

Digital PCI Express® x4 CameraLink frame grabber - mvHYPERION-CLm



- Digital PCI Express® x4 frame grabber
- Different interfaces for CameraLink cameras
- Trigger and flash control for cameras on-board
- mvHYPERION-CLm/Cell for Cell/B.E. systems

The mvHYPERION-CLf is a frame grabber for CameraLink cameras. Due to PCI Express® x4 the mvHYPERION-CLf offers a continuous capture bandwidth of 620 MB/s. The frame grabber allows operation of one camera with FULL or MEDIUM interface; the model mvHYPERION-CLm two cameras with BASE interface or one MEDIUM camera.

/* */

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

| | |
|---------------------------------|--------------------|
| Product | mvHYPERION-CLm |
| PCI Express® | x4 |
| Interfaces | 2x BASE, 1x MEDIUM |
| Continuous data rate | Approx. 620 MB/s |
| Payload size | Up to 256 Bytes |
| Max. CL data clock | 85 MHz |
| Digital In/Out | 2x 2/1 |
| Permissible ambient temperature | 0 bis 45 °C |
| Permissible storage temperature | -20 bis 70 °C |
| Supported standards | |



- 2-channel multistandard CameraLink frame grabber with PCI Express® (x4 Lane PCI-E)
- Parallel acquisition of two different asynchronous BASE sources possible
- Trigger/sync input opto-isolated, 5..24 V
- Switchable input threshold of trigger and sync inputs between 2 V (TTL) and 12 V (PLC)
- Bus master DMA controller
- 2 MiniCL connectors
- 2 connectors for trigger + sync input, flash outputs and 12 V camera power
- Flash outputs opto-isolated, max. 30 V
- Retriggerable (asynchronous resettable)
- Intelligent creation of four camera control signals and strobe output

- Serial interface (LVDS level) per channel
- Diverse data storage formats

- per channel with independent video timing generators
- E2PROM
- Power over CameraLink (PoCL)
- Supported CL spec.: 1.2

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, NTSC, SECAM | yes | yes | yes | - | - | - | - |
| Low pass filter (analog) switchable | - | - | - | - | - | - | - |
| Restart / Reset | - | - | - | yes | yes | yes | yes |
| Sensor geometry | Area | ja | yes | yes | yes | yes | yes |
| Termination | Line Ohm / switchable | - 75 / no | - 75 / no | - 75 / no optional: yes | yes 100 / no | yes 100 / no | yes 100 / no |
| Coupling / Level | AC | AC | AC | Digital differential / LVDS | 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 + 4 x BNC 1 x Mini-DIN4 | | 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) | | | |
| Memory | Pixels H x V | 0..768 x 0..576 (50 Hz) 0..640 x 0.480 (60 Hz) | 0..768 x 0..576 (50 Hz) 0..640 x 0.480 (60 Hz) | 0..768 x 0..576 (50 Hz) 0..640 x 0.480 (60 Hz) | 64K x unlimited | 64K x unlimited | 64K x unlimited |

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 |
| | PCI Express | PCI Express | PCI Express | PCI Express | PCI Express | PCI Express |
| | x1 | x1 | x1 | x1 | x4 | x4 |
| Transfer | 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 | mvHYPERI | | | |
|-----------------|------|--------------------------------|--------------------------------|--------------------------------|---------------------------|---------------------------|---------------------------|
| | | (Cinch) | BNC | SQe | CLb | CLm | CLf |
| Product Scaling | | only down-scaling | only down-scaling | only down-scaling | - | - | - |
| | | 1:16 | 1:16 | 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 | mvHYPERI | | | |
|----------------|----------|---------|---------|----------|-----|-----|-----|
| | | (Cinch) | BNC | SQe | CLb | CLm | CLf |
| Product 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 additional power plug | - | - | 1.5A | 2A | 2A | 2A |

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 | mvHYPERI ON | | |
|---------------|--|---------|-----|---------|----------------|-------|-------|
| 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 | mvHYPERI ON | | |
|---------------------------------|--|---------------|---------------|---------------|----------------|---------------|---------------|
| 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 | mvHYPERI ON | | |
|-----------------|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Product Drivers | | (Cinch) | BNC | SQe | CLb | CLm | CLf |
| Windows® | | XP / Vista / 7 (32 bit / | XP / Vista / 7 (32 bit / | XP / Vista / 7 (32 bit / | XP / Vista / 7 (32 bit / | XP / Vista / 7 (32 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 |
|------------------------------------|-------|--------|-------|
| Industrial Image Processing | | | |
| ▶ 2D/3D measurement | ■ ■ ■ | ■ ■ ■ | ■ ■ ■ |
| ▶ OCR, Pattern recognition | ■ ■ ■ | ■ ■ ■ | ■ ■ ■ |
| ▶ control, robotics | ■ ■ ■ | ■ ■ ■ | ■ ■ ■ |
| ▶ visualisation | ■ ■ ■ | ■ ■ ■ | ■ ■ ■ |
| ▶ line camera applications | ■ ■ ■ | ■ ■ ■ | ■ ■ ■ |
| Security | | | |
| ▶ object surveillance | ■ ■ ■ | ■ ■ ■ | ■ ■ ■ |
| ▶ traffic surveillance | ■ ■ ■ | ■ ■ ■ | ■ ■ ■ |
| ▶ compressed recording | ■ ■ ■ | ■ ■ ■ | ■ ■ ■ |
| ▶ Video sensoric | ■ ■ ■ | ■ ■ ■ | ■ ■ ■ |
| Microscopy/Diagnostic | | | |
| ▶ light microscopy | ■ ■ ■ | ■ ■ ■ | ■ ■ ■ |
| ▶ laser scan systems | ■ ■ ■ | ■ ■ ■ | ■ ■ ■ |
| ▶ electron microscopy | ■ ■ ■ | ■ ■ ■ | ■ ■ ■ |
| Medicine | | | |
| ▶ visual dignostic | ■ ■ ■ | ■ ■ ■ | ■ ■ ■ |
| ▶ laboratory systems | ■ ■ ■ | ■ ■ ■ | ■ ■ ■ |
| Image Capture/Recording | | | |
| ▶ document line scanner | ■ ■ ■ | ■ ■ ■ | ■ ■ ■ |
| ▶ high res area cameras | ■ ■ ■ | ■ ■ ■ | ■ ■ ■ |
| ▶ broadcasting | ■ ■ ■ | ■ ■ ■ | ■ ■ ■ |

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 \(chm\)](#) | 2,840.8 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++](#) | 9,515.2 kB

mvIMPACT Acquire API C++ Handbuch / Manual


 [mvIMPACT Acquire API C](#) | 3,582.3 kB

mvIMPACT Acquire API C Handbuch / Manual

 [mvIMPACT Acquire API.NET](#) | 6,813.3 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

/* */