

# TOSHIBA

Leading Innovation >>>

2017 International Technical Exhibition Seminar

## Application of FA camera in Machine Vision

Date: Wednesday, Dec. 6<sup>th</sup> 2017

Time: 13:10 - 13:50

Place: Seminar Room, Pacifico Yokohama

**TOSHIBA TELI CORPORATION**

# Requirement about this document

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- ◆ Product information in this document are on plan without any commitment for marketability. And, specifications under development are subject to change without prior notice.  
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# Advanced features gained with USB3.0 camera

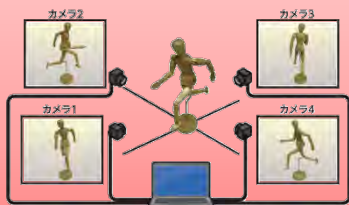
## Sequential Shutter



## High Speed Response



## Bus Synchronization

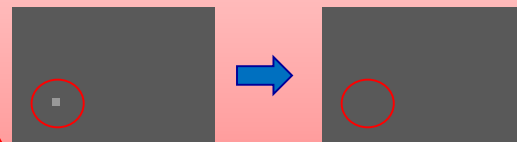


USB<sup>®</sup>  
VISION

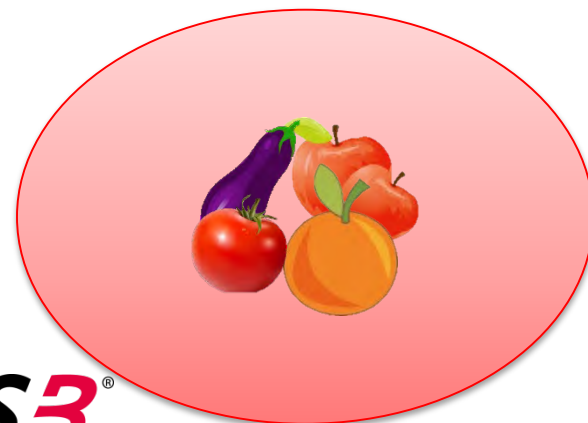
## Image Buffer



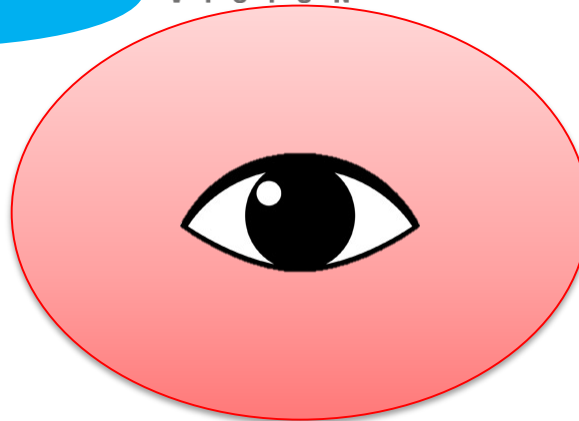
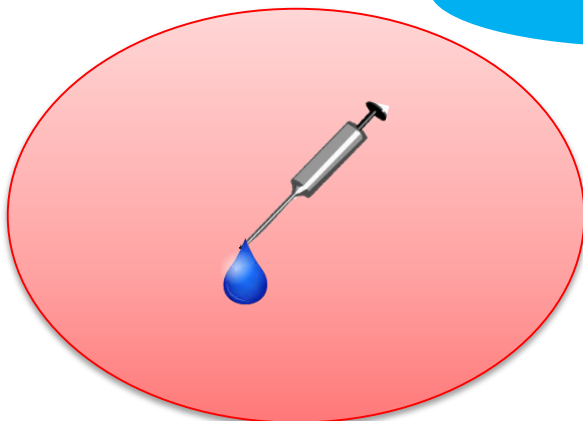
## Defect Pixel Correction



