Toshiba Teli's proud

USB3 Machine Vision Camera
BU / DU / DDU Series

USB3 VISION

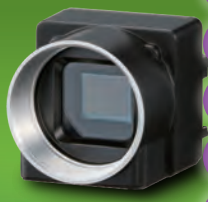
High reliablility & resolution

- 6.5 MP — DU657M Series — Teli Original
- 12.3 MP — DU1207M Series — Sony IMX253 — Pregius

Dual USB3 models

- 12.3 MP — DDU1207M Series — Sony IMX253 — Pregius
- 16 MP — DDU1607M Series — OnSemi XGS 16000
- COMING SOON — 26.2 MP — DDU2607M Series — Gpixel GMAX0505

Small & Low resolution



- 0.4 MP — BU040M Series — Sony IMX287 — Pregius
- 1.3 MP — BU132M — e2v EV76C560
- 1.6 MP — BU160M Series — Sony IMX273 — Pregius
- 2 MP — BU205M — CMOSIS CMV2000
- 2.3 MP — BU238M Series — Sony IMX174 — Pregius

Small & Middle resolution

- 3.1 MP — BU302M Series — Sony IMX252 — Pregius
- 4 MP — BU406M Series — CMOSIS CMV4000
- NEW — 5 MP — BU502M Series — Sony IMX547 — Pregius S
- BU505M Series — Sony IMX250 — Pregius
- NEW — 8 MP — BU805M Series — Sony IMX546 — Pregius S

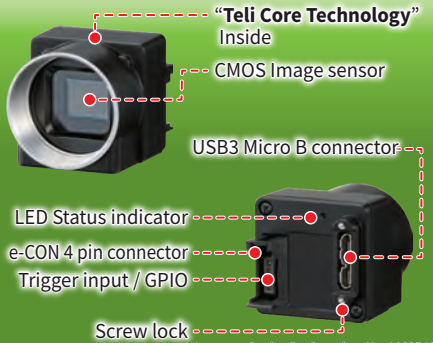
Small & High resolution

- 12.3 MP — BU1207M Series — Sony IMX253 — Pregius
- COMING SOON — 12.3 MP — BU1208M Series — Sony IMX545 — Pregius S
- 24.5 MP — BU2409M Series — Sony IMX540 — Pregius S

Rolling shutter models

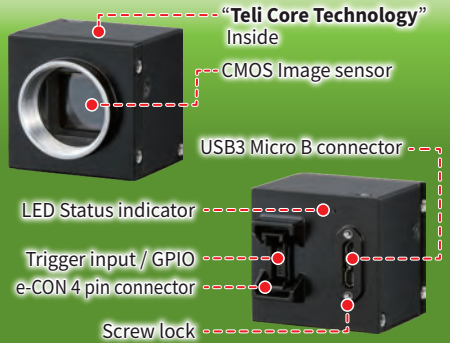
- 6.2 MP — BU602M Series — Sony IMX178 — STARVIS
- 12 MP — BU1203M Series — Sony IMX226 — STARVIS
- NEW — 20 MP — BU2006M Series — Sony IMX183

BU Series — USB 5Gbps

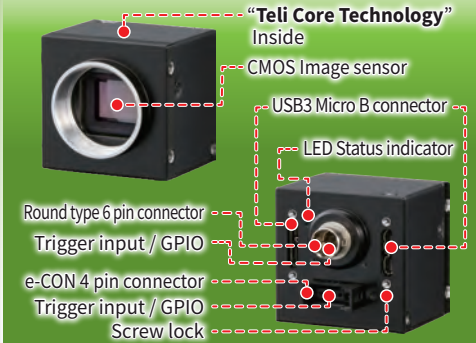


Japanese Design Registration: No. 1462541

DU Series — USB 5Gbps



DDU Series — USB 5Gbps x 2ch Dual USB3



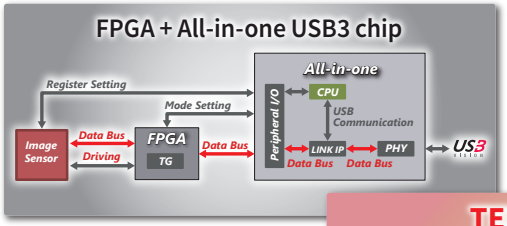
Toshiba Teli Corporation

https://www.toshiba-teli.co.jp/en/

Toshiba Teli USB3 Camera BU Series

Featuring Teli original IP “Teli Core Technology”

