

## mvTITAN-G1

### Discontinued



- Universal gray scale frame grabber
- Precise acquisition with up to 10 bits and 40 MHz
- Acquisition of non-interlaced, high resolution, and restart cameras
- Flexible camera control and synchronization

This gray scale frame grabber is equipped with an excellent front end and a local processor for acquisition control and image pre-processing. It allows the acquisition of analog signals from a broad range of image sources.

/\* \*/

- Hardware
- Software
- Comparison mvTITAN / mvGAMMA
- Application areas
- Downloads

- Direct image transfer with color space conversion to display and overlay buffer
- Local pixel depth max. 10 bit
- Permissible ambient temperature 0..45 °C
- Simultaneous display and capturing in independent pixel formats
- E2PROM usable for user data

## Image processor

- Image processor PNX1300 with 3.9 GOPS
- Real-time color space conversion of Bayer mosaic color data to RGB without host CPU load
- Local memory 8 MB, opt. 32 MB for code, programm and image data
- Drivers for Windows® and Linux®
- Free [mvIMPACT Base](#) image processing library

## Signal input

Family	mvTITAN							mvGAMMA		
Product	C16/C8	2C16	G1	RGB/G3RGB/G4DIG			CL	G	CL	
Inputs	CVBS	16 / 8	16	-	-	8	-	-	-	-
	YC	8 / 4	8	-	-	4	-	-	-	-
S	Gray/VB16 / 8	16	4	2x3	2x4	-	-	4	-	
	RGB	4 / 2	4	-	2	2	-	-	-	-
	Digital	-	-	-	-	-	1	2	-	1
Parallel acquisition inputs	Number	1	2	1	3	4	1	1	1	1
	RGB/multispectral	1	2	-	1	1	-	1	-	1
	Synchronous / asynchronous	-/-	yes/yes	-/-	pixel-synch./-	pixel-synch./-	-/-	-/-	-/-	-/-
Bits depth (max.)		9 bit	9 bit	10 bit	10 bit	10 bit	16 bit	48 bit	10 bit	24 bit
Standards	CCIR-601, RS-170	yes	yes	yes	yes	yes	-	-	yes	-
	Variable / slow scan	-	-	yes	yes	yes	yes	yes	yes	yes
	PAL, NTSC, SECAM	yes	yes	-	-	yes	-	-	-	-
Low pass filter		1x	1x	1x	1x	1x	-	-	4x	-

(analog)

switchable

le

Restart / Reset - - yes yes yes yes yes yes yes

Sensor geometry yes yes yes yes yes yes yes yes yes yes

Line - - yes yes yes yes yes yes yes

Resolution Pixel H x V 720 x 576 720 x 576 4K x unlimited 4K x unlimited 4K x unlimited limited by max. memory 64K x unlimited 2K x unlimited 64K x unlimited

Termination Ohm / switchable 75 / yes 75 / yes 75 / yes 75 / yes 75 / yes 100 / yes 100 / yes 75 / yes 100 / yes

Coupling / Level AC AC AC / DC switch. AC / DC switch. Digital differential / RS-644 Digital differential / LVDS AC Digital differential / LVDS

Offset - - +/- 1 V +/- 1 V +/- 1 V - - +/- 0.3 V -

Analog Gain Manual AGC -3dB .. +6dB / ja -3dB .. +6dB / yes -6dB .. +8dB / no -6dB .. +8dB / no -6dB .. +8dB / no - - -2.5dB .. +12dB / no

Plug connector 2x D-Sub 26 2x D-Sub 26 1x D-Sub 26 a. 1x D-Sub 15 2x D-Sub 26 2x D-Sub 26 1x MD68 (AIA) / SCSI II 2x MDR26 (2x BASE or Hirose MED.) 1x Binder 8p 1x D-Sub 26 a. 1x (EIAJ) 1x Binder 8p 2x MDR26 (1x BASE) 1x Binder 8p

