



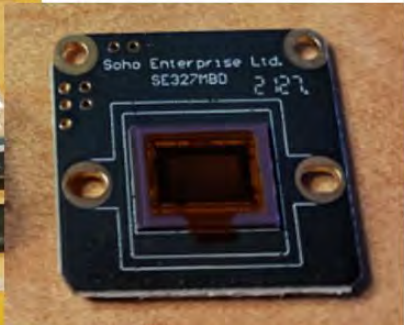
Camera Module Product Line-up Aug.2021(Rev.01)

双峰エンタープライズ株式会社
Soho Enterprise Ltd.

Now ready for Sample delivery!



Driven on RaspberryPi w/ libcamera-apps



- 1920x1080 Full HD with 30fps on Raspi.
- Excellent Image Quality by 2.9um \square pixel
- Various Lens can be applied

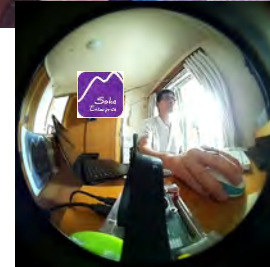


Image developed by libcamera



Full HD 30fps, FoV(D)=140°

SE327MBD + SE-CXB01(FPD Link III) + libcamera + OpenCV(face detection)



SE-CXB01 (FPD Link III) Camera Extension Board

2021.6 New Release ①

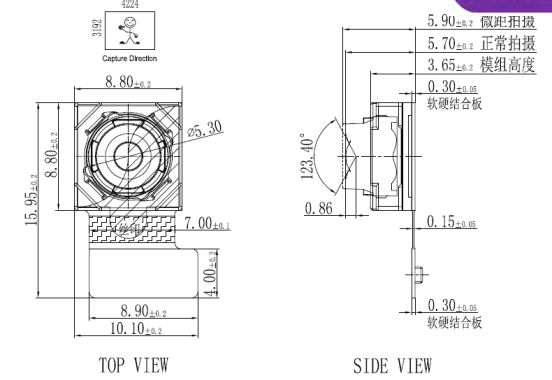
Tiny 4K camera on RaspberryPi

“SE258AF120” Lens Module of FoV(D)=120° with VCM Focus Driver

IMX258 is the 13Mpix 1.12um pixel Sensor from Sony. We have made the imx258.c camera driver, libcamera related files, and now we can see the image processed by ISP. We will implement the focus driver command soon.

Many lens option including SE258PKG will be launched soon.

Almost the same size to IMX219 module

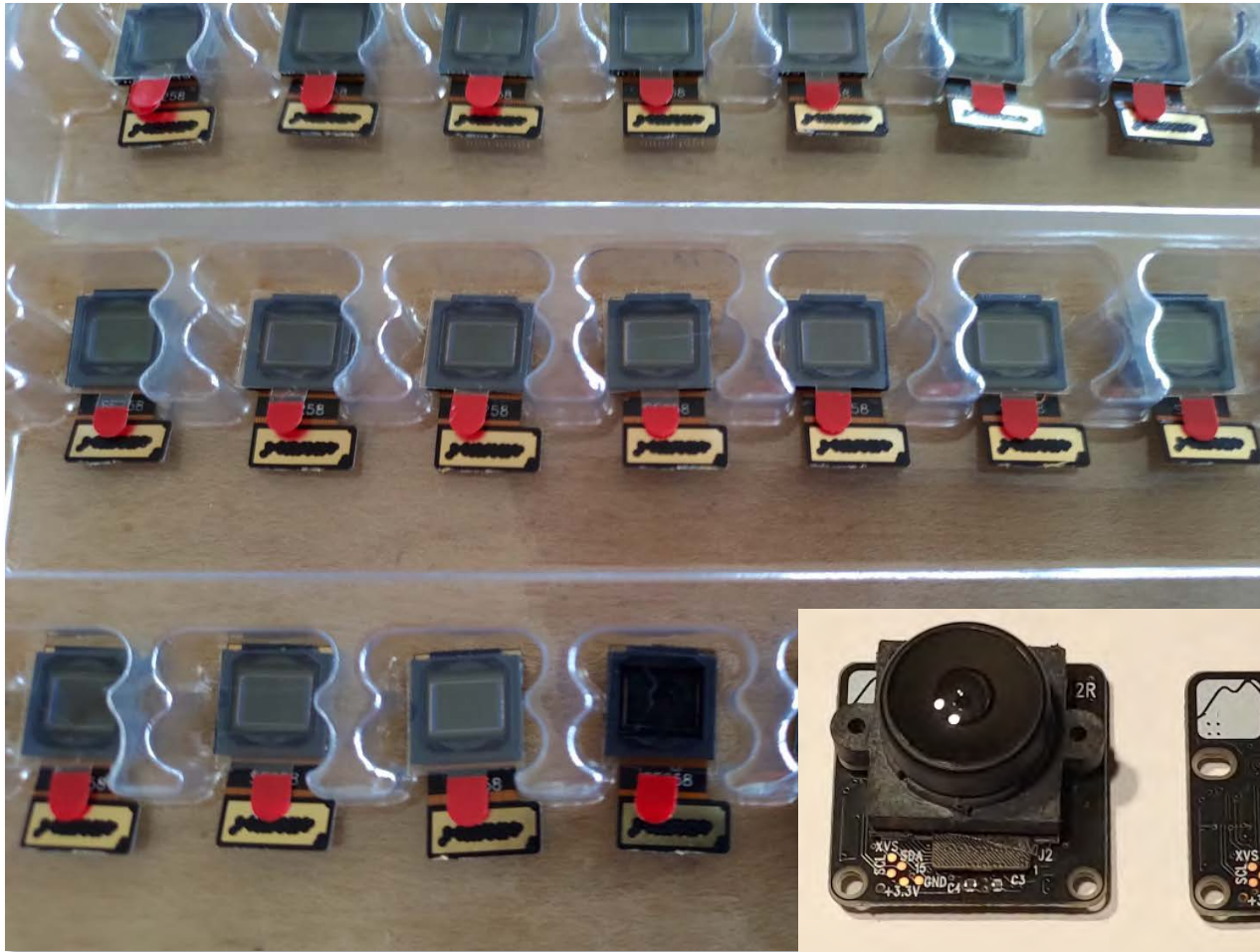


2021.6 New Release ②



Tiny 4K camera on RaspberryPi

“SE258PKG-01” Lens-less module w/ cover glass

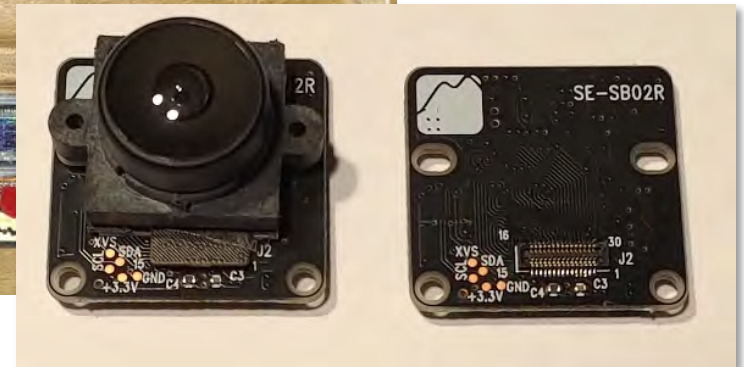


Many of M12(or other size) lens option can be attached by SE-SB02R

2021.6 New Release ③

1.3Mpix Global Shutter sensor module

“SE132GSPKG-01” Lens-less module w/ cover glass



Many of M12(or other size) lens option can be attached by SE-SB02R

2021.6 New Release ④



Full HD High Sensitivity Camera w/ Sony IMX327

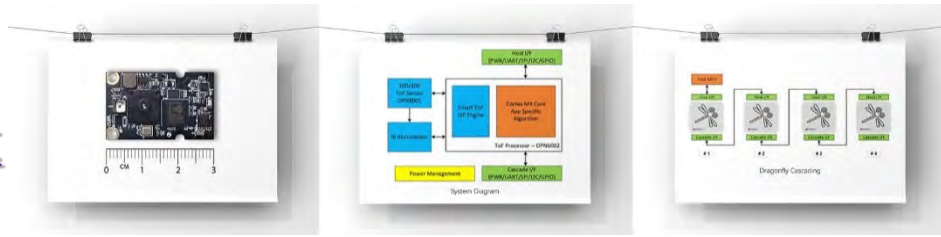
“SE327MBD” with M12 Lens.



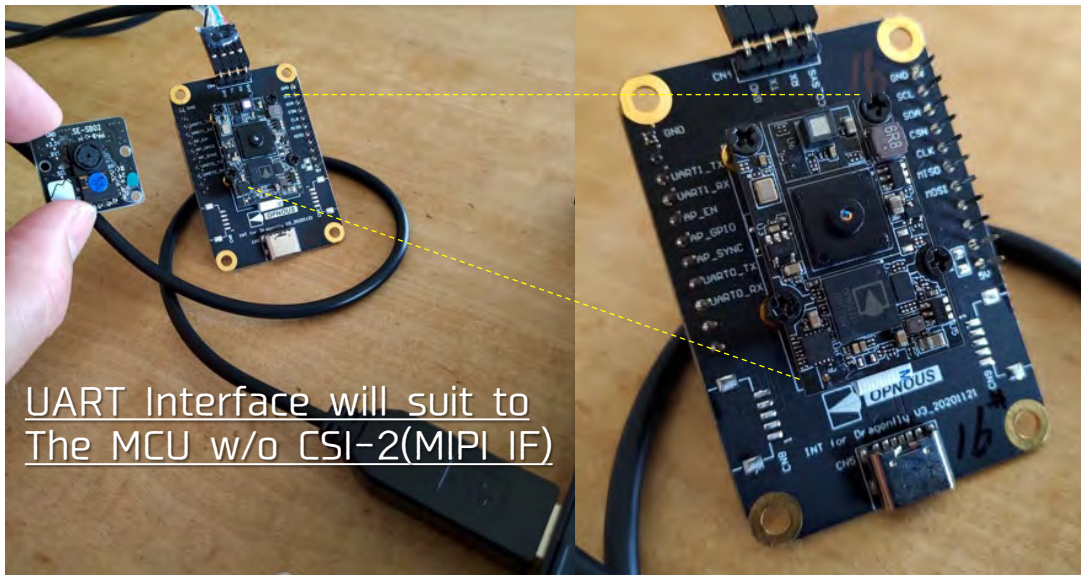
Image developed by libcamera (Raspi4)