- Achieved high integration with Teli’s original technology.
- Shorten the response time !

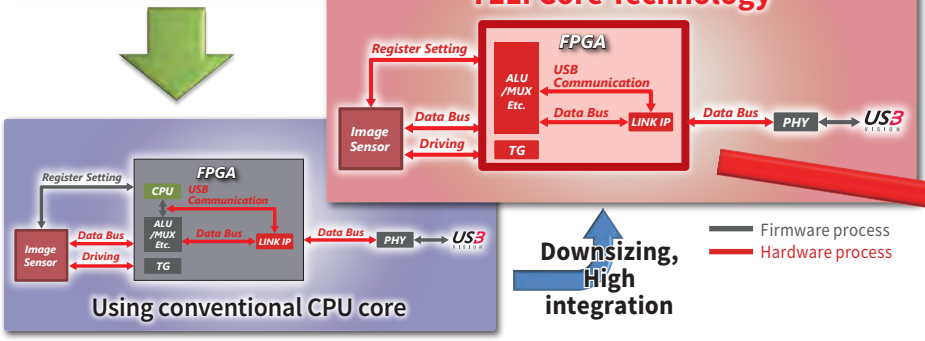


Downsizing, High integration

Teli Core Technology

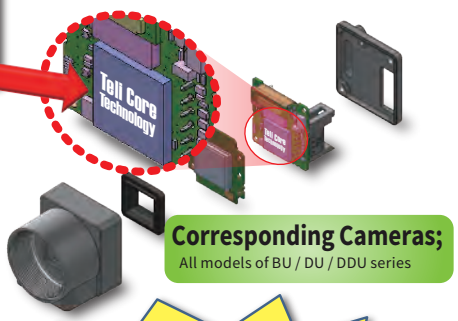
All hardware processing with **no CPU and no Firmware !**

Downsizing and super high speed response by high integration



Downsizing, High integration

Firmware process
Hardware process



Corresponding Cameras;
All models of BU / DU / DDU series

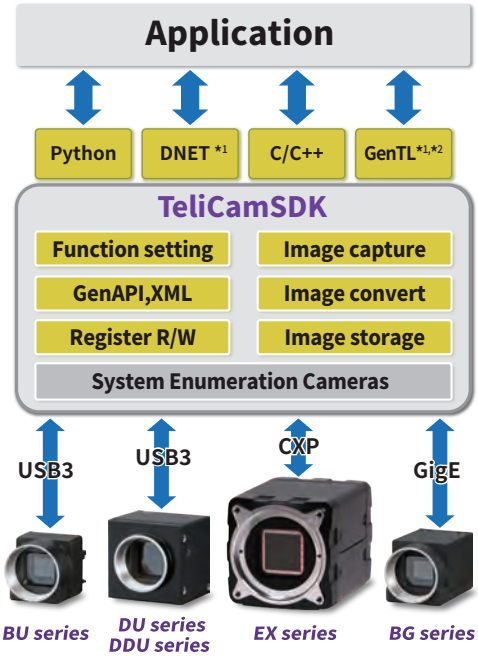
Access response (Average) PC (Board) side host controller : Intel / Renesas

Command	Teli Core Technology	Geniric USB IP	All-in-one USB chip
	100 times faster / 10 times faster		
Read register	2.2 / 5 µs	40.8 / 44.6 µs	223 / 546 µs
Software trigger (write register)	2.2 / 5.4 µs	46.9 / 71.0 µs	314 / 324 µs

Overwhelming high speed processing !