# Advanced features gained with USB3.0 camera

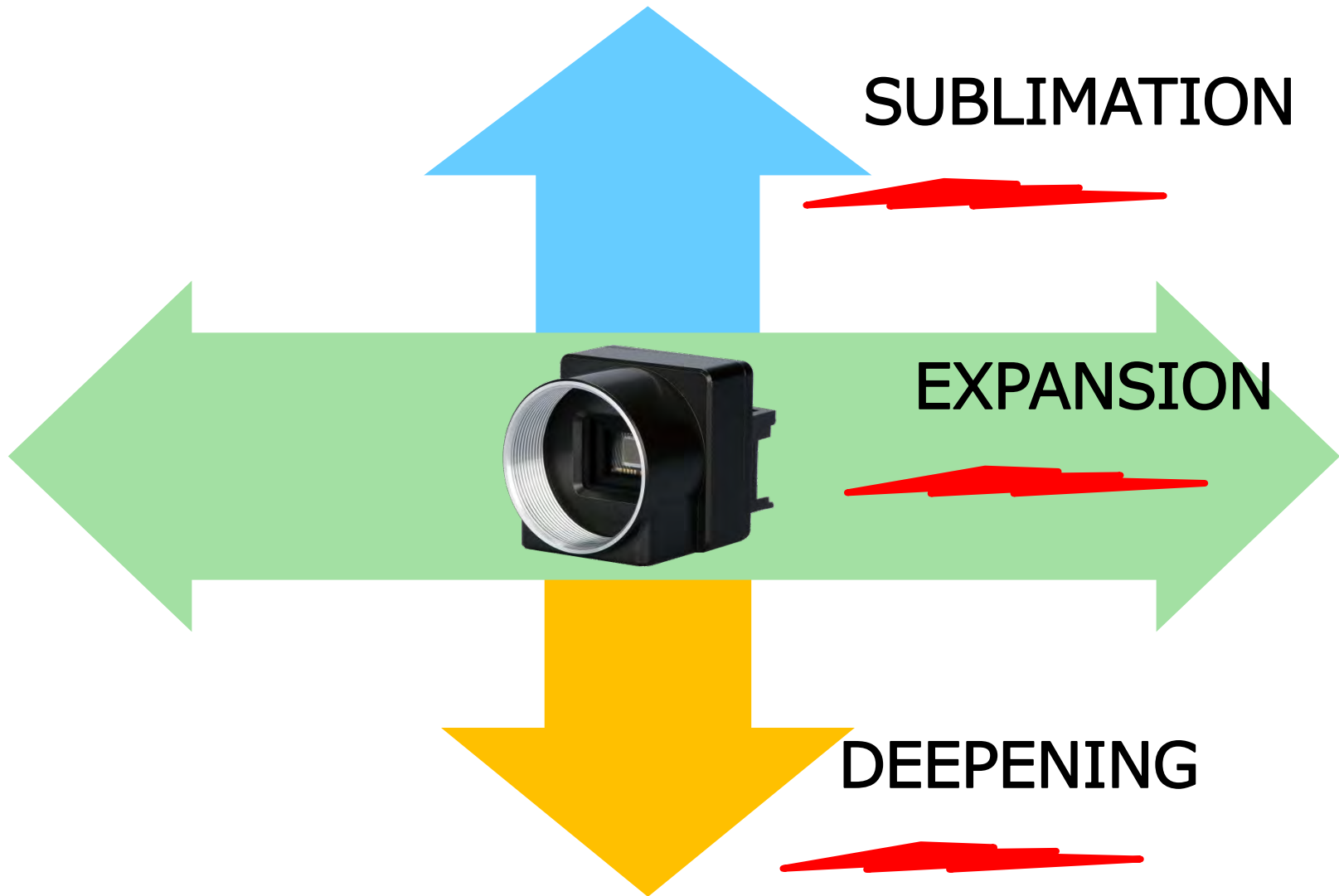


**USB**<sup>®</sup>  
VISION



# Advanced features gained with USB3.0 camera

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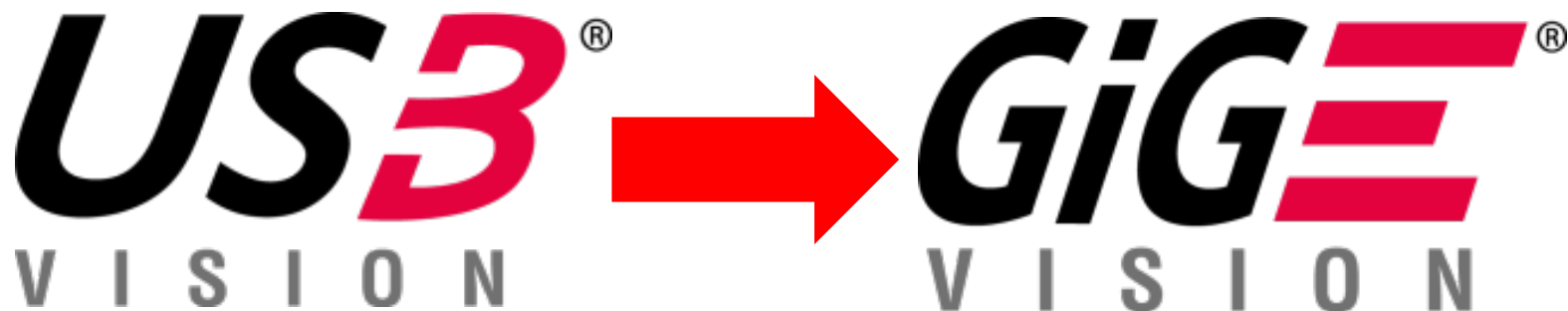
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# Expansion

~A standardization of the advanced features~

Expansion ~A standardization of the advanced features~

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# Expansion ~A standardization of the advanced features~