2021.5 New Release ③

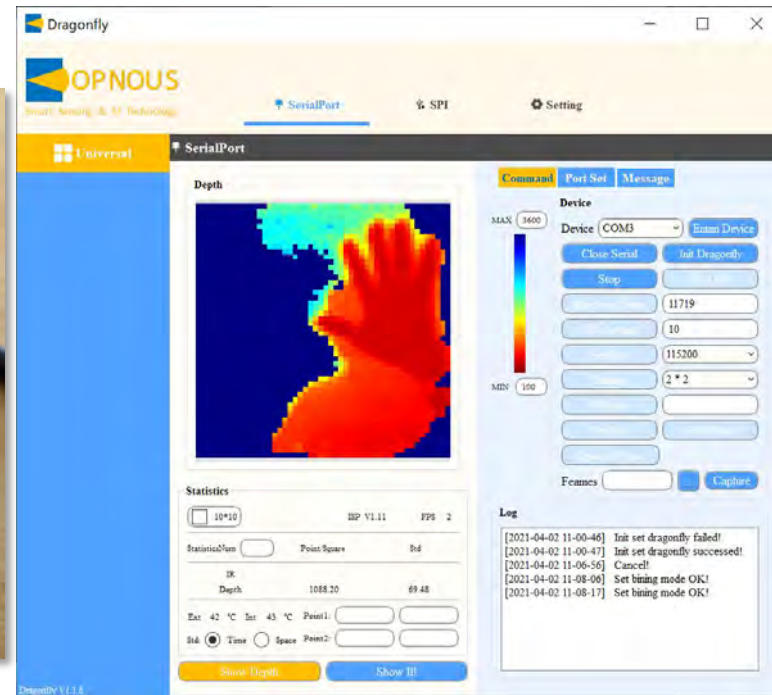
OPNOUS Dragonfly Demo Kit Stand alone depth solution



IR wave length (nm)	850 or 940
ToF resolution	Max 100 x 100
FoV (degree, H x V)	70 x 70
Accuracy	2%, typical
Frame rate (FPS)	up to 60
Power supply (V)	5
Communication Interface	UART/I2C/SPI/GPIO
Size (mm^3)	30 x 19 x 3.98



UART Interface will suit to
The MCU w/o CSI-2(MIPI IF)

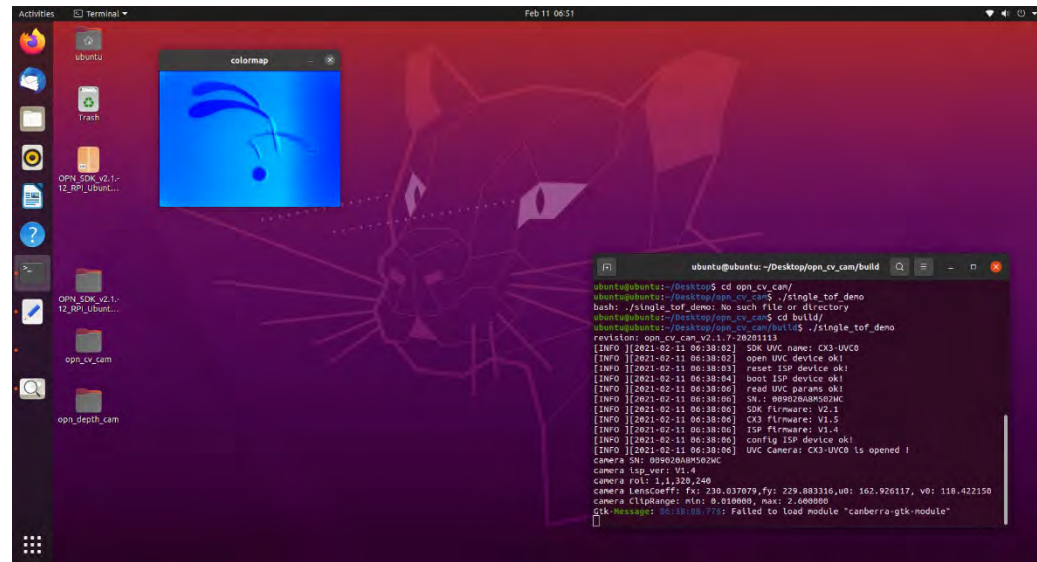
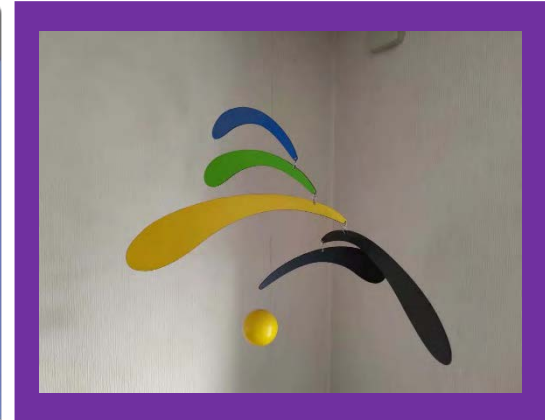
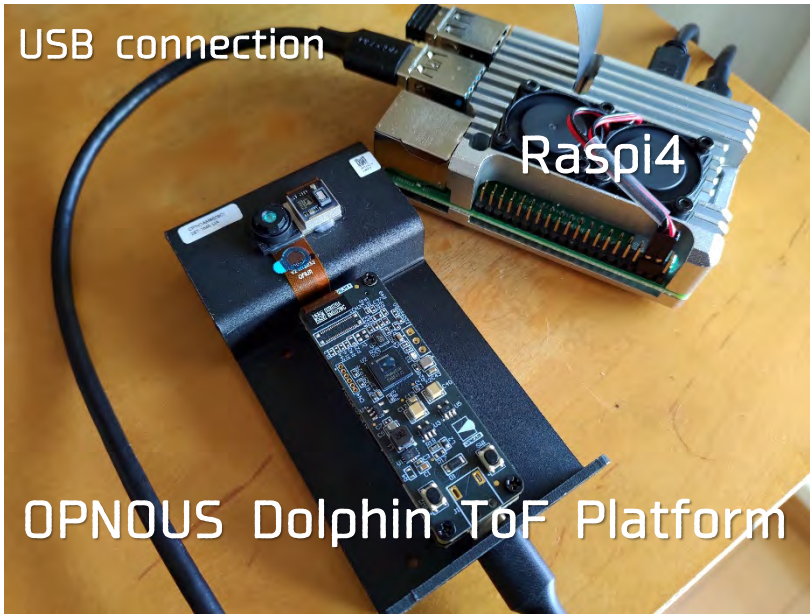


OPNOUS ToF Solution with high-speed ISP ASIC on Raspi4 Ubuntu20.04



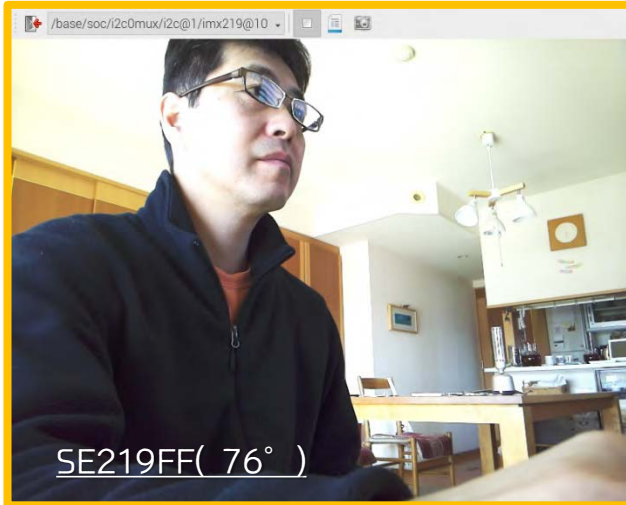
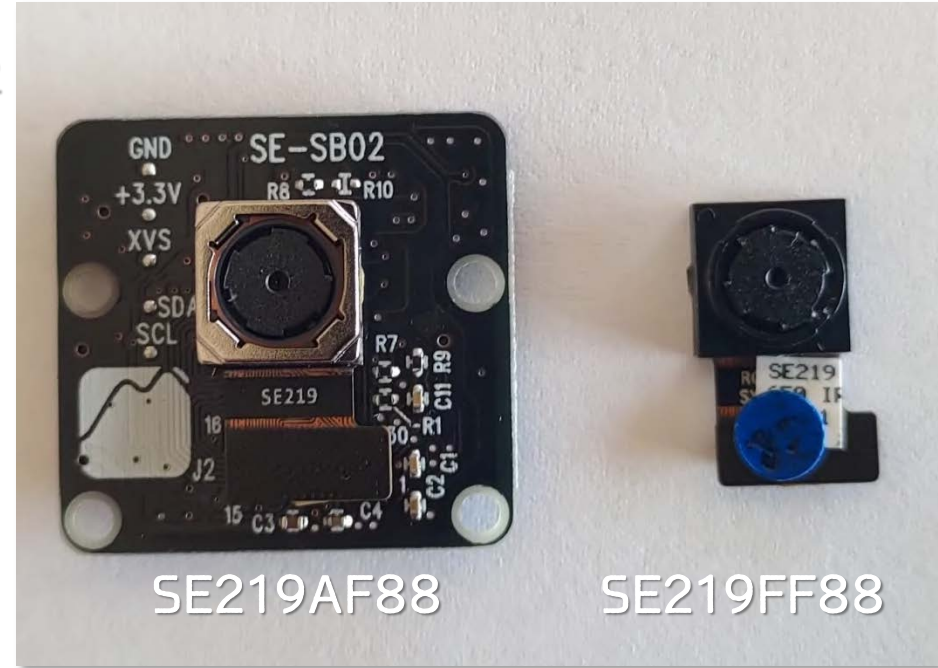
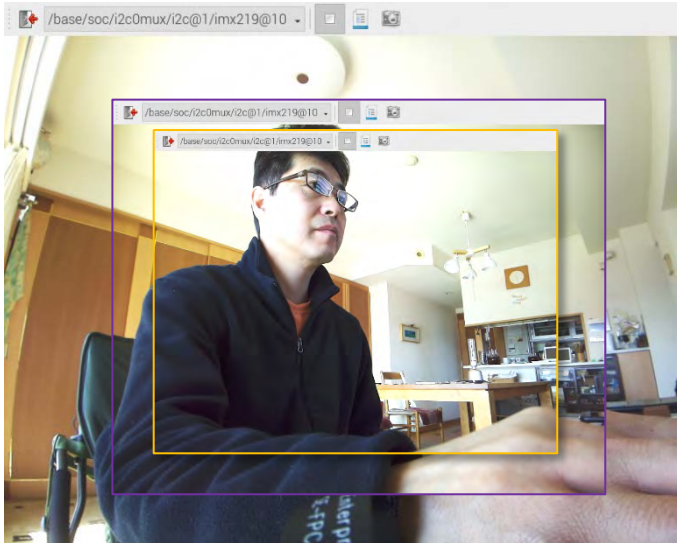
Dolphin ToF Platform is working on RaspberryPi4 (OS: Ubuntu20.04)
On board ISP realizes “easy to launch the ToF solution” on the most popular SBC.