* Comparison value of read register access response with 'All-in-one USB chip' built-in model.

TeliCamSDK



- Easy to capture image
- GEN<i>CAM available
- Varieties of functions for easy programming
- Abundant sample code
- Easy to understand manuals
- Unified SDK for USB3, GigE & CXP
- Python library “pytelicam” *3
- ImageJ plug-in “TeliPlugin” *4

Package composition of TeliCamSDK

Driver	Library
Sample code	Viewer
Setting tools	Instruction manual

* TeliCamSDK contains the components necessary for application development.

OS / Distribution *5	Windows		Linux			
			Intel / AMD			ARM
			Ubuntu			
	10	11	18.04 LTS amd64	20.04 LTS amd64	22.04 LTS amd64	
Support	✓	✓	✓	✓	✓	✓

● TeliCamSDK for Linux supported ARM architectures. - Jetson nano / Raspberry pi 4 *6

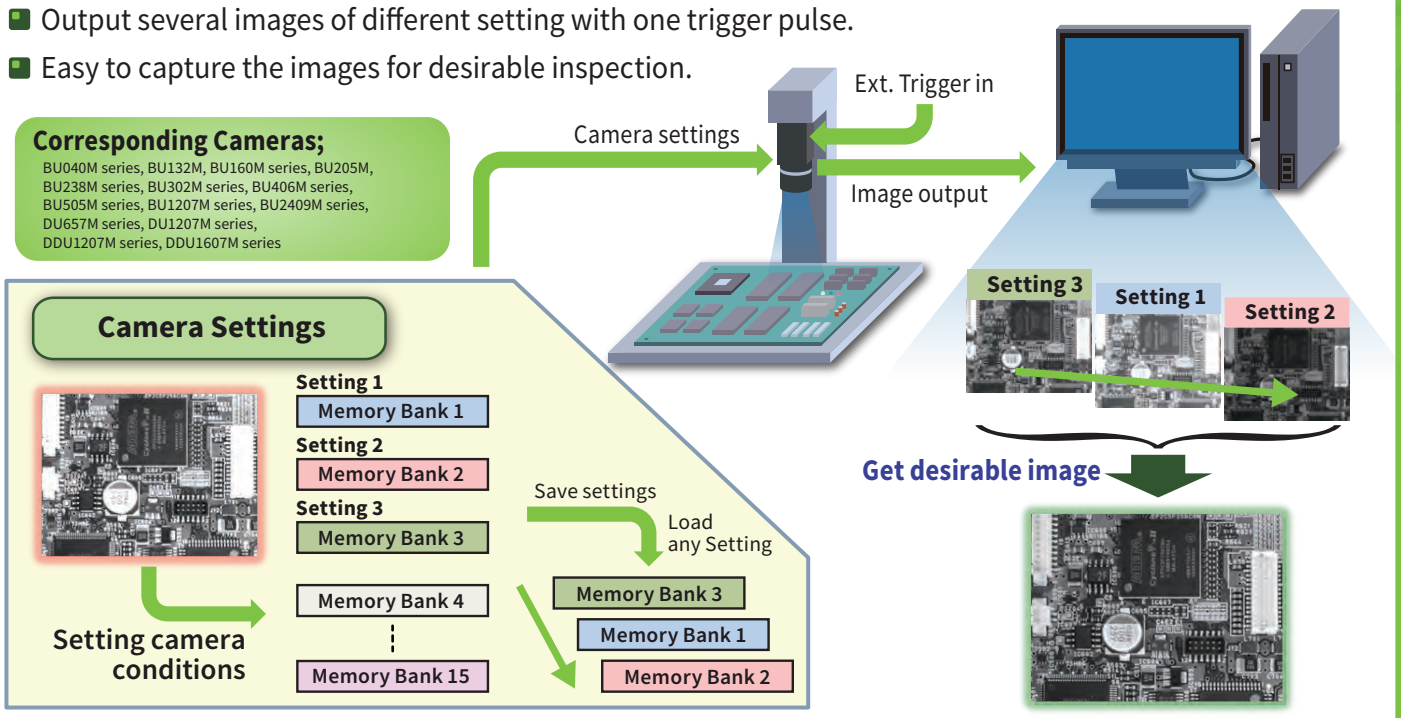
*1: for Windows / *2: for USB and CXP / *3: Supports TeliCamSDK v4.0.0.1 or later / *4: Supports TeliCamSDK v4.0.1.1 or later / *5: Please contact us for other OS and distributions. / *6: Image might be missed depending on PC specifications.