## Sequential shutter



## GigE model



## Quick response



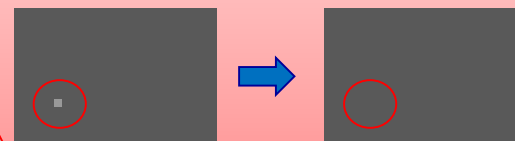
**GiGE**<sup>®</sup>  
VISION

**BG505LMG**  
**BG302LMG**

## Image buffer



## Pixel fault compensation



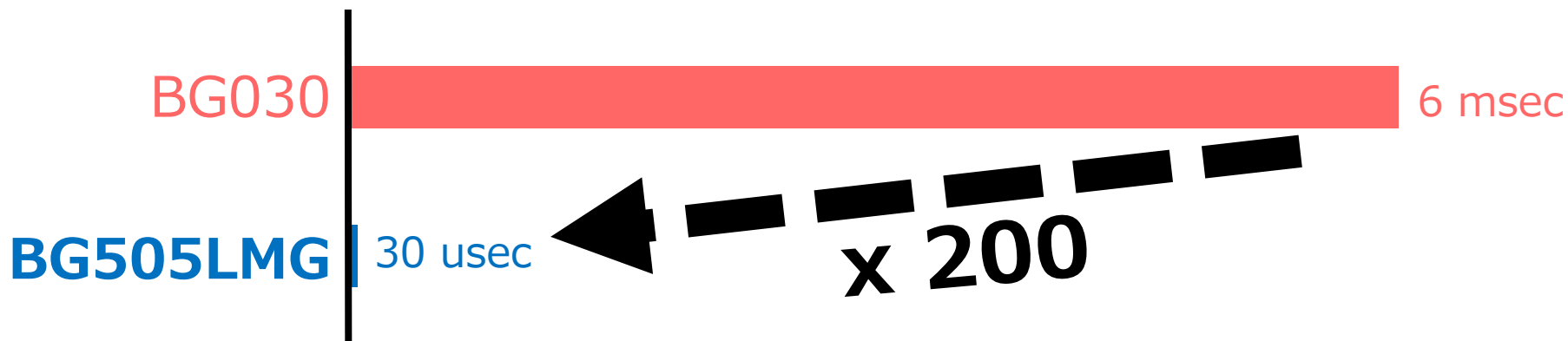


Expansion ~A standardization of the advanced features~

# GigE model



## Quick response



Expansion ~A standardization of the advanced features~

# GigE model



## Quick response

BG030

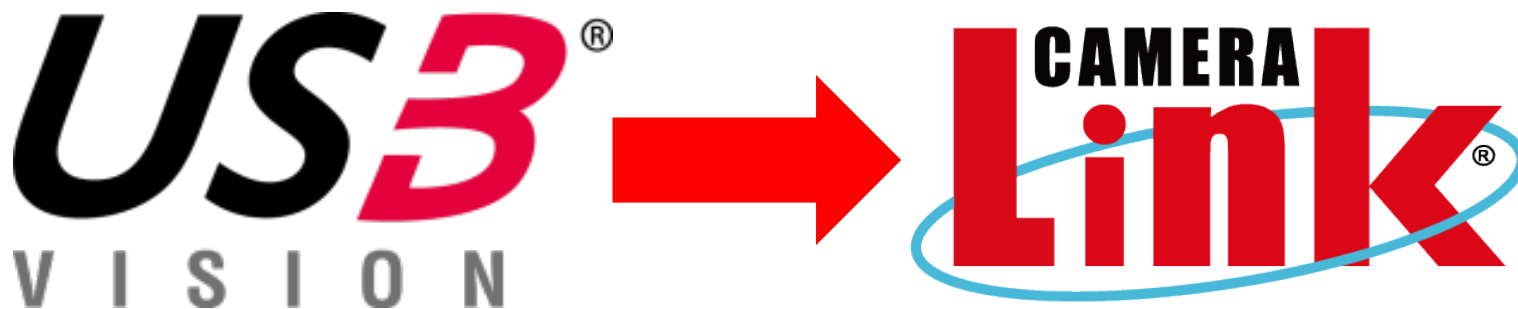


BG505LMG



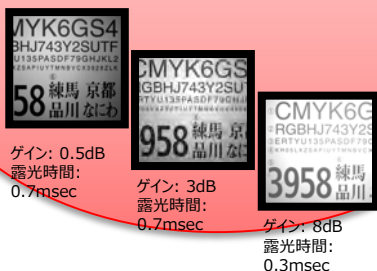
# Expansion ~A standardization of the advanced features~