MIPI camera version is also available.

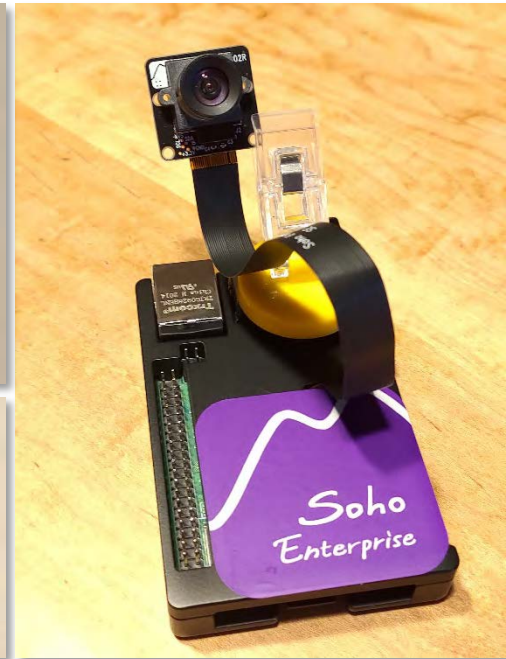
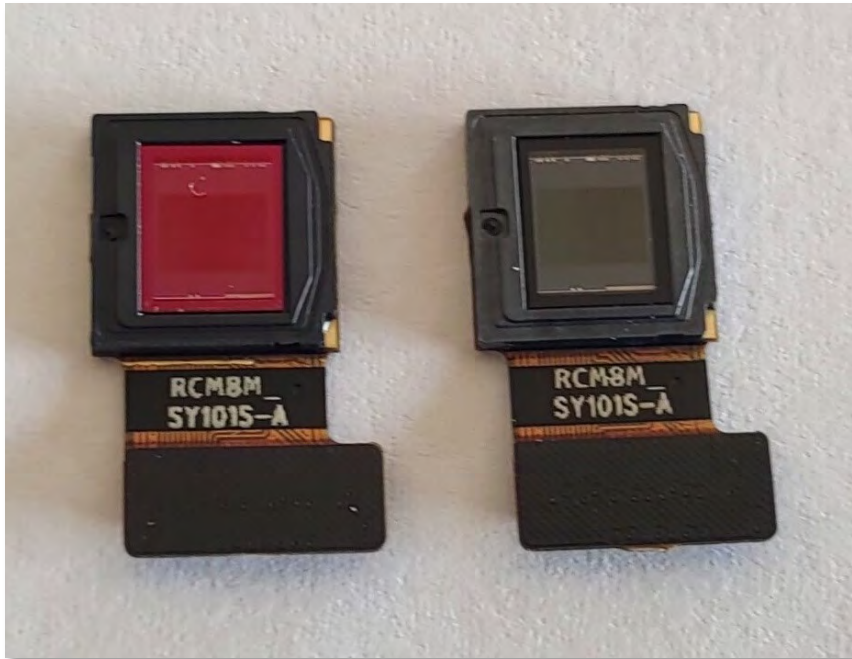


2021.2 New Release ①

SE219FF88 & SE219AF88 FoV(D)=88degree wide angle module



SE219PKG-00/01
and SE-SB02R M12 lens holder attachable camera board



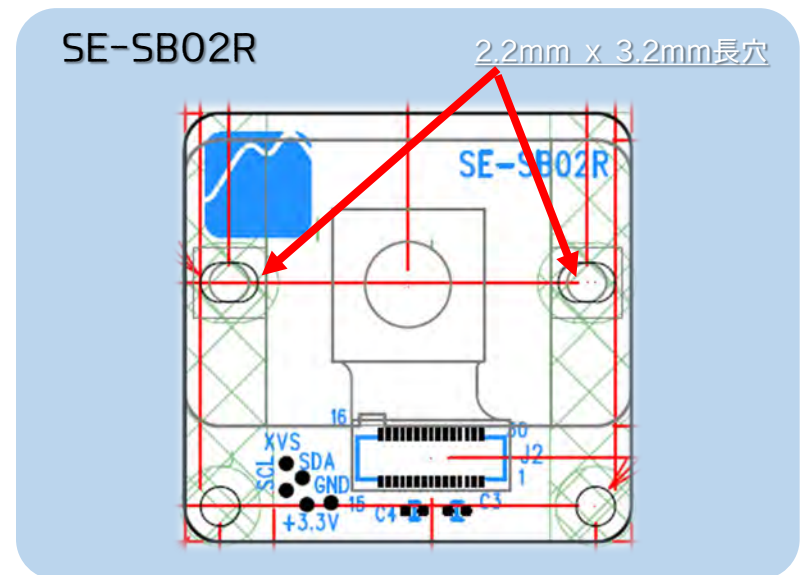
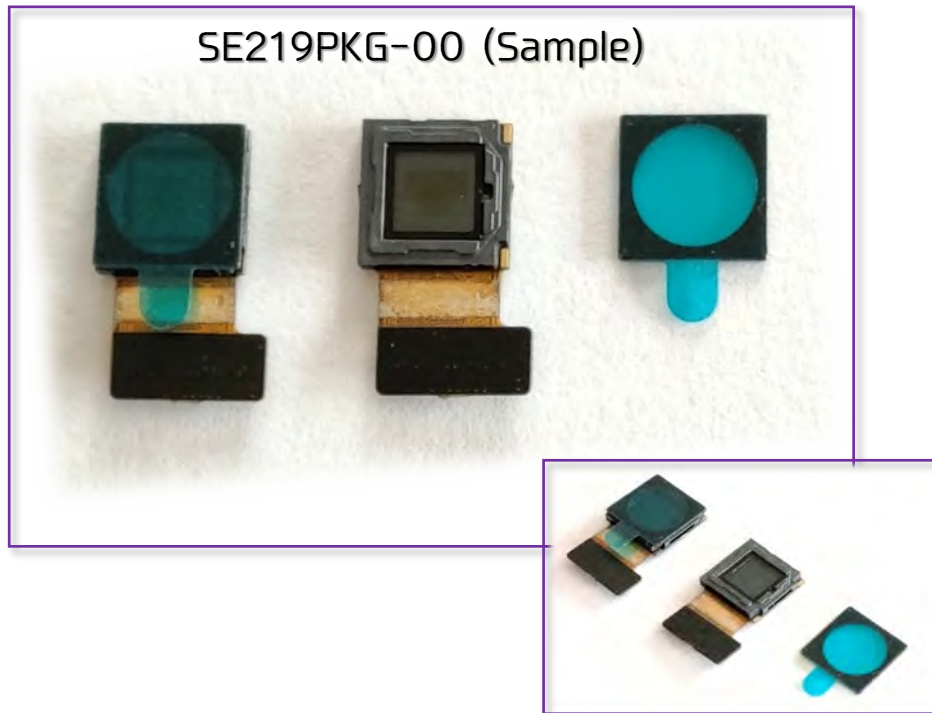
新製品予告：SE219PKG-00/01およびSE-SB02R

CMOSイメージセンサーの前面にIR CUT FILTERないし保護ガラス (NoIR)を取り付けたセンサーパッケージモジュールを企画しました。

2021年2月末からNoIRタイプのサンプル販売を予定しています。

同時に標準的なM12ホルダーを取り付け可能なセンサー基板：SE-SB02Rも発売開始します。

これにより、様々な画角のレンズの取り付けを可能にします。



インタニヤ社の「VR 220 MOD KIT」を取り付け可能な一般的なM12ホルダーの取付穴間隔=20mmにも対応

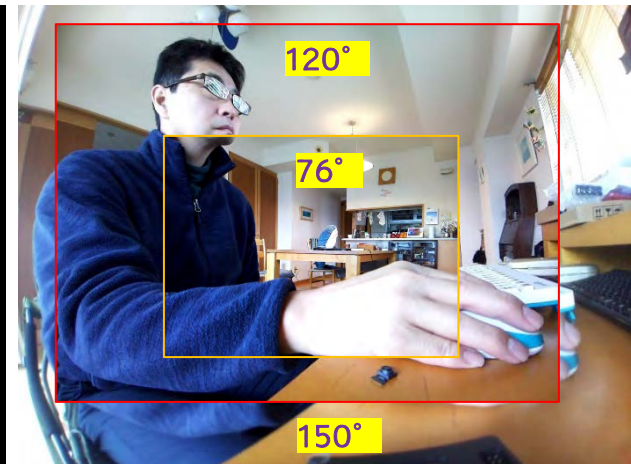
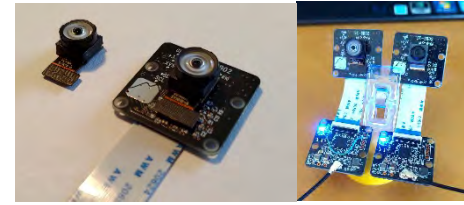
<https://products.entaniya.co.jp/ja/products/camera-module-mod-kit/raspberry-pi/>

交換レンズ情報

<https://products.entaniya.co.jp/ja/products/camera-module-mod-kit/raspberry-pi/rp-lens/>