/ DU Series / DDU Series

Sequential Shutter mode + Bulk Trigger mode

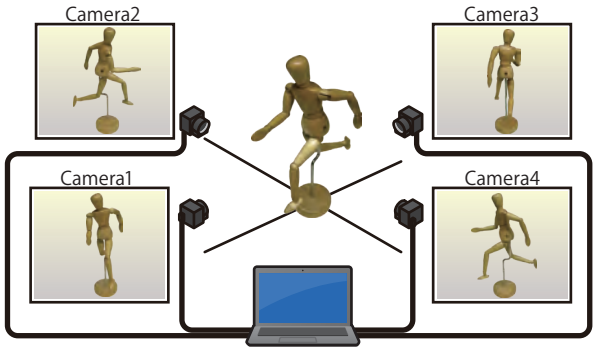
- Output several images of different setting with one trigger pulse.
- Easy to capture the images for desirable inspection.

Corresponding Cameras;
BU040M series, BU132M, BU160M series, BU205M, BU238M series, BU302M series, BU406M series, BU505M series, BU1207M series, BU2409M series, DU657M series, DU1207M series, DDU1207M series, DDU1607M series



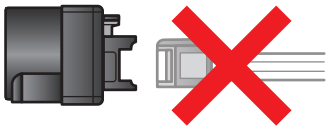
Bus Synchronization

- Fully synchronized exposure timing among several cameras.*



● Patent No. JP 5802727 B2

Corresponding Cameras;
BU040M series, BU160M series, BU205M, BU238M series, BU302M series, BU406M series, BU502M series, BU505M series, BU805M series, BU1207M series, BU1208M series, BU2409M series, DU657M series, DU1207M series, DDU1207M series, DDU1607M series, DDU2607M series



No cable needed for 'Trigger in' !

Example;
- Stereo camera
- Motion capture

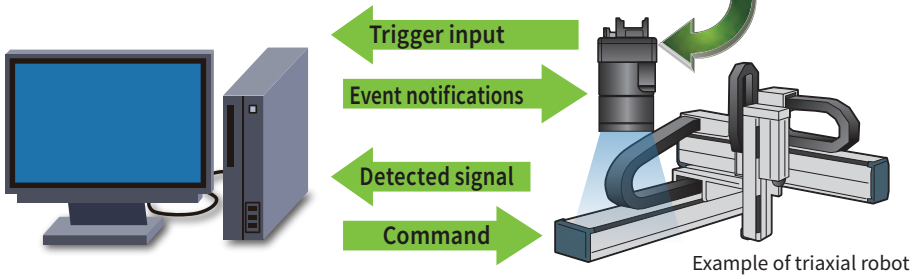
* The time stamp in the USB bus is used. The camera with same time stamp can synchronize.

Event Notifications

- Camera notifies status information via event packet !
- Event notice without delay by the **Teli Core Technology**.
- Rendering great service to vision systems with high speed as its important feature.