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# Camera Link model

Sequential shutter



Quick response

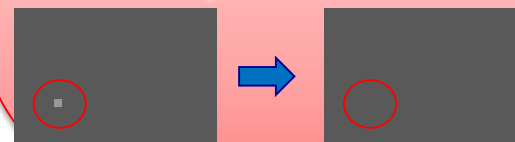


BC505LMG  
BC302LMG

Image buffer



Pixel fault compensation

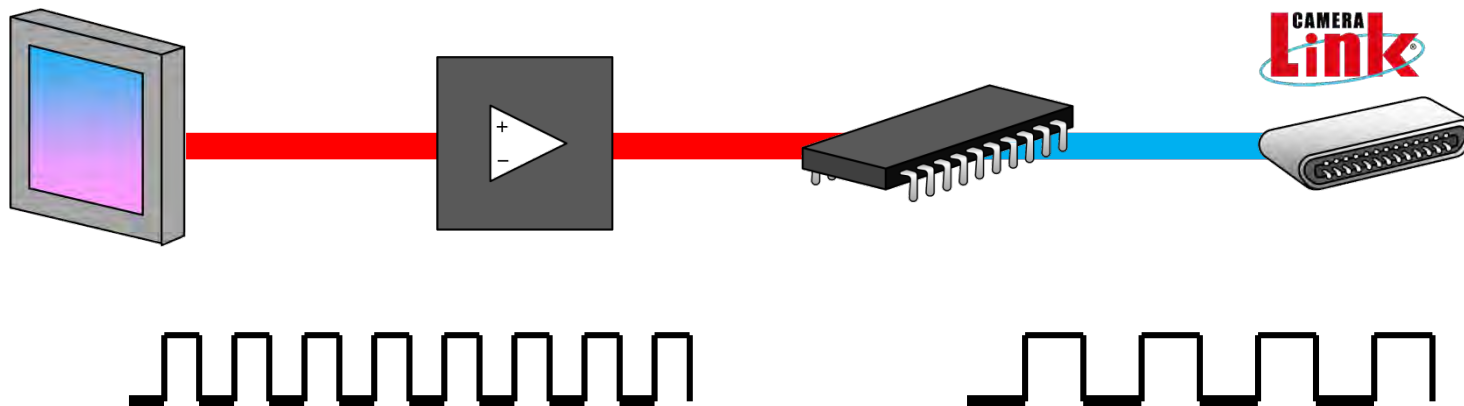


Expansion ~A standardization of the advanced features~

# Camera Link model



Image buffer



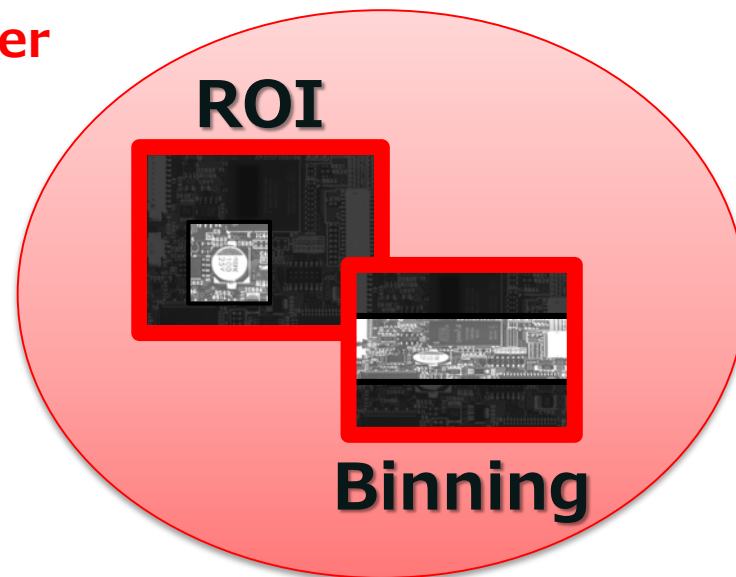
# Camera Link model



Base Configuration

Image buffer

	1-Tap	2-Tap	3-Tap
41.5 MHz	✓	✓	✓
64 MHz	✓	✓	✓
83 MHz	✓	✓	✓



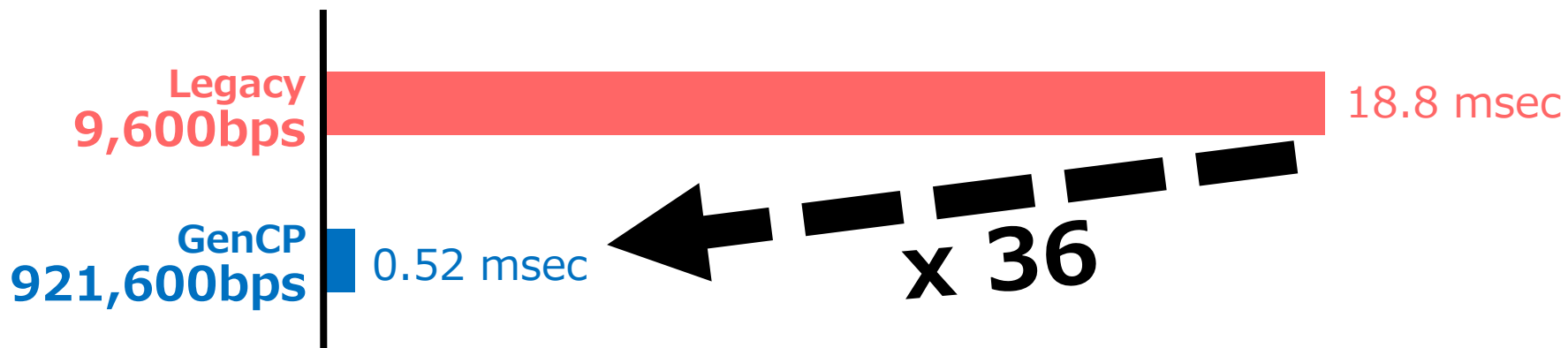
Expansion ~A standardization of the advanced features~

# Camera Link model



## GenCP

GenICam Generic Control Protocol



Expansion ~A standardization of the advanced features~

# Camera Link model



## GenCP

GenICam Generic Control Protocol

Legacy  
9,600bps



GenCP  
921,600bps





Expansion ~A standardization of the advanced features~

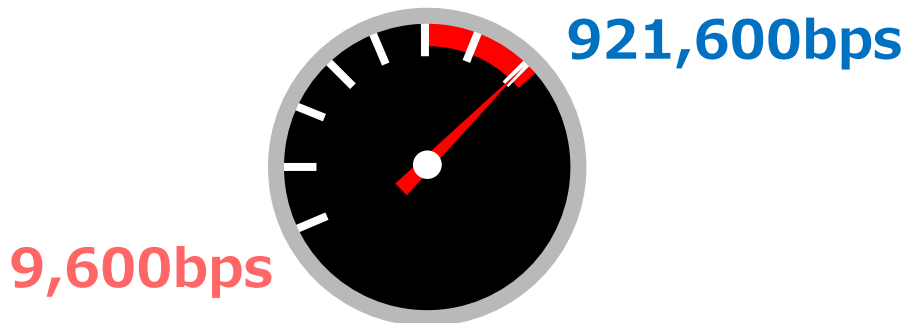
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# Camera Link model



## GenCP

GenICam Generic Control Protocol



Expansion ~A standardization of the advanced features~

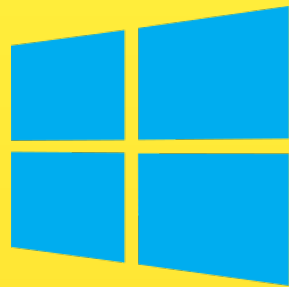
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# TeliCamSDK