SBC向け小型レンズモジュール：SE219シリーズ 画角比較

新たに対角150°の広角モジュール「SE219FF150-00」がラインアップに加わりました。



SBC向け小型レンズモジュール：SE219シリーズ ステレオ3Dカメラ応用例

76°



Base Line 65mm



Base Line 85mm

fx:3777 vx:3660 w: 8143 h:1318 R:132

150°



Base Line 65mm



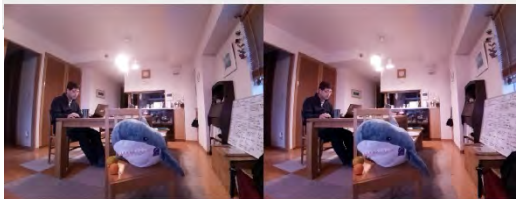
Base Line 85mm

fx:967 vx:161 w: 1302 h:1400 R:151

120°



Base Line 65mm



Base Line 85mm

fx:2798 vx:2740 w: 1148 h:1218 R:86

160°



Base Line 65mm



Base Line 85mm

fx:1700 vx:2420 w: 1818 h:1218 R:137

187°



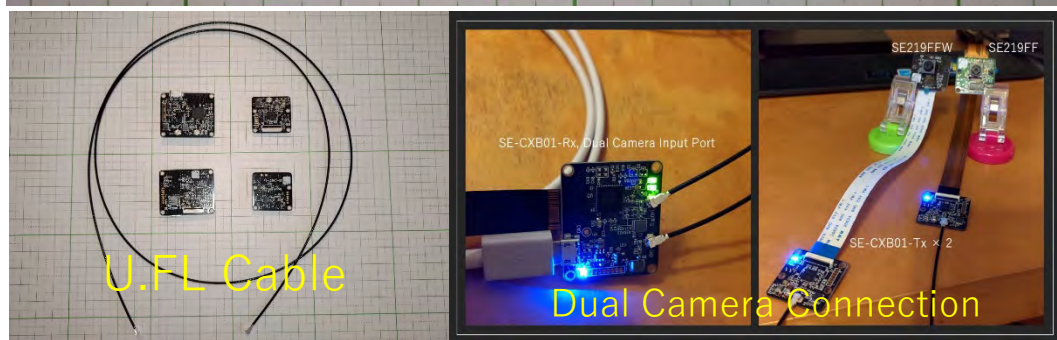
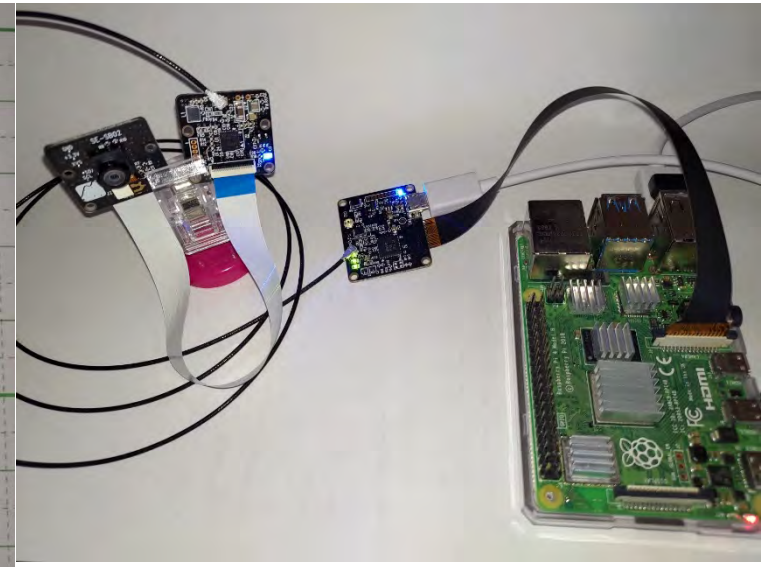
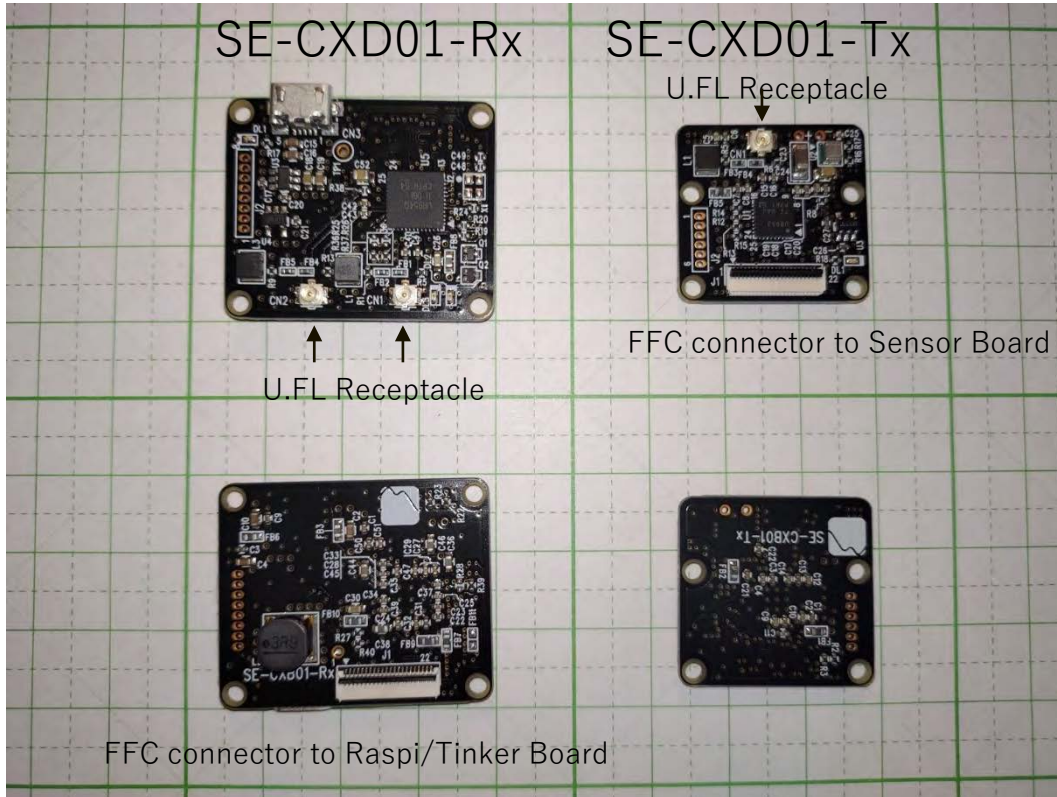
Base Line 65mm



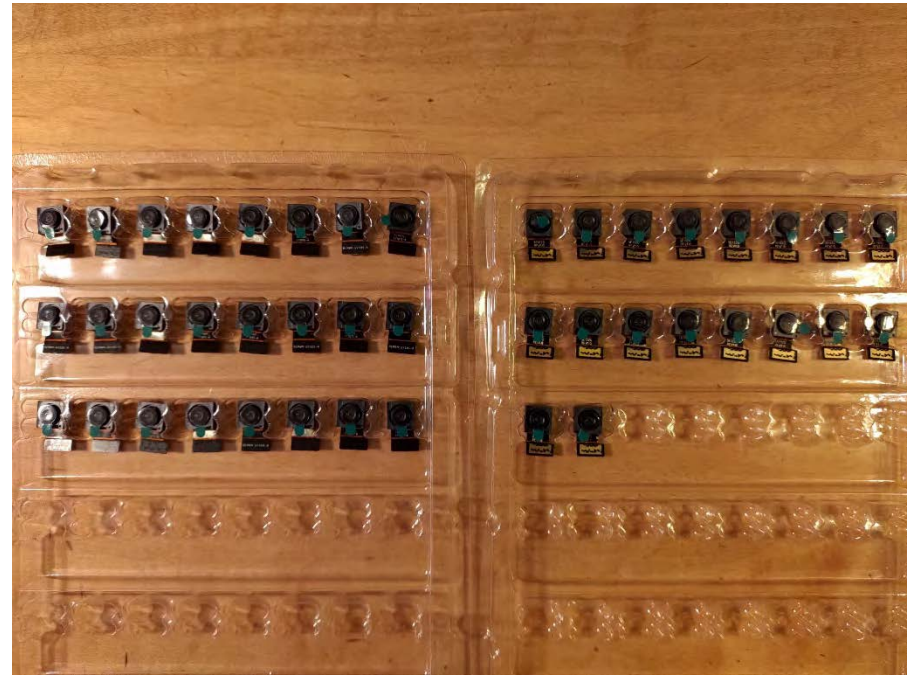
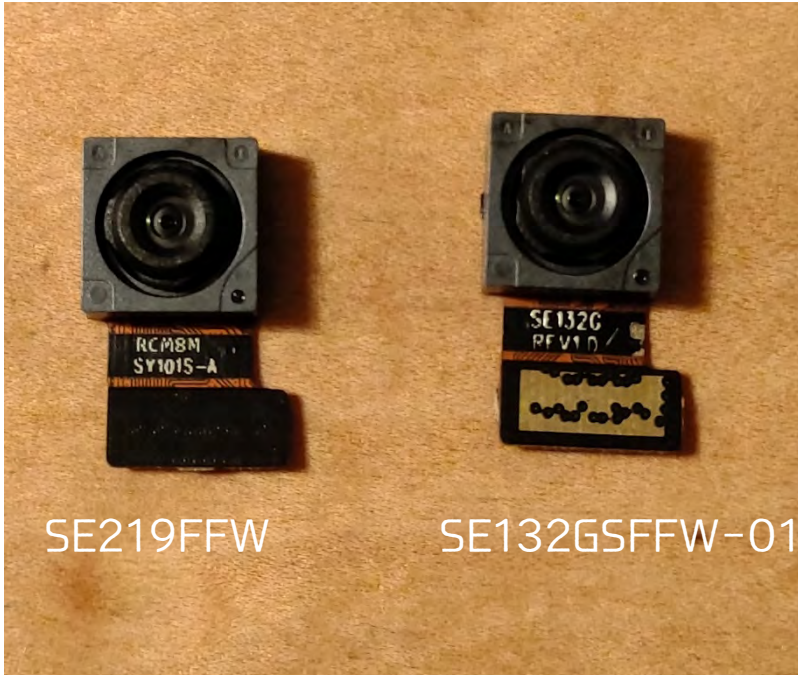
Base Line 85mm

fx:1407 vx:2550 w: 1818 h:1218 R:80

SE-CXB01-Tx/Rx FPD LINK III MIPI EXTENTION BOARD



SE219FFW-00/01 and SE132GSW-01 FoV=120° 品のサンプル出荷開始



FoV(Field of View) comparison SE219FF & FE219FFW



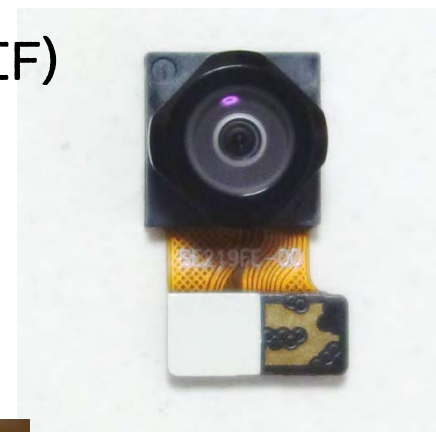
重ねて
比較



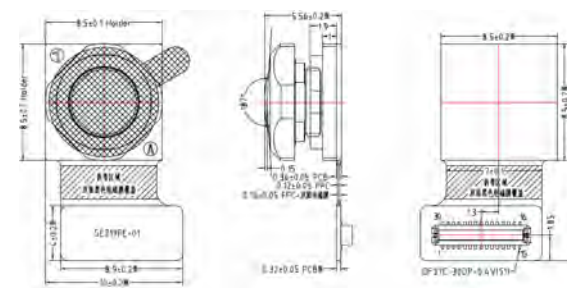
Vision System向けイメージセンサーモジュール SE219FE-00-CB (w/ IRCF), SE219FE-01-CB (w/o IRCF)