Pixel clock

Family mvTITAN

mvGAMMA

Product	C16/C8	2C16	G1	RGB/G3	RGB/G4	DIG	CL	G	CL
Frequency	Internal 13.5 MHz	13.5 MHz	0.01 .. 40 MHz	0.01 .. 40 MHz	0.01 .. 40 MHz	-	-	0.01 .. 28 MHz	-
	External -	-	0.01 .. 40 MHz	0.01 .. 40 MHz	0.01 .. 40 MHz	max. 80 MHz	max. 66 MHz	10 .. 28 MHz	max. 66 MHz
Clock delay programmable	-	-	yes	yes	yes	-	-	-	-
PLL	Analog yes	yes	12 .. 40 MHz, 1ns Jitter	12 .. 40 MHz, 1ns Jitter	12 .. 40 MHz, 1ns Jitter	-	-	-	-
	Digital -	-	0 .. 40 MHz, < 12ns Jitter	0 .. 40 MHz, < 12ns Jitter	0 .. 40 MHz, < 12ns Jitter	-	-	0 .. 28 MHz, < 12ns Jitter	-

## Digital ports

Family	mvTITAN						mvGAMMA			
Product	C16/C8	2C16	G1	RGB/G3	RGB/G4	DIG	CL	G	CL	
Inputs	Ext. pixel clock	-	-	1	2	2	1	2	1	1
	HD, VD	-	-	1	2	2	1	2	1	1
	Trigger	-	-	1	2	2	1	1	1	1
	Threshold programmable	-	-	yes	-	yes	-	-	-	-
	General inputs	16 / 8	16	1	2	2	3	1	1	1
Outputs	General outputs	-	-	3	6	6	3	2x4	3	4
	Relay	8 / 4	8	-	-	-	-	-	-	-

## Image processing processor

Family	mvTITAN						mvGAMMA		
Product Name	C16/C8	2C16	G1	RGB/G3RGB/G4DIG			CL	G	CL
	PNX	2x PNX	PNX	PNX	PNX	PNX	PNX	PNX	PNX
Clock	1300	1311	1300	1300	1300	1300	1311	1311	1300
	143	2x 166	143	143	143	143	166	166	143
Type	-	-	-	-	-	-	-	-	-
Performance (max.)	3.9	2x 4.5	3.9	3.9	3.9	3.9	4.5	4.5	3.9
	MIPS	715	2x 830	715	715	715	830	830	715
	MFLOPS	458	2x 531	458	458	458	531	531	458

## Local Memory

Family	mvTITAN						mvGAMMA		
Product	C16/C8	2C16	G1	RGB/G3RGB/G4DIG			CL	G	CL
SDRAM	16 MB	2x 8 MB	8 / 32 MB	16 MB	16 / 32 MB	8 / 32 MB	8 / 32 MB	8 MB	8 MB
Transfer rate	572	2x 533	572	572	572	572	533	533	572
	MB/s	MB/s	MB/s	MB/s	MB/s	MB/s	MB/s	MB/s	MB/s

## Bus

Family	mvTITA N						mvGAM MA		
Product	C16/C8	2C16	G1	RGB/G3	RGB/G4	DIG	CL	G	CL
System	PCI 32 bit / 33 MHz	PCI 32 bit / 33 MHz	PCI 32 bit / 33 MHz	PCI 32 bit / 33 MHz	PCI 32 bit / 33 MHz	PCI 32 bit / 33 MHz	PCI 32 bit / 33 MHz	PCI 32 bit / 33 MHz	PCI 32 bit / 33 MHz
Signal level	rev. 2.1 3.3V or 5V	rev. 2.1 3.3V or 5V	rev. 2.1 3.3V or 5V	rev. 2.1 3.3V or 5V	rev. 2.1 3.3V or 5V	rev. 2.1 3.3V or 5V	rev. 2.1 3.3V or 5V	rev. 2.1 3.3V or 5V	rev. 2.1 3.3V or 5V
Transfer	DMA, 0-wait bursts, 132 MB/s max.	DMA, 0-wait bursts, 132 MB/s max.	DMA, 0-wait bursts, 132 MB/s max.	DMA, 0-wait bursts, 132 MB/s max.	DMA, 0-wait bursts, 132 MB/s max.	DMA, 0-wait bursts, 132 MB/s max.	DMA, 0-wait bursts, 132 MB/s max.	DMA, 0-wait bursts, 132 MB/s max.	DMA, 0-wait bursts, 132 MB/s max.
CPCI version	on request	on request	on request	on request	on request	on request	on request	on request	on request