Expansion ~A standardization of the advanced features~

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# TeliCamSDK

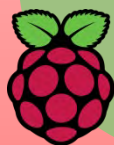


arm

Expansion ~A standardization of the advanced features~

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# TeliCamSDK



Raspberry Pi®



JETSON

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# Deepening

~further expansion of features~

## Sequential shutter



gain: 0.5dB  
Exposure: 0.7msec



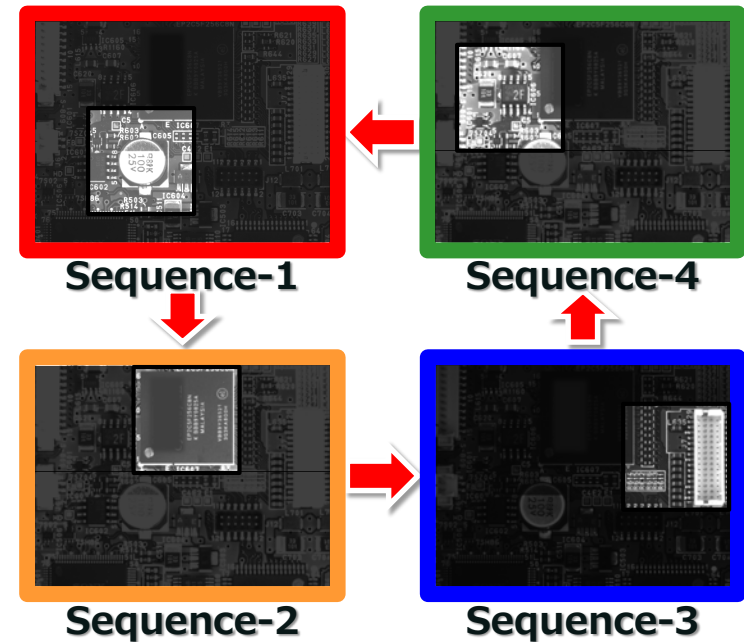
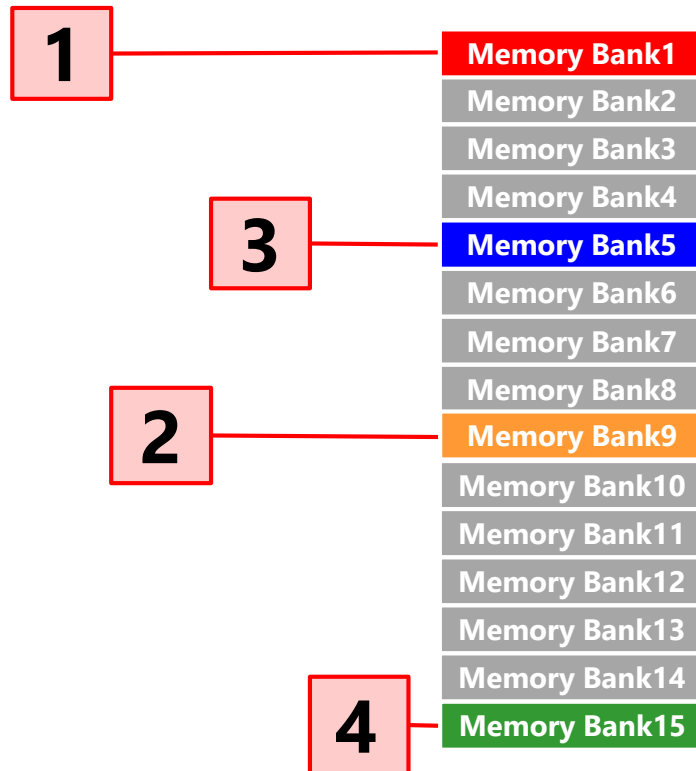
gain: 3dB  
exposure:0.7msec



gain: 8dB  
exposure:0.3msec

Deepening ~further expansion of features~

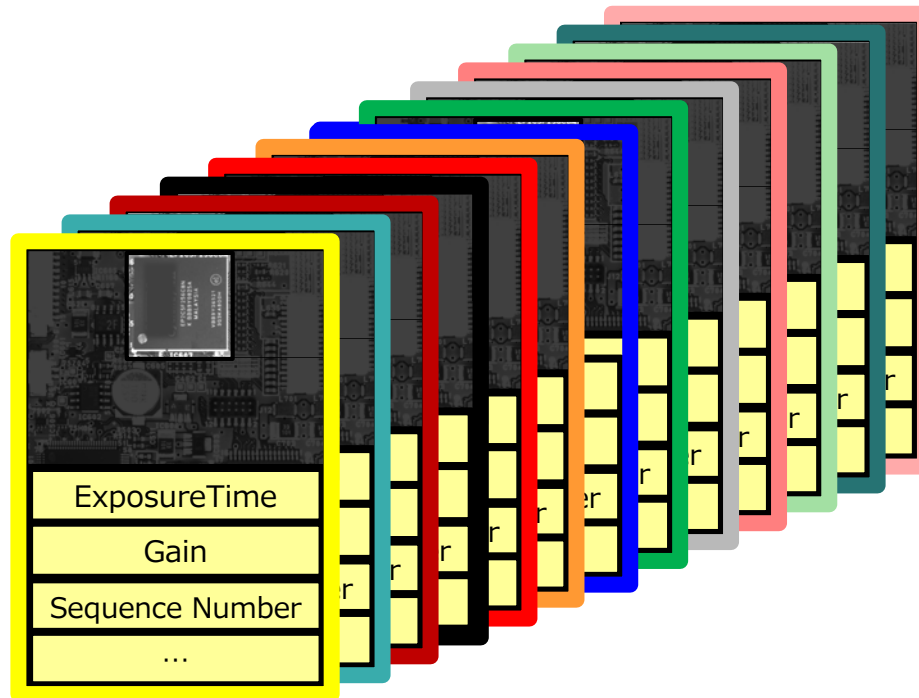
# Sequential shutter



Deepening ~further expansion of features~

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# Sequential shutter + Chunk