Corresponding Cameras;
BU series all models,
DU series all models, DDU series all models

1	FrameTrigger	- Reception of Frame Start Trigger	4	FrameTransferStart	- Start of transferring Streaming Data	7	ExposureEnd - End of Exposure
2	FrameTriggerError	- Rejection of Frame Start Trigger	5	FrameTransferEnd	- End of transferring Streaming Data	8	Timer0Start - Start of Timer "0"
3	FrameTriggerWait	- Start of waiting for Frame Start Trigger	6	ExposureStart	- Start of Exposure	9	Timer0End - End of Timer "0"



Example of triaxial robot

Specifications

MODEL*1	DU657M	DU657MC	DU1207MG	DU1207MCG DU1207MCF	DDU1207MG	DDU1207MCG DDU1207MCF	DDU1607MG	DDU1607MCG DDU1607MCF	DDU2607MG	DDU2607MCG DDU2607MCF
B/W or COLOR	B/W	COLOR	B/W	COLOR	B/W	COLOR	B/W	COLOR	B/W	COLOR
Pixels	6.5M		12.3M		12.3M		16M		26.2M	
Imager model	TELI Original 6.5M		Sony IMX253		Sony IMX253		OnSemi XGS 16000		Gpixel GMAX0505	
Imager size/type*2	1.1 type GS-CMOS		1.1 type GS-CMOS		1.1 type GS-CMOS		1.1 type GS-CMOS		1.1 type GS-CMOS	
Resolution	2,560 x 2,560		4,096 x 3,000		4,096 x 3,000		4,000 x 4,000		5,120 x 5,120	
Frame rate	55 fps		32 fps	31 fps	62 fps		47 fps		28.4 fps	
Pixel size	5.0 x 5.0 µm		3.45 x 3.45 µm		3.45 x 3.45 µm		3.20 x 3.20 µm		2.50 x 2.50 µm	
Bus synchronization	✓		✓		✓		✓		✓	
Bulk trigger	✓		✓		✓		✓		✓	
Image buffer	256MB		256MB		256MB		256MB		256MB	
Sequential shutter	✓		✓		✓		✓		✓	
Short exposure mode*3	-		✓		-		-		-	
Product availability (CY)	Available		Available		Available		Available		(Q1/2024)	

MODEL*1	BU040M BU040MG	BU040MCG BU040MCF	BU132M	BU160M BU160MG	BU160MCG BU160MCF	BU205M	BU238M	BU238MC BU238MCF	BU302MG	BU302MCG BU302MCF
B/W or COLOR	B/W	COLOR	B/W	B/W	COLOR	B/W	B/W	COLOR	B/W	COLOR
Pixels	0.4M		1.3M	1.6M		2.2M	2.3M		3.1M	
Imager model	Sony IMX287		e2v EV76C560	Sony IMX273		CMOSIS CMV2000	Sony IMX174		Sony IMX252	
Imager size/type*2	1/2.9 type GS-CMOS		1/1.8 type GS-CMOS	1/2.9 type GS-CMOS		2/3 type GS-CMOS	1/1.2 type GS-CMOS		1/1.8 type GS-CMOS	
Resolution	720 x 540		1,280 x 1,024	1,440 x 1,080		2,048 x 1,088	1,920 x 1,200		2,048 x 1,536	
Frame rate	523 fps		61 fps	240 fps		170 fps	165 fps		120 fps	
Pixel size	6.90 x 6.90 µm		5.3 x 5.3 µm	3.45 x 3.45 µm		5.5 x 5.5 µm	5.86 x 5.86 µm		3.45 x 3.45 µm	
Bus synchronization	✓		-	✓		✓	✓		✓	
Bulk trigger	✓		✓	✓		✓	✓		✓	
Image buffer	256MB		256MB	256MB		256MB	256MB		256MB	
Sequential shutter	✓		✓	✓		✓	✓		✓	
Short exposure mode*3	✓		-	✓		-	-		✓	
Product availability (CY)	Available		Available	Available		Available	Available		Available	

