi](#) | 47,412.0 kB

mvHYPERION 32 Bit Windows (7, 8.1, 10)

 [mvHYPERION x86\\_64 2.35.0.msi](#) | 64,712.0 kB

mvHYPERION-CLm/-CLf 64 Bit Windows (7, 8.1, 10)

 [mvIMPACT Acquire.history](#) | 875.3 kB

mvIMPACT Acquire History-Datei / mvIMPACT Acquire history file

## Older driver versions

To be able to watch or download the drivers, you have to be [registered](#) or [logged in](#).

Drivers and applications for Linux 2.6 - 3.x.x (mvIMPACT Acquire)

 [install mvHYPERION](#) | 34.2 kB


Linux Installer Skript für mvHYPERION devices / Linux installer script for mvHYPERION devices

 [mvHYPERION x86\\_ABI2 2.35.0.tgz](#) | 9,484.0 kB

mvHYPERION 32 Bit Linux

 [mvHYPERION x86\\_64\\_ABI2 2.35.0.tgz](#) | 11,789.2 kB

mvHYPERION 64 Bit Linux

 [mvIMPACT Acquire.history](#) | 875.3 kB

mvIMPACT Acquire History-Datei / mvIMPACT Acquire history file

## Older driver versions

To be able to watch or download the drivers, you have to be [registered](#) or [logged in](#).

Additional packages for LabVIEW, DirectShow, VisionPro and Halcon

Since version 1.10.69, the **DirectShow®** driver is part of the mvIMPACT Acquire installation package.

Since version 1.10.85, an interface to **VisionPro®** (Cognex) will be installed automatically when installing an MSI based mvIMPACT Acquire driver package.

mvIMPACT Acquire bindings for **HALCON** are available on MVTec's website:  
<http://www.halcon.de/download/>

 [LabVIEW acquire-x86-1.6.8](#) | 9,028.0 kB

32 Bit mvIMPACT Acquire Binding für LabVIEW ab Version 6.1 / 32 Bit mvIMPACT Acquire binding for LabVIEW 6.1 or greater

 [LabVIEW acquire-x86 64-1.6.8](#) | 10,980.0 kB

64 Bit mvIMPACT Acquire Binding für LabVIEW ab Version 6.1 / 64 Bit mvIMPACT Acquire binding for LabVIEW 6.1 or greater

 [LabVIEW acquire.history](#) | 7.2 kB

32 Bit LabView Binding History-Datei / 32 Bit LabView binding history file

Firmware

The firmware can only be used with mvHYPERION-CLx CameraLink frame grabbers!

 [Firmware mvHYPERION-CLb/-CLm/-CLf v.85](#) | 862.7 kB

Firmware mvHYPERION-CLb/-CLm/-CLf v.85

Bug fix: Corrected sporadic horizontal image shift in Linescan Medium Mode.

 [Firmware mvHYPERION-CLb/-CLm/-CLf v.84](#) | 865.3 kB

Firmware mvHYPERION-CLb/-CLm/-CLf v.84

Bug fix: Corrected Frame-Start trigger mode for area scan cameras.

 [Firmware mvHYPERION-CLb/-CLm/-CLf v.83](#) | 856.5 kB

Firmware mvHYPERION-CLb/-CLm/-CLf v.83

Bug fix: Fixed overtriggering problem of the input in combination with a special linescan mode (FrameStart-Trigger=>FrameValid/RisingEdge, FrameStop-Trigger=>FrameValid/FallingEdge); Optimized automatic compensation of a phase error between Base, Medium, and Full channel.

 [Firmware mvHYPERION-CLb/-CLm/-CLf v.82](#) | 868.8 kB

Firmware mvHYPERION-CLb/-CLm/-CLf v.82

Bug fix: Horizontal jitter in linescan trigger mode fixed; HRTC starting problem fixed

 [Firmware mvHYPERION-CLb/-CLm/-CLf v.79](#) | 859.4 kB

Firmware mvHYPERION-CLb/-CLm/-CLf v.79

Bug fix: Line scan acquisition with TriggerControl-FrameStop fixed

 [Firmware mvHYPERION-CLb/-CLm/-CLf v.78](#) | 849.0 kB

Firmware mvHYPERION-CLb/-CLm/-CLf v.78

New feature: ExpandLineValid feature implemented

 [Firmware mvHYPERION-CLb/-CLm/-CLf v.77](#) | 847.1 kB

Firmware mvHYPERION-CLb/-CLm/-CLf v.77

Bug fix: "Raw Line Acquisition Mode" is working again

 [Firmware mvHYPERION-CLb/-CLm/-CLf v.76](#) | 843.2 kB

Firmware mvHYPERION-CLb/-CLm/-CLf v.76

Bug fix: Removed sporadic horizontal offset (linescan mode)

 [Firmware mvHYPERION-CLb/-CLm/-CLf v.74](#) | 865.3 kB

Firmware mvHYPERION-CLb/-CLm/-CLf v.74

Bug fix: Loss of first line after "Request" (linescan cameras)

 [Firmware mvHYPERION-CLb/-CLm/-CLf v.72](#) | 847.2 kB

Firmware mvHYPERION-CLb/-CLm/-CLf v.72

Manuals



 [mvHYPERION technical manual \(html\)](#)

mvHYPERION Technisches Handbuch / Technical Manual

 [mvHYPERION technical manual \(chm\)](#) | 2,840.7 kB

mvHYPERION Technisches Handbuch / Technical Manual


[Hinweis](#) / [Note](#)

 [mvHYPERION technical manual \(pdf\)](#) | 2,526.5 kB

mvHYPERION Technisches Handbuch / Technical Manual

 [mvIMPACT Acquire API C++](#) | 9,516.5 kB

mvIMPACT Acquire API C++ Handbuch / Manual


 [mvIMPACT Acquire API C](#) | 3,582.2 kB

mvIMPACT Acquire API C Handbuch / Manual

 [mvIMPACT Acquire API.NET](#) | 6,812.8 kB

mvIMPACT Acquire API .NET Handbuch / Manual

Datasheets

 [mvHYPERION-Series e 2016-07 MR](#) | 4,661.5 kB

Datenblatt / Datasheet mvHYPERION

Subject to change without notice, Date 10/2011

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