### Input processing

Family	mvTITA N						mvGAM MA		
Product	C16/C8	2C16	G1	RGB/G3	RGB/G4	DIG	CL	G	CL
Input LUT	Hardware (bit)	-	-	10 → 8	10 → 8	-	10 → 8	10 → 8	10 → 8
	Software (bit)	-	10 → 8 / - 10 → 16	-	16 → 8 / - 16 → 16	-	10 → 16	-	-

### Output processing

Family	mvTITAN							mvGAMMA	
Product	C16/C8	2C16	G1	RGB/G3RGB/G4DIG			CL	G	CL
Scaling	separate HW unit, no load on VLIW / CPU	yes	yes	yes	yes	yes	yes	yes	yes
Filtering	separate HW unit, no load on VLIW / CPU	yes	yes	yes	yes	yes	yes	yes	yes
Interpolation	separate HW unit, no load on VLIW / CPU	yes	yes	yes	yes	yes	yes	yes	yes
Color space conversion	separate HW unit, no load on VLIW / CPU	yes	yes	yes	yes	yes	yes	yes	yes
Display	separate HW unit, no load on VLIW / CPU	yes	yes	yes	yes	yes	yes	yes	yes
Pixel formats	RGB (8 / 15 / 16 / 24 / 32 bit) YC (4:2:2, any other formats in SW)	yes	yes	yes	yes	yes	yes	yes	yes



## Video output

Family	mvTITA						mvGAM		
	N						MA		
Product	C16/C8	2C16	G1	RGB/G3RGB/G4DIG			CL	G	CL
Signal	RGB	-	-	yes	-	-	-	-	-
	VBS	yes	-	yes	-	-	-	-	-
	CVBS, YC; PAL, NTSC	yes	-	-	-	-	-	-	-
Clock	13.5 MHz	-	max. 40 MHz	-	-	max. 40 MHz	-	-	-
Synchro nization	Internal	yes	-	yes	-	-	-	-	-
	Genlock on video input	-	-	-	-	-	-	-	-
Plug con nector	D-Sub 26 / int.	-	D-Sub 15 VGA	-	-	-	-	-	-

## Sync output

Family	mvTITA						mvGAM		
	N						MA		
Product	C16/C8	2C16	G1	RGB/G3RGB/G4DIG			CL	G	CL
Signal	HS, VS as TTL signal	-	-	yes	yes	yes	yes	-	yes
	CSYNC, via VBS	video	-	via video	-	-	-	-	-

output

Camera power supply

Family	mvTITA N						mvGAM MA			
Product	C16/C8	2C16	G1	RGB/G3	RGB/G4	DIG	CL	G	CL	
Via PCI 12V	max. 0.75A, fused	max. 0.75A, fused	max. 0.75A, fused	max. 0.75A, fused	max. 0.75A, fused	max. 0.75A, fused	-	max. 0.75A, on Binder 8p Bu.	max. 0.75A, fused	max. 0.75A, on Binder 8p Bu.
Via addi 12V tional power plug	-	-	max. 2A, fused	max. 2A, fused	max. 2A, fused	-	max. 2A, on Binder 8p Bu.	max. 2A, fused	max. 2A, on Binder 8p Bu.	

