USB3.0 Board Level Camera
- Concept model -

- Thinner, more compact & lighter weight than BU series
- Flexible optical mounting
- Big heat dissipation effect
- VGA - 12MP
- Same as BU series camera functions

BU series CCD model
29mm × 29mm × 13mm
27g

BU series CMOS model
29mm × 29mm × 16mm
32g

- Trigger input / GPIO
- LED Status indicator
- USB3.0 Micro B connector
- Screw lock
- e-CON 4 pin connector
Simple & High-performance USB3 Vision camera BU/DU series

Example of USB3 Vision camera system and Camera Link camera system;

- Camera Link Camera System
  Medium Configuration (4Gbps)
- USB3 Vision Camera System
  (4Gbps)

Equivalent performance to CameraLink with simple structure

High performance and cost reduction with even multi camera system

Featuring TELI original IP “TELI Core Technology”

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

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

<table>
<thead>
<tr>
<th>Command</th>
<th>Our Unique USB IP</th>
<th>Generic USB IP</th>
<th>All in one USB chip</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10 times faster</td>
<td>100 times faster</td>
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<tr>
<td>Read register</td>
<td>2.2 / 5 μs</td>
<td>40.8 / 44.6 μs</td>
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<td>2.2 / 5.4 μs</td>
<td>46.9 / 71.0 μs</td>
<td>314 / 324 μs</td>
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</table>

Super high speed response, 100 times faster*

* Comparison value of read register access response with ‘All-in-one USB chip’ built-in model.
**BU/DU 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.

**Camera setting**

- Save setting
- Load any setting

**Corresponding Cameras of Sequential shutter mode:**
- BU040MG/MCG/MCF/BU1125M
- BU160MG/MCG/MCF/BU2055M
- BU238M/MCG/MCF/BU3002MG/MCG/MCF
- BU406MG/MC/BG/BU50SMG/MCG/MCF
- DU570M/MC/DU806MG/MCG/MCF

**Corresponding OS:**
- Windows 7 (32bit / 64bit)
- Windows 8.1 (32bit / 64bit)
- Windows 10 (32bit / 64bit)
- Linux Ubuntu 14.04LTS amd64
- Debian 8.1.0 amd64

### Bus Synchronization

- Fully synchronized exposure timing among several cameras.*

**Corresponding Cameras:**
- BU030/C/CF BU031 BU040MG/MCG/MCF
- BU080 BU130/C/CF BU160MG/MCG/MCF
- BU205M BU238M/MC/MCF
- BU302MG/MC/MCF BU406MG/MC/MCF
- BU50SMG/MCG/MCF/DU570M/MC
- DU806MG/MCG/MCF/DU1207WG/MCG/MCF

**Example:**
- Stereo camera
- Motion capture

**TeliCamSDK**

- Easy to capture images.
- More than 70% reduction of mounting code.
- GEN-<I>CAM available.
- Varieties of functions for easy programming.
- Abundant sample code.
- Easy to understand manuals.
- Unified SDK for USB3.0 & GigE.

**Corresponding OS:**
- Windows
  - 7 (32bit / 64bit)
  - 8.1 (32bit / 64bit)
  - 10 (32bit / 64bit)
- Linux
  - Ubuntu 14.04LTS amd64
  - Debian 8.1.0 amd64

**Makes developing terms shorter!**

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

**Bus Synchronization mode is patent on TOSHIBA TELI CORPORATION.**

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**Function setting**
- GenAPI, XML
- Register R/W

**Image capture**
- Image capture
- Image convert
- Image storage

**System Enumeration Cameras**

---

*1: for Windows
*2: USB only
### Event Notifications

- **Camera** notifies status information via event packet!

  ![Example of triaxial robot](image.png)

  **Trigger input**

  **Detected signal**

  **Command**

  - FrameTrigger: Reception of Frame Start Trigger
  - FrameTriggerError: Rejection of Frame Start Trigger
  - FrameTriggerWait: Start of waiting for Frame Start Trigger
  - FrameTransferStart: Start of transferring Streaming Data
  - FrameTransferEnd: End of transferring Streaming Data
  - ExposureStart: Start of Exposure
  - ExposureEnd: End of Exposure
  - Timer0Start: Start of Timer "0"
  - Timer0End: End of Timer "0"

### Specifications

<table>
<thead>
<tr>
<th>MODEL*</th>
<th>BU303</th>
<th>BU303C</th>
<th>BU503CF</th>
<th>BU301</th>
<th>BU404MG</th>
<th>BU404MCG</th>
<th>BU404MC</th>
<th>BU080</th>
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* MODEL suffix: C/MC: without IR-cut filter, CF/MCF: with IR-cut filter, G/CG: with Dust-proof Glass
* Imager type: GS-CMOS: Global shutter type CMOS sensor, RS-CMOS: Rolling shutter type CMOS sensor
* TELI Core Technology: U3V-V: TELI Core Technology version for USB3 Vision Camera

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**Notes on Safety**

- Before using this product, please read “Instruction Manual” carefully in order to use this product safely 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

URL: http://www.toshiba-teli.co.jp/en/