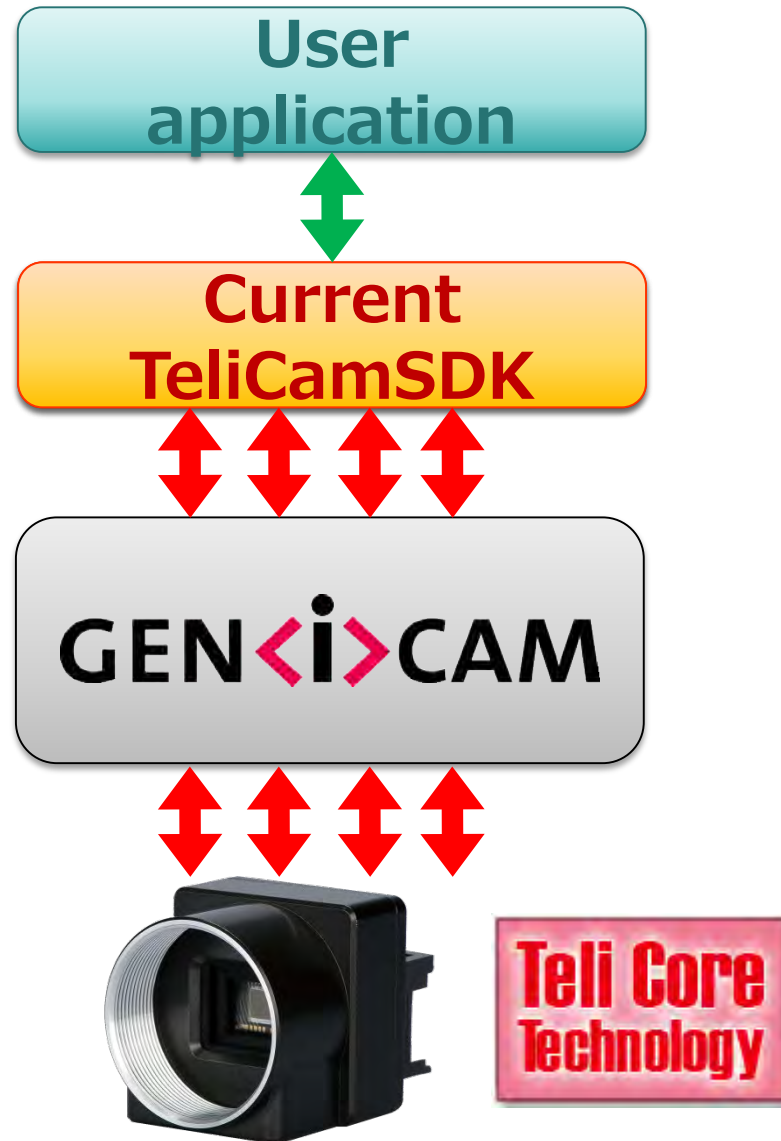
Deepening ~further expansion of features~

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**Quick response**  
**Teli Core Technology**

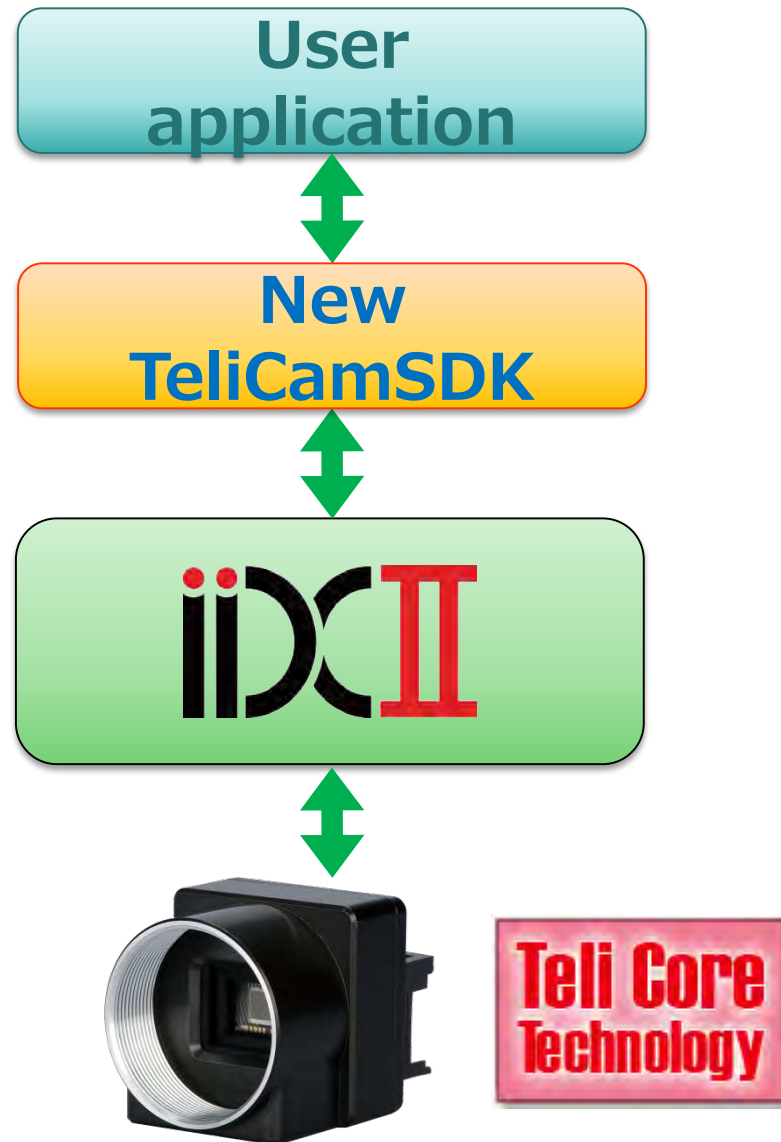
# Deepening ~further expansion of features~