Power requirements

Family	mvTITA N						mvGAM MA		
Product	C16/C8	2C16	G1	RGB/G3	RGB/G4	DIG	CL	G	CL
PCI 5V	max. 2.2A	max. 3A	max. 1.5A	max. 1.5A	max. 1.5A	max. 1.5A	max. 1.5A	max. 1.5A	max. 1.5A
+ 12V (without camera)	max. 0.1A	max. 0.2A	max. 0.2A	max. 0.5A	max. 0.5A	-	-	-	-
- 12V	-	-	max. 0.1A	max. 0.1A	max. 0.1A	-	-	-	-

## Dimensions

Family		mvTITA						mvGAM		
		N						MA		
Product		C16/C8	2C16	G1	RGB/G3RGB/G4DIG		CL	G	CL	
Board	Length (mm)	128	186	171	171	171	128	147	123	147
	Height (mm)	106	106	106	106	106	106	95	75	95

## Ambient conditions

Family		mvTITA						mvGAM		
		N						MA		
Product		C16/C8	2C16	G1	RGB/G3RGB/G4DIG		CL	G	CL	
Permissible ambient temperature	Permissible	0 .. 45 °C	0 .. 50 °C	0 .. 45 °C	0 .. 40 °C	0 .. 40 °C	0 .. 45 °C	0 .. 50 °C	0 .. 50 °C	0 .. 45 °C
	storage temperature	-20 .. 70 °C	-20 .. 70 °C	-20 .. 70 °C	-20 .. 70 °C	-20 .. 70 °C	-20 .. 70 °C	-20 .. 70 °C	-20 .. 70 °C	-20 .. 70 °C
Relative humidity		10-90%, non-condensing	10-90%, non-condensing	10-90%, non-condensing	10-90%, non-condensing	10-90%, non-condensing	10-90%, non-condensing	10-90%, non-condensing	10-90%, non-condensing	10-90%, non-condensing

## Software

Family	mvTITAN						mvGAMMA		
Product	C16/C8	2C16	G1	RGB/G3	RGB/G4	DIG	CL	G	CL
Drivers	Window s®	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)	XP / Vista / 7 (32 bit)	XP / Vista / 7 (32 bit)
	Linux®	yes	yes	yes	yes	yes	yes	yes	yes
	Twain	yes	yes	yes	yes	yes	yes	yes	yes
Develop ment tools for host	Compile rs (Visual Studio® , C++ B uilder®, Delphi ™, Visual Basic®) Libraries (MV driver, acquire, display, camera controls)	yes	yes	yes	yes	yes	yes	yes	yes
IP functi ons	Compressi on (M- JPEG, run length, others planned) Filters Pixel op erations (accumu lation, a veraging , other ar ithmetic	yes	yes	yes	yes	yes	yes	yes	yes
		div.	div.	div.	div.	div.	div.	div.	div.
		yes	yes	yes	yes	yes	yes	yes	yes

al)									
Image o peration s (scaling, rotating, mirrorin g, histog ram)	yes	yes	yes	yes	yes	yes	yes	yes	yes
Develop ment tools for IP	Compile rs	C, C++	C, C++	C, C++	C, C++	C, C++	C, C++	C, C++	C, C++
Libraries (compon ents, base fun ctions)	yes	yes	yes	yes	yes	yes	yes	yes	yes

All data refer to the current revision.

Area/Application	C16/2C16	G1	RGB/G3	DIG	CL
RGB/G4					
<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/ Archiving</b>					
▶ Document line scanner	□□□	■□□	■□□	■□□	■□□
▶ High res area cameras	□□□	■□□	■□□	■□□	■□□

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

mvTITAN 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](#).

 [mvTITAN\\_mvGAMMA x86 2.35.0.msi](#) | 46,368.0 kB

mvTITAN / mvGAMMA 32 Bit Windows (7, 8.1, 10)

 [mvTITAN\\_mvGAMMA\\_x86\\_64\\_2.35.0.msi](#) | 64,356.0 kB

mvTITAN / mvGAMMA 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](#).