あのIMX219が(x, y)投影サイズそのままにFoV=187°の魚眼カメラになりました。

しかも厚みは6mm以下。狭い場所に仕込むことができます。
従来製品(対角76°)に対し圧倒的な情報量の画像取得が可能です。



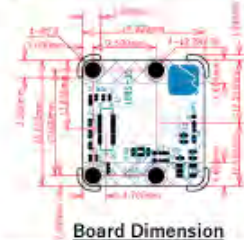
バンダイ様の人気商品
ガシャポンのザクヘッドに
ぴったり収まります。





Fish Eye Camera Board w/ 8Mpix CIS for Single Board Computers

SE219FE-00/01-CB



Board Dimension

- **Ultra Wide View Angle: FoV =187° ±3°**
Suitable for wide angle image recognition usage in AIoT area.
- **Adopted the most mature image sensor for SBC.**
Sony IMX219PQH5-C
- **Camera Driver with AE/AWB functions for "tinker board" is available.**
Processed in Embedded HW ISP, Full Size 20fps/FHD 30fps
- **w/ IRCF(-00), w/o IRCF(-01) modules are available**
- **Extensivity:**
FFC connector for MIPI CSI-2 4 lane connection for faster fps.
- **Ready for use**
No need remodeling the module to get wide FoV



Assumed application cases

- Look down monitoring with few blind spots
- VR Stereo Vision
- Wide vision for Robots, AI speaker, any others
- Monitoring wildlife ecology, ham to agriculture
- Home-use video monitoring & recording
- 360° monitoring on drones, robot cars, etc.
- Sports camera for tennis, volleyball, badminton, etc.

Fish Eye Lens Module: SE219FE-00/01



NO.	REF ID	UNIT	MARK	Value	Quantity	MARK	Value	Quantity
1	IC1	IC	IMX219PQH5-C	IMX219PQH5-C	1	IC1	IMX219PQH5-C	1
2	IC2	IC	MT9V03	MT9V03	1	IC2	MT9V03	1
3	IC3	IC	MT9V03	MT9V03	1	IC3	MT9V03	1
4	IC4	IC	MT9V03	MT9V03	1	IC4	MT9V03	1
5	IC5	IC	MT9V03	MT9V03	1	IC5	MT9V03	1
6	IC6	IC	MT9V03	MT9V03	1	IC6	MT9V03	1
7	IC7	IC	MT9V03	MT9V03	1	IC7	MT9V03	1
8	IC8	IC	MT9V03	MT9V03	1	IC8	MT9V03	1
9	IC9	IC	MT9V03	MT9V03	1	IC9	MT9V03	1
10	IC10	IC	MT9V03	MT9V03	1	IC10	MT9V03	1
11	IC11	IC	MT9V03	MT9V03	1	IC11	MT9V03	1
12	IC12	IC	MT9V03	MT9V03	1	IC12	MT9V03	1
13	IC13	IC	MT9V03	MT9V03	1	IC13	MT9V03	1
14	IC14	IC	MT9V03	MT9V03	1	IC14	MT9V03	1
15	IC15	IC	MT9V03	MT9V03	1	IC15	MT9V03	1
16	IC16	IC	MT9V03	MT9V03	1	IC16	MT9V03	1
17	IC17	IC	MT9V03	MT9V03	1	IC17	MT9V03	1
18	IC18	IC	MT9V03	MT9V03	1	IC18	MT9V03	1



NO.	REF ID	UNIT	MARK	Value	Quantity	MARK	Value	Quantity
1	IC1	IC	IMX219PQH5-C	IMX219PQH5-C	1	IC1	IMX219PQH5-C	1
2	IC2	IC	MT9V03	MT9V03	1	IC2	MT9V03	1
3	IC3	IC	MT9V03	MT9V03	1	IC3	MT9V03	1
4	IC4	IC	MT9V03	MT9V03	1	IC4	MT9V03	1
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7	IC7	IC	MT9V03	MT9V03	1	IC7	MT9V03	1
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13	IC13	IC	MT9V03	MT9V03	1	IC13	MT9V03	1
14	IC14	IC	MT9V03	MT9V03	1	IC14	MT9V03	1
15	IC15	IC	MT9V03	MT9V03	1	IC15	MT9V03	1
16	IC16	IC	MT9V03	MT9V03	1	IC16	MT9V03	1
17	IC17	IC	MT9V03	MT9V03	1	IC17	MT9V03	1
18	IC18	IC	MT9V03	MT9V03	1	IC18	MT9V03	1

Same (x, y) form factor & compatible pin assignment w/ the module on Raspberry Camera V2.1

Ver. 1.1.0

Key Specifications SE219FE-00/01-CB

Category	Parameter	Value
Image Sensor	Manufacturer	Sony Back-side illuminated CMOS image sensor
	Pixel size	1.12um x 1.12um
	Active Image Area	3288 x 2464 8Mpix
	Optical Size	Type 1/4 Diagonal 4.60mm
Module	Operation Temperature	-30~60°C Function guarantee -20~60°C Performance guarantee
	Storage Temperature	-30~80°C
	Configuration	Type 1/4, 6P
	FoV	187° ±3°
Lens	F No	2.10±5%
	Focus range	30cm ~ Infinity, Adjusted at 60cm when shipped.
	Connector	30pin Compatible w/ Raspi Camera v2.1 module
Size	Size	8.5mm*8.5mm*5.56mm Lens Holder size: Same (x, y) size to Raspi module
	Weight	0.4g
Power Supply	Analog	2.8V±0.2V
	Digital	1.2V±0.12V
	IO	1.8V±0.18V
Board	Size	26mm*24mm Almost same size and compatible position for screw holes with RaspberryPi camera V2.1.
	Connector	1.0mm pitch 15pin 0.5mm pitch 22pin For Tinker board, RaspberryPi RaspberryPi0, Raspi compute module, etc.
Output	I/O Format	Support MIPI CSI-2 2lane and 4 lane
	Maximum speed	Full size: 30fps, FHD: 60fps, 720P: 180fps (MIPI 4 lane mode)
	Power Supply	3.3V±0.3V Generate Analog 2.8V by on-board LDO Generate Digital 1.2V by on-board DD-converter Generate Analog 1.8V by on-board LDO Generate AF 2.8V by on-board optional LDO

Why are the SE camera boards suitable for AIoT vision processing applications?

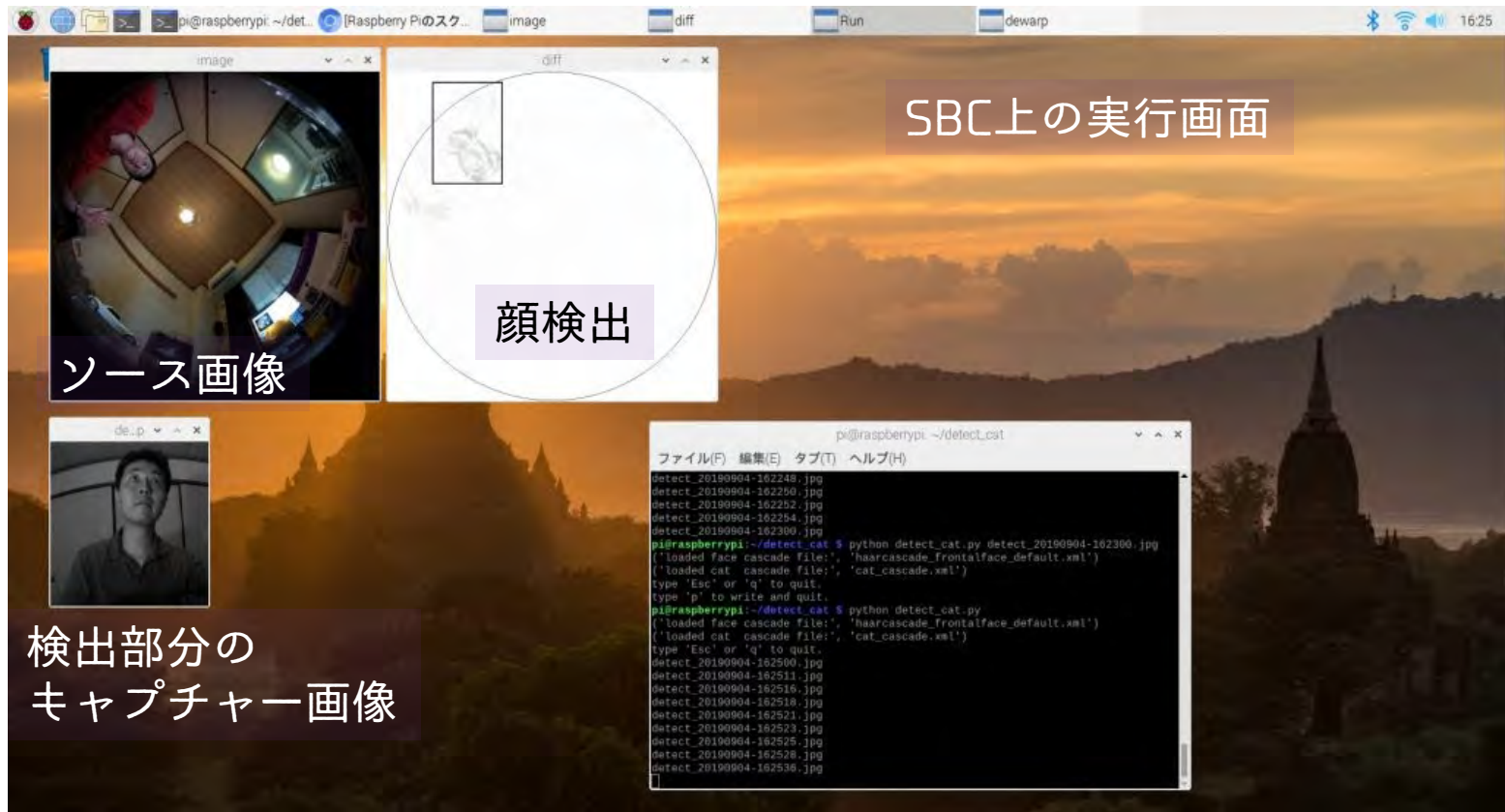
- Good image quality**
The SE camera series uses a high-quality Sony image sensors of better SNR.
- Ready to use on tinker board and other SBCs**
Camera drivers are ready. Easy to customize for PoC prototyping
- Variety of Options**
Wide variety of options for resolution, global shutter, wide FoV lens, focus driver, etc.
- Low Latency, RAW image**
Suitable for real-time autonomous control system
- Affordable for everyone**
Pricing that individuals can purchase from a single item in line with the corporate philosophy of *helping to create open innovation.*