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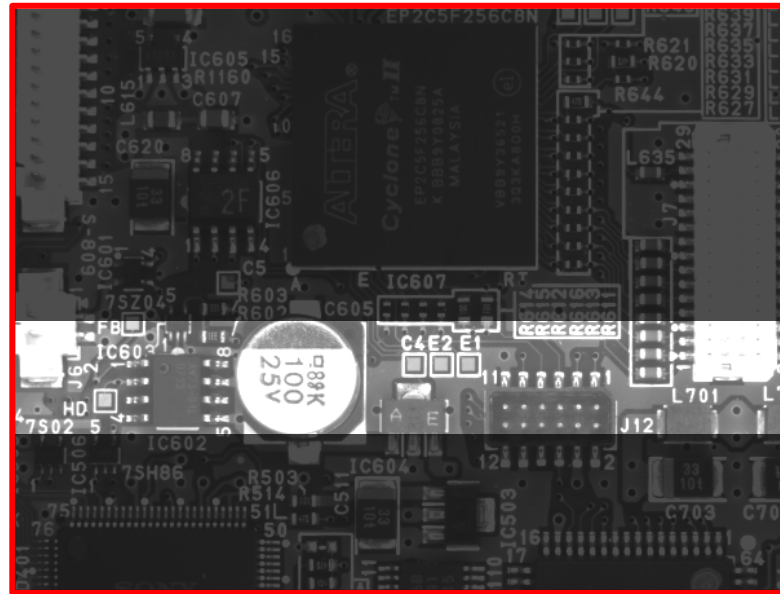


# Deepening ~further expansion of features~

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# Deepening ~further expansion of features~

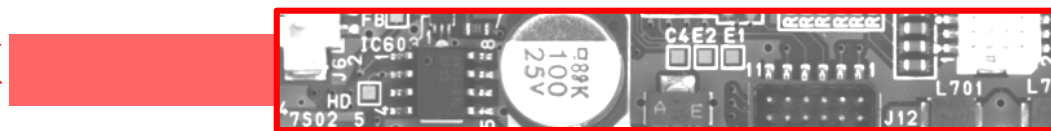


↕ 400 Lines

0.98 msec

2.8 msec

CurrentTeliCamSDK



NewTeliCamSDK

0.12 msec



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# Sublimation

~New unique features~

# Sublimation ~New unique features~

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TeliCamSDK

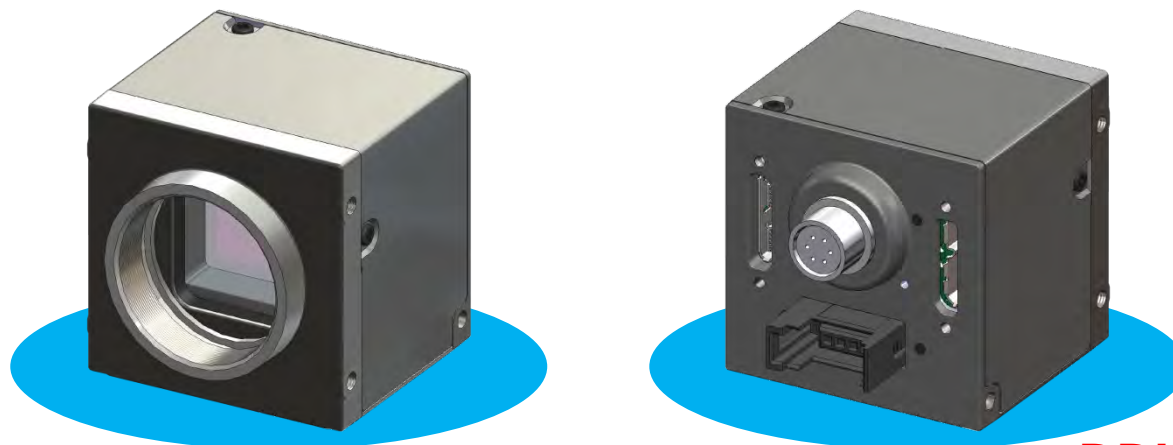
GEN<i>CAM

GenAPI (LGPL)