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


mvSDK for Windows (deprecated)

Release versions are extensively tested on several platforms, components and operating systems. You should prefer to use the Release versions. MATRIX VISION transfers Beta versions to Release versions regularly.

Beta driver versions are functionally complete and tested on selected platforms. We publish them in




order to allow expert users the use of the newest products with the latest features. Due to the multitude of possible combinations of components and operating systems, the user acts at his or her own risk.

 [beta mvTITAN 1.5.32.9](#) | 3,141.2 kB

mvTITAN / mvGAMMA 32 Bit **Beta** Windows (XP, Vista, 7)

Gerätetreiber (**nicht** mvIMPACT Acquire) / device driver (**not** mvIMPACT Acquire)

 [mvTITAN 1.5.27.98](#) | 3,135.0 kB

mvTITAN / mvGAMMA 32 Bit **Release** Windows (XP, Vista, 7)

Gerätetreiber (**nicht** mvIMPACT Acquire) / device driver (**not** mvIMPACT Acquire)


mvSDK for Linux (deprecated)

Release versions are extensively tested on several platforms, components and operating systems. You should prefer to use the Release versions. MATRIX VISION transfers Beta versions to Release versions regularly.

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 [README](#) | 5.3 kB

Readme-Datei mit Installationshinweisen des Gerätetreibers (nicht mvIMPACT Acquire) / Readme file with installation guide for device driver (not mvIMPACT Acquire)

 [beta dist\\_titan-1.5.32.9-4](#) | 4,377.5 kB

mvTITAN / mvGAMMA 32 Bit **Beta** Linux

Gerätetreiber (**nicht** mvIMPACT Acquire) / device driver (**not** mvIMPACT Acquire)

 [dist\\_titan-1.5.27.78-2](#) | 4,264.0 kB

mvTITAN / mvGAMMA 32 Bit **Release** Linux

Gerätetreiber (**nicht** mvIMPACT Acquire) / device driver (**not** mvIMPACT Acquire)

Application Notes

 [PULNIX PE100 + mvTITAN-G1](#) | 256.3 kB

PULNIX PE100 mit/with mvTITAN-G1

 [Sentech STC1000 + mvTITAN-G1](#) | 255.7 kB

Sentech STC1000 mit/with mvTITAN-G1

 [Sony XC HR50 + mvTITAN-G1](#) | 203.0 kB

Sony XC HR50 mit/with mvTITAN-G1

 [Sony XC HR70 + mvTITAN-G1](#) | 257.5 kB

Sony XC HR70 mit/with mvTITAN-G1

 [V20 + mvTITAN-G1](#) | 254.4 kB

V20 mit/with mvTITAN-G1

Manuals

 [mvTITAN / mvGAMMA technical manual](#) | 2,282.6 kB

mvTITAN / mvGAMMA Technisches Handbuch / Technical Manual


[Hinweis / Note](#)

 [mvTITAN/mvGAMMA technical manual \(html\)](#)

mvTITAN/mvGAMMA Technisches Handbuch / Technical Manual

 [mvIMPACT Acquire API C++](#) | 9,482.1 kB

mvIMPACT Acquire API C++ Handbuch / Manual

 [mvIMPACT Acquire API C](#) | 3,547.5 kB

mvIMPACT Acquire API C Handbuch / Manual


 [mvIMPACT Acquire API .NET](#) | 6,816.9 kB

mvIMPACT Acquire API .NET Handbuch / Manual

## Datasheets

 [mvGAMMA-CL e 2007-05](#) | 245.1 kB

Datenblatt / Datasheet mvGAMMA-CL

 [mvGAMMA-G e 2006-09](#) | 247.1 kB

Datenblatt / Datasheet mvGAMMA-G

 [mvTITAN-CL e 2006-09 MR](#) | 219.8 kB

Datenblatt / Datasheet mvTITAN-CL

 [mvTITAN-Series e 2007-05 MR](#) | 227.9 kB

Datenblatt / Datasheet mvTITAN-Series

Subject to change without notice, Date 06/2005