Toshiba Teli’s prospect of high resolution camera

Visual Component Development Div.
Toshiba Teli Corporation
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Market trend

~ What’s the requirement for higher resolution in machine vision camera? ~
Advantage of higher resolution

0.3M 1.3M 2M 4M 12M

What's advantage of higher resolution?
Advantage of higher resolution

Integration of multiple cameras to one
Advantage of higher resolution

Location of camera can be fixed
High resolution sensors of over 20MP are released
Trend of machine vision camera

Higher resolution is proceeding even in small size camera
Task

~ What’s the task of higher resolution? ~
What’s the task in higher resolution?

- Optical size
- Interface
- Heat
C mount cannot support most of high resolution sensors
No standard size for over C mount
Task

- Optical size
- Interface
- Heat
Higher resolution and speeding up are progressing simultaneously
Only CoaXPress allows maximum performance of sensor

* Above is not a transfer bandwidth of image data but that of interface.
Electric consumption is proportional to Sensor speed

Electric consumption of image sensor alone

Electric consumption

Sensor speed

1 GPixel/s  2 GPixel/s  3 GPixel/s
Heat elimination is the task of image sensor and Interface.
03

Proposal by Toshiba Teli

~ Toshiba Teli’s optimal solution ~
How to balance?

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 Pixels
 Frame rate
 Cost performance
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4th generation Pregius S camera

Cost performance is important

Specifications
- Imager: Sony IMX530
- Resolution: 24M (5,320x4,600)
- Pixel Size: 2.74μm x 2.74μm
- Opt. Format: 1.2 type
- Frame Rate: TBD
- Interface: USB3.1 Gen1
Proposal by Toshiba Teli

DDU1207MG/MCG/MCF

 Specifications
- **Imager**: Sony IMX253
- **Resolution**: 12M (4,096x3,000)
- **Pixel Size**: 3.45μm x 3.45μm
- **Opt. Format**: 1.1 type
- **Frame Rate**: 60 fps
- **Interface**: USB3.1 Gen1 2-Lane

Pioneer of Dual USB3 interface
Proposal by Toshiba Teli

New Dual USB3

Both of Frame rate and Cost performance

Specifications
- Imager: TBD
- Resolution: 16M (TBD)
- Pixel Size: TBD
- Opt. Format: TBD
- Frame Rate: TBD
- Interface: USB3.1 Gen1 2-Lane

Dual Bandwidth

10G
**Proposal by Toshiba Teli**

**120M Pixel camera**

**Specifications**
- **Imager**: Canon 120M
- **Resolution**: 120M (13,280x9,167)
- **Pixel Size**: 2.2μm x 2.2μm
- **Opt. Format**: APS-H
- **Frame Rate**: 9.39fps
- **Interface**: CXP6 4-Lane

**Bandwidth**: 25G

*Concentrate on Pixels*
Demonstrating a camera equipped with RGB+NIR filter sensor
Proposal by Toshiba Teli

CoaXPress 2.0 camera

Specifications
- Imager: Gpixel GMAX6532
- Resolution: 65M (4,096x3,000)
- Pixel Size: 3.2μm x 3.2μm
- Frame Rate: 76fps
- Interface: CXP12 4-Lane

Bandwidth: 50G

Both of Pixels and Frame rate
Directory of Toshiba Teli’s booth

Entrance

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Toshiba Teli’s booth
新しい未来を始動させる。

We turn on the promise of a new day.