Further Information:
<https://soho-enterprise.com/>
<https://www.visionproc.org/index.php>

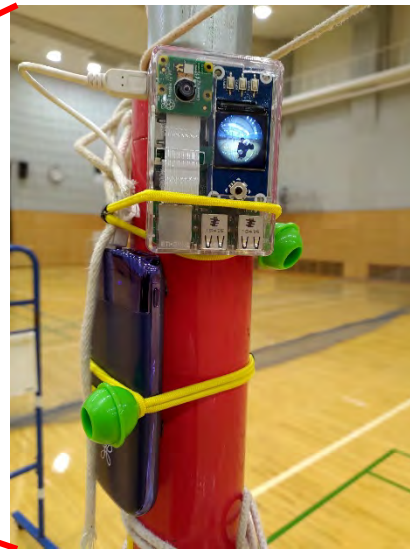
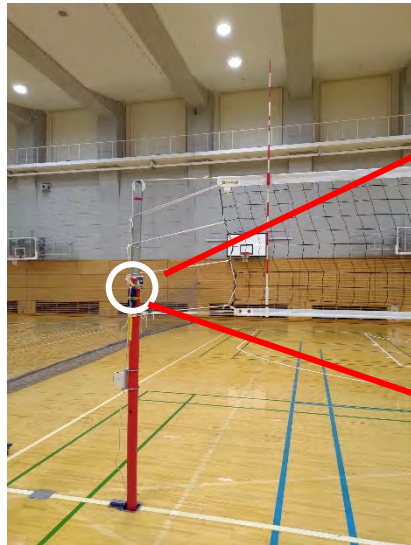


Ver. 1.1.0

魚眼カメラ応用事例：detect_cat（アプリSW配布中。）

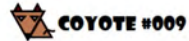


魚眼カメラ応用事例：魚眼スポーツカム

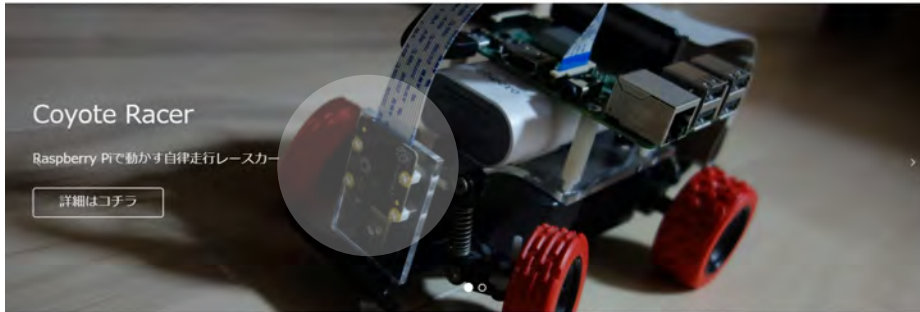


広角レンズモジュールのVision Processing適用事例

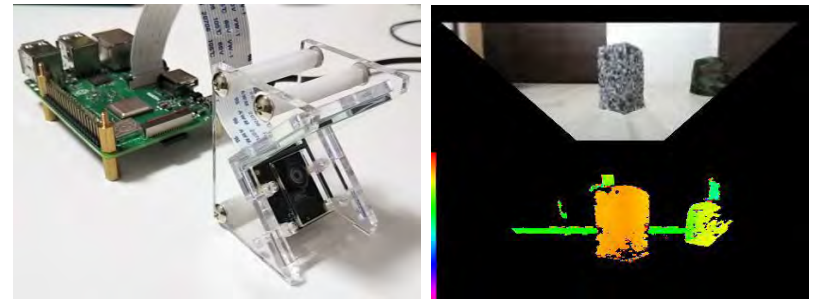
認識系アプリ



Coyote Racer



測距系アプリ



超広角応用ステレオ測距

Line laser depth module

FoV~135deg
Processing time~15ms/frame



CQ出版社 Interface
2020年3月号に特集記事掲載→



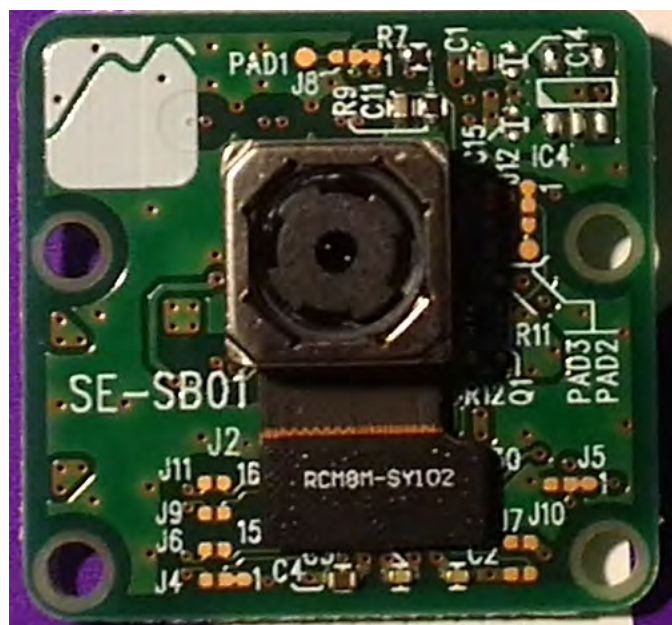
ラインレーザー+単眼ステレオ測距
132° 広角レーザーとの組み合わせ

Vision System向けイメージセンサーモジュール SE219AF-00-CB (w/ IRCF), SE219AF-01-CB (w/o IRCF)

想定適用例：AR/VRゴーグル用カメラ、スマートグラス、ウェアラブルカメラ

FoV=76°、待望のフォーカスドライバ内蔵のIMX219カメラモジュール
3cm～無限遠(要調整)でフォーカス合わせが可能。

シャープなイメージのマクロ撮影において特に性能を発揮
Tinker BoardのカメラドライバーにAF機能実装検討中



FoV=160° 魚眼カメラ

SE219FE160-00-CB (w/ IRCF), SE219FE160-01-CB (w/o IRCF)

想定適用例：広角3D動画、ドアホン、見守り監視、自律移動ロボットのセンシングなど。

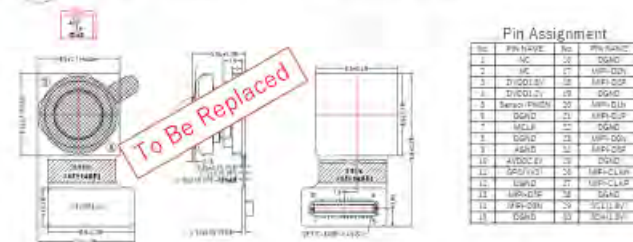


Soho Enterprise Ltd.

Fish-Eye lens nodule w/ 8Mpix CIS for Single Board Computers

SE219FE160-00/01

- Ultra Wide View Angle: FoV $\approx 160^\circ \pm TBD^*$
Suitable for wide angle image recognition usage in AIoT area.
- Adopted the most mature image sensor for SBC.
Sony IMX219PQH5-C
- w/ IRCF (-00), w/o IRCF (-01) modules are available
- Extensivity:
FFC connector for MIPI CSI-2 4 lane connection for faster fps.



IMX219
D=4.6mm

Imaging area & Image circle

- Assumed application cases
- Look down monitoring with few blind spots
 - Monitoring wildlife ecology, harm to agriculture
 - CVR Stereo Vision
 - Home-use video monitoring & recording
 - Wide vision for Robots, AI speaker, any others

SE Camera Board Series Product Brochure

SE Camera Board Series Product Brochure

Key Specifications		SE219FE-00/01-CB		
Image Sensor	Manufacturer	Sony	Back-side illuminated CMOS image sensor	
	Pixel size	1.12um	1.12um	
	Active Image Area	3280 x 2464	8Mpix	
	Optical Size	Type 1/4 Diagonal	4.60mm	
	Operation Temperature	-20~80°C	Function guarantee	
Module	Storage Temperature	-20~80°C	Performance guarantee	
	Configuration	Type 1.65, 5P		
	Lens	FoV	160°	=(TBD)*
		F No	2.0	±5%
		Focus range	30cm ~ infinity	Adjusted at 60cm when shipped (TBD)
	Connector	30pin	Compatible w/ Raspi Camera v2.1 module	
	Size	8.5mm*8.5mm*TBDmm	Lens Holder size: Same (x, y) size to Raspi module	
	Weight	0.4g(Tentative)		
	Power Supply	Analog	2.8V ± 0.2V	
		Digital	1.2V ± 0.12V	
IO		1.8V ± 0.18V		
	Size	26mm*24mm	Almost same size and compatible position for screw holes with RaspberryPi camera v2.1.	
Connector	1.0mm pitch 15pin	For Tinker board, RaspberryPi		
	0.5mm pitch 22pin	RaspberryPi0, Raspi compute module, etc.		
Board (option)	I/O Format	Support MIPI CSI-2 2lane and 4 lane		
	Output	Maximum speed	Full size: 30fps, FHD: 60fps, 720P: 180fps (MIPI 4 lane mode)	
Power Supply		3.3V ± 0.3V	Generate Analog 2.8V by on-board LDO	
			Generate Digital 1.2V by on-board DC-converter	
			Generate Analog 1.8V by on-board LDO	
			Generate AF 2.6V by on-board optional LDO	

Why are the SE camera boards suitable for AIoT vision processing applications?