MODEL*1	BU406M BU406MN	BU406MC BU406MCF	BU502MG	BU502MCF	BU505MG	BU505MCG BU505MCF	BU805MG	BU805MCF	BU1207MG	BU1207MCG BU1207MCF	BU1208MG	BU1208MCG BU1208MCF
B/W or COLOR	B/W	COLOR	B/W	COLOR	B/W	COLOR	B/W	COLOR	B/W	COLOR	B/W	COLOR
Pixels	4.2M		5M		5M		8M		12.3M		12.3M	
Imager model	CMOSIS CMV4000		Sony IMX547		Sony IMX250		Sony IMX546		Sony IMX253		Sony IMX546	
Imager size/type*2	1.0 type GS-CMOS		2/3 type GS-CMOS		2/3 type GS-CMOS		2/3 type GS-CMOS		1.1 type GS-CMOS		1/1.1 type GS-CMOS	
Resolution	2,048 x 2,048		2,448 x 2,048		2,448 x 2,048		2,848 x 2,848		4,096 x 3,000		4,096 x 3,008	
Frame rate	90 fps		75.6 fps		75 fps		46.7 fps		31 fps		30.8 fps	
Pixel size	5.5 x 5.5 µm		2.74 x 2.74 µm		3.45 x 3.45 µm		2.74 x 2.74 µm		3.45 x 3.45 µm		3.45 x 3.45 µm	
Bus synchronization	✓		✓		✓		✓		✓		✓	
Bulk trigger	✓		✓		✓		✓		✓		✓	
Image buffer	256MB		256MB		256MB		256MB		256MB		256MB	
Sequential shutter	✓		✓		✓		✓		✓		✓	
Short exposure mode*3	-		✓		✓		✓		✓		✓	
Product availability (CY)	Available		Available		Available		Available		Available		(Q1/2024)	

MODEL*1	BU2409MG	BU2409MCG BU2409MCF	BU602M	BU602MC BU602MCF	BU1203MC BU1203MCF	BU2006MG	BU2006MCF
B/W or COLOR	B/W	COLOR	B/W	COLOR	COLOR	B/W	COLOR
Pixels	24.5M		6.2M		12M	20M	
Imager model	Sony IMX540		Sony IMX178		Sony IMX226	Sony IMX183	
Imager size/type*2	1.2 type GS-CMOS		1/1.8 type RS-CMOS		1/1.7 type RS-CMOS	1.0 type RS-CMOS	
Resolution	5,328 x 4,608		3,072 x 2,048		4,000 x 3,000	5,472 x 3,648	
Frame rate	15 fps		60 fps		30 fps	19 fps	
Pixel size	2.74 x 2.74 µm		2.40 x 2.40 µm		1.85 x 1.85 µm	2.40 x 2.40 µm	
Bus synchronization	✓		-		-	-	
Bulk trigger	✓		✓		-	✓	
Image buffer	256MB		256MB		256MB	256MB	
Sequential shutter	✓		-		-	-	
Short exposure mode*3	(Planning)		-		-	-	
Product availability (CY)	Available		Available		Available	Available	

***1 : MODEL suffix** C/MC: without IR-cut filter, CF/MCF: with IR-cut filter, G/CG: with Dust-proof Glass
***2 : Imager type** GS-CMOS: Global shutter type CMOS sensor, RS-CMOS: Rolling shutter type CMOS sensor
***3 : Short exposure mode** The mode to switch it for short time exposure (approx. 1.1µs or more) by enhancing electronic shutter. (Contact for details)

Notes on Safety

- Before using this product, please read "Operation Manual" carefully in order to use this product afely and correctly.
- If this product should be used in the extraordinary conditions or environments, or if you have any questions or problems, please contact our sales division.

Toshiba Teli Corporation

https://www.toshiba-teli.co.jp/en/

teli camera Search

The information of this catalog is current as of November 2023.

4000-0346-2311