iDCII

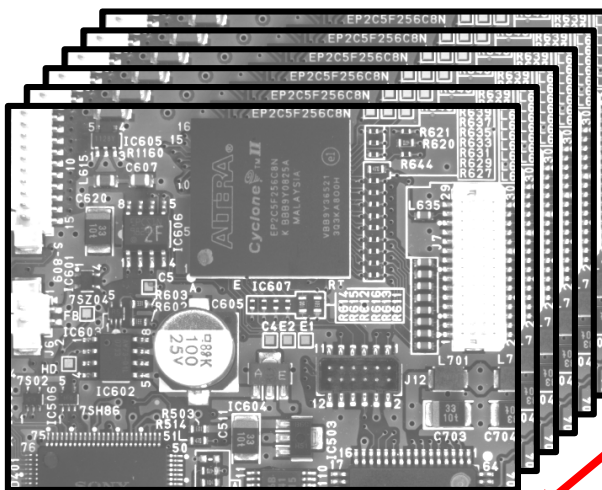
# Sublimation ~New unique features~

## Dual USB camera



**DDU1207MG**

3000 pixel



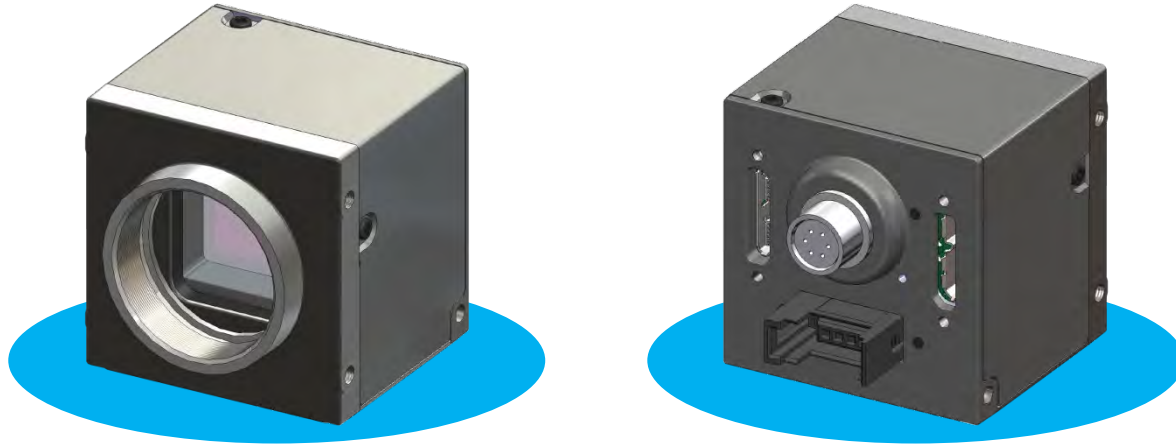
60 fps

4096 pixel

# Sublimation ~New unique features~

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## Dual USB camera



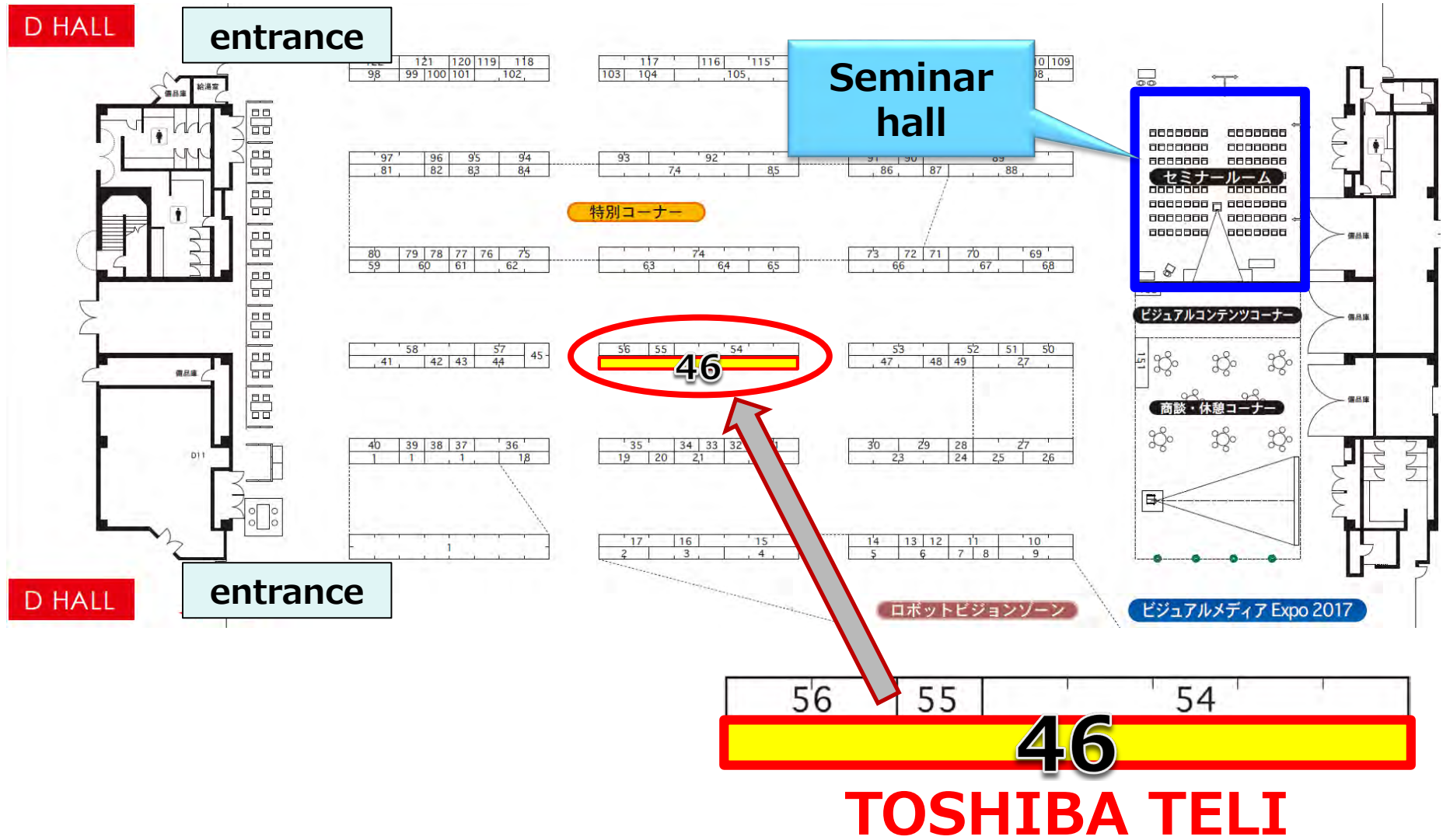
- ✓ Cost
- ✓ Spread rate
- ✓ Stability



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# Introduction of Toshiba Teli's exhibition booth

# Introduction of Toshiba Teli Exhibition booth



Thank you for paying attention to our seminar today.

Please visit our booth. USB3.0 cameras are exhibited there.



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