- Good image quality**
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- Ready to use on tinker board and other SBCs**
Camera drivers are ready. Easy to customize for PoC prototyping
- Variety of Options**
Wide variety of options for resolution, global shutter, wide FoV lens, focus driver, etc.
- Low Latency, RAW image**
Suitable for real-time autonomous control system
- Affordable for everyone**
Pricing that individuals can purchase from a single item in line with the corporate philosophy of *helping to create open innovation.*

■ Further Information:
<https://soho-enterprise.com/>
<https://www.visionproc.org/index.php>



2018年製品、量産出荷中

Vision System向けイメージセンサーモジュール第一弾
SE397GS-00/01-CB, SE397GSW-00-CB
 High speed global shutter camera

画素ピッチ：3.45um (IMX219は1.12um)で高感度
 すなわち高速シャッターがきれる。
 動被写体を、ボケ、歪みを少なく撮影できる！
 FoV=90° および180° 品、
 90° 品はIRCF 有/無 選択可能

SE397GS-01-CB



FoV 90° NoIR

SE397GSW-00-CB



Diagonal 2.799 mm (Type 1/6.4) 0.32 Mega-Pixel (VGA) CMOS Image Sensor with Square Pixel for B/W Cameras

IMX397CLN-C

Pregius

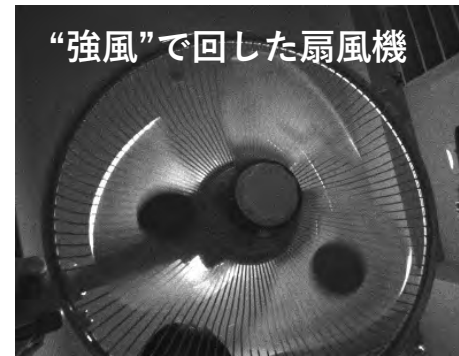
Description

IMX397CLN-C is a diagonal 2.799 mm (Type1/6.4) 0.32 Mega-pixel CMOS active pixel type image sensor with a square pixel array. By introducing Global Shutter technology with low PLS (Parasitic Light Sensitivity), high sensitivity and low noise, motion blur is suppressed. It equips an electronic shutter with variable integration time. It operates with three power supply voltages: analog 2.8 V, digital 1.2 V and 1.8 V for input / output interface and achieves low power consumption.

(Application: FA Cameras, Sensing)

Features

- ◆ CSI-2 serial data output (DPHY ver1.1 compliant)
- ◆ 2-wire serial communication circuit
- ◆ 10-bit A/D converter
- ◆ CDS / PGA (digital 24dB, analog 18dB)
- ◆ Automatic optical black clamp circuit
- ◆ Variable-speed electronic shutter (1H units)
- ◆ Independent flipping and mirroring
- ◆ Pixel binning readout and H / V sub-sampling function
- ◆ Dual sensor synchronization operation
- ◆ Trigger (Internal & External)



Rolling Shutter



Motion Blur

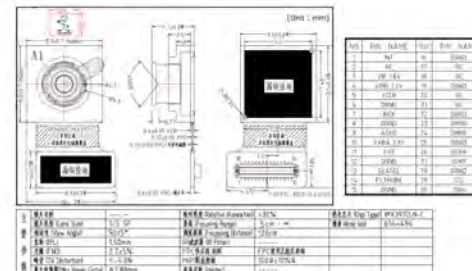


Global Shutter



<https://www.teledynedalsa.com/en/learn/knowledg-e-center/global-shutter-imaging/>

IMX397 Camera Lens Module





Soho Enterprise Ltd.

SE Camera Board Series Product Brochure

SE Camera Board Series Product Brochure

Global Shutter Camera Board w/ VGA CIS for Single Board Computers

SE397GS-00/01-CB



Adopted Sony Global Shutter Image Sensor
Sony IMX397CLN-C high sensitivity GS CIS

Wide View Angle: FoV(D) -90° ±5°
Suitable for wide angle image recognition usage in AIoT area

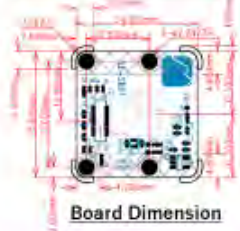
High Speed Operation
Up to 240fps

Camera Driver for "tinker board" is available.
Tinker board & RaspberryPi in RAW capture mode

Extensivity:
Synchronization by XVS (GPIO)

w/ IRCF(-00), w/o IRCF(-01) modules are available

Ultra-Wide-Angle Option: FoV(D)-180° (Tentative)



Board Dimension



Ultra Wide Lens Option



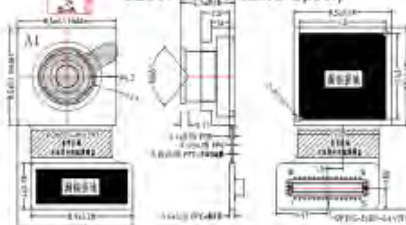
Fan in Motion

Assumed application cases

- Machine vision for the object in fast motion
- Vision analysis in sports training
- Biometrics
- Measurement device to adjust the mechanical timing
- Stereo depth measurement in motion
- Motion capture for gesture control in VR game
- Motion capture for computer graphic animation

HSP

Global Shutter Camera Module
SE397GS (Tentative Spec.)



Same (x, y) form factor & compatible pin assignment w/ Raspberry Camera V2.1

NO	PIN NAME	NO	PIN NAME
1	INT	76	D6HD
2	IC	77	IC
3	VIF 1.8V	78	IC
4	VDDG 1.7V	79	D6HD
5	XCLR	28	IC
6	D6HD	21	IC
7	IOK	27	D6HD
8	D6HD	23	D6HD
9	AGND	74	D6HD
10	VARA 2.5V	25	D6HD
11	XVS	26	DOIN
12	D6HD	27	DOIP
13	SLASEL	24	D6HD
14	PSYROBE	29	SOL
15	D6HD	30	SDA

NO	Pin Name	Pin No.	Pin Name	Pin No.	Pin Name	Pin No.
1	INT	76	D6HD	76	D6HD	76
2	IC	77	IC	77	IC	77
3	VIF 1.8V	78	IC	78	IC	78
4	VDDG 1.7V	79	D6HD	79	D6HD	79
5	XCLR	28	IC	28	IC	28
6	D6HD	21	IC	21	IC	21
7	IOK	27	D6HD	27	D6HD	27
8	D6HD	23	D6HD	23	D6HD	23
9	AGND	74	D6HD	74	D6HD	74
10	VARA 2.5V	25	D6HD	25	D6HD	25
11	XVS	26	DOIN	26	DOIN	26
12	D6HD	27	DOIP	27	DOIP	27
13	SLASEL	24	D6HD	24	D6HD	24
14	PSYROBE	29	SOL	29	SOL	29
15	D6HD	30	SDA	30	SDA	30

Ver. 1.2.0

Key Specifications SE397GS-CB

Category	Item	Specification
Image sensor	Manufacturer	Sony
	Product Code	IMX397CLN-C
	Pixel size	3.45um x 3.45um
	Active Image Area	640 x 480 VGA
	Optical Size	Type 1/8.4 Diagonal 2.80mm
Lens	Operation Temperature	-30~75°C: Function guarantee -10~60°C: Performance guarantee
	Storage Temperature	-40~80°C
	Lens configuration	GS: Type 1/5.5P, GSW: Type 1/4.6P
Module	FoV	GS: 90° ±5°, GSW: 181° ±3° (diagonal)
	F No.	GS: 2.2 ±5%, GSW: 2.1 ±5%
	Focus range	5cm - Infinity, Adjusted at 120cm when shipped (GS), TBD for GSW
Board	Connector	30pin
	Size	8.5mm*8.5mm *4.7mm
	Weight	0.4g
Power Supply	Analog	2.8V ±0.2V
	Digital	1.2V ±0.12V
	ID	1.8V ±0.18V
Board	Size	25mm*24mm
	Connector	1.0mm pitch 15pin 0.5mm pitch 22pin
	Output	Maximum speed
Board	Power Supply	3.3V ±0.3V
	Output	Full size: 240fps
	Power Supply	3.3V ±0.3V

Why are the SE camera boards suitable for AIoT vision processing applications?

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Further Information:

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<https://www.visionproc.org/index.php>



Ver. 1.2.0



Fish-Eye lens module w/ 1.3Mpix Global Shutter CIS for SBCs

SE132GSFE160-00/01

Ultra Wide View Angle: FoV = 160° ± (TBD)*

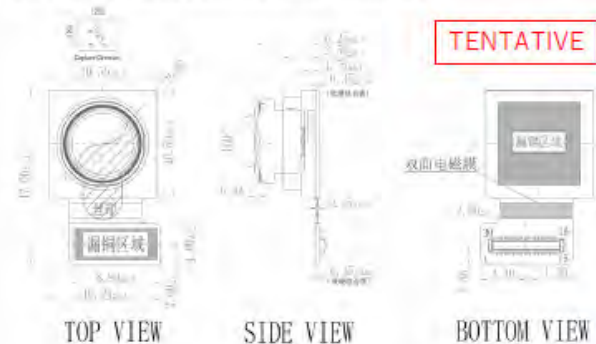
Suitable for wide angle image recognition usage in AIoT area.

Adopted the best in class global shutter CMOS image sensor of BSI. Smartsens SC132GS

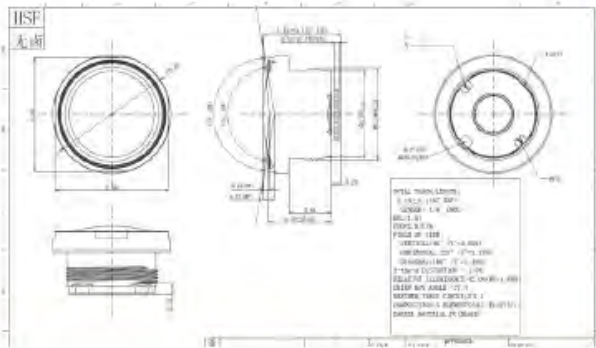
w/ IRCF(-00), w/o IRCF(-01) modules are available
Customized Band Path Filters are also available

Extensivity:

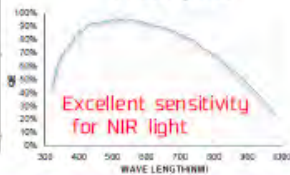
MIPI CSI-2 4 lane connection for faster fps.



No.	PIN NAME	No.	PIN NAME
1	LED-STROBE	16	DGND
2	TRIG/S	17	MPI-D2N
3	DVDD1.8V	18	MPI-D2P
4	DVDD1.2V	19	DGND
5	SENSOR-POWER	20	MPI-D1N
6	DGND	21	MPI-D1P
7	MCLK	22	DGND
8	DGND	23	MPI-D0N
9	AGND	24	MPI-D0P
10	AVDD0.5V	25	DGND
11	TRIGL/FSYNC	26	MPI-CLKN
12	DGND	27	MPI-CLKP
13	MPI-D3P	28	DGND
14	MPI-D3N	29	SCL1.8V
15	DGND	30	SDA1.8V



Imaging area & Image circle



Assumed application cases

- Wide vision for Robots of autonomous driving
- 3D sensing with NIR structured light

Key Specifications SE132GSFE160-00/01

Image Sensor	Product Code: SC132GS	Manufacturer	Smartsens Back-side illuminated, Global Shutter		
		Pixel size	2.7um x 2.7um		
		Active Image Area	1080 x 1280 1.3Mpix		
		Optical Size	Type 1/4 Diagonal 4.53mm		
		Operation Temperature	-40~85°C Function guarantee -20~80°C Performance guarantee		
		Maximum Frame Rate	120fps		
Lens	Module	Configuration	Type 1/6, 5P		
		FoV	160° ± (TBD)*		
		F No.	2.0 ± 5%		
		Focus range	30cm ~ Infinity, Adjusted at 80cm when shipped.(TBD)		
Connector	30pin	Compatible w/ Raspi Camera v2.1 module			
Size	10.5*10.5*8.3mm(TBD)	Lens Holder size: 8.5 * 8.5 * 8.3mm by COB			
Weight	0.4g(Tentative)				
Power Supply	Module	Analog	2.5V ± 0.1V		
		Digital	1.2V ± 0.06V		
		IO	1.8V ± 0.1V		
Board (option)	Module	Size	25mm* 24mm		
		Connector	1.0mm pitch 15pin	For Tinker board, RaspberryPi	
			0.5mm pitch 22pin	RaspberryPi0, Raspi compute module, etc.	
		Output	I/O Format	Support MIPI CSI-2 2lane and 4 lane	
			Maximum speed	Full size: 120fps (MIPI 4 lane mode)	
		Power Supply	Module	Generate Analog 2.8V by on-board LDO	
				Generate Digital 1.2V by on-board DD-converter.	
				Generate Analog 1.8V by on-board LDO	
				Generate AF 2.8V by on-board optional LDO	

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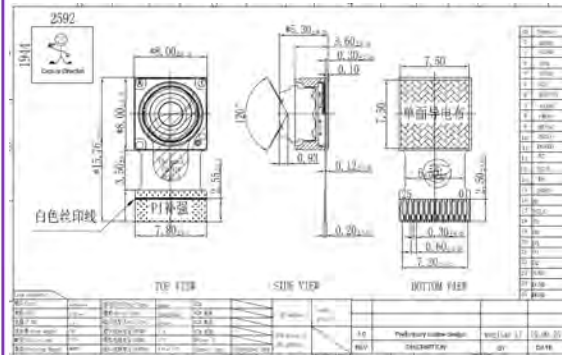
Further Information:

- <https://soho-enterprise.com/>
- <https://www.visionproc.org/index.php>



汎用カメラモジュールシリーズ SEI012FF-D, SEI012FFW-D

ISP内蔵型5Mpixイメージセンサーを使ったレンズモジュール。
DVPインターフェースタイプから順次発売予定



イメージセンサ	
センサタイプ	1/4型 CMOSイメージセンサ
有効画素数	511万画素
記録画素数	504万画素
カメラ制御	
ISO感度	ISO 40~800
シーンセレクト ション	12パターン
露出制御	自動、シャッター優先、ISO感度優先、長時間AEモード
測光モード	マルチパターン、中央重点、画面全体平均、スポット
露出補正	±2EV、1/3EVステップ
シャッタースピード	1/8 s (長時間AEモード) ~1/42000 s
ホワイトバランス設定	オートホワイトバランス、太陽光、曇天、蛍光灯、ランプ
フォーカス制御	オート、シングルAF、連続AF、マニュアル
画像フォーマット	
出力画像フォーマット	JPEG (4:2:2)、Y/Cb/Cr、YUV、RGB、RAW、JPEG+YUV (サムネイル)
静止画データレート	5M pixel 15 frame/s JPEG output
動画データレート	SVGA 30 frame/s YCbCr output
HDビデオ出力	1080p (1920×1030 30 frame/s)、720p (1208×720 60 frame/s) JPEG output、JPEG+YCbCr output

魚眼タイプ : SEI012FE-D (FoV=160° and/or 187°)
AFタイプ : SEI012AF-D(76°), SEI012AFW-D(120°)
ラインアップに追加していきます。

SE-SB02基板に接続可能なMIPI IFバージョンも開発受注可能

1Mpix UVCカメラ (M12レンズタイプ)

SE9732USB

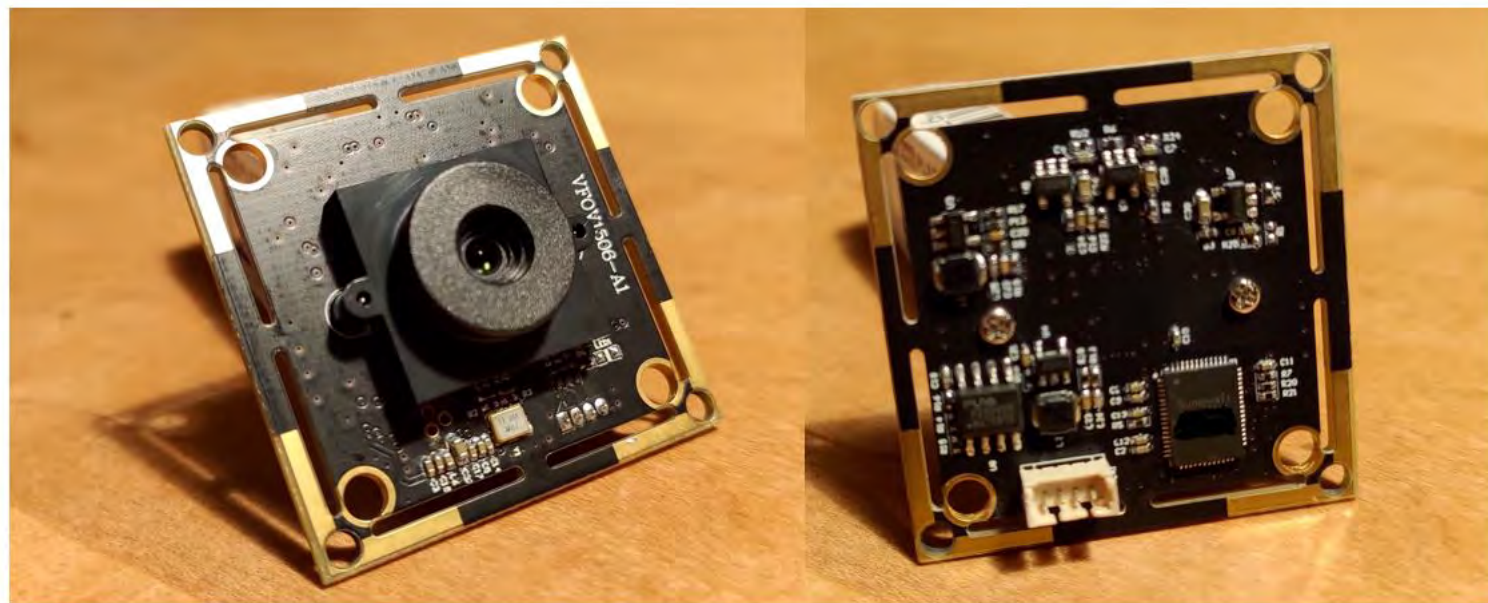
Omnivision社製イメージセンサーOV9732を採用

1/4”型、3.0um画素、1,280x720の高感度汎用UVCカメラ基板です。

カスタム光学フィルタの取り付け応談

M12マウントで様々なレンズと組み合わせが可能です。

小型モジュール化を検討中。(FoV=76°、120°、150°、160° 魚眼)



OPNOUS ToF Camera



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[Seed](#)
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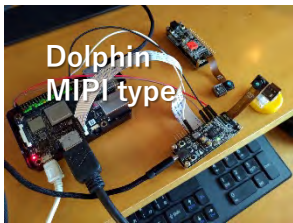
検索する製品名を入力してください:



実用に優れ、リーズナブルな価格のOPNOUS社ToF Solutionを提供



Hawk Dolphin



Dolphin MIPI type

ToFシステムプラットフォーム

現在の位置です: [トップページ](#) > [製品](#) > ToFシステムプラットフォーム

Part NO	Category	Resolution	FoV	Range	IR Filter	Interface
OPNCAM8508C/197-1MA-UA	Dolphin	320x240	72x55	1m/2m	940nm	USB 3.0
OPNCAM8506A/58C-1MA-UA	Dolphin	320x40	110x10	5m	850nm	USB3.0
OPNCAM8508C/197-1MA	Dolphin	320x240	72x55	1m/2m	940nm	MIPI
OPNCAM8506A/58C-1MA	Dolphin	320x40	110x10	5m	850nm	MIPI
OPNCAM8008A/588-1MA-UA	Hawk	320*240	86x68	5m	850nm	USB 3.0
OPNCAM8008A/598-1MA-UA	Hawk	320x240	86x68	5m	940nm	USB 3.0
OPNCAM8008A/58B-1MA-UA	Hawk	320x240	110x90	5m	850nm	USB 3.0
OPNCAM8008A/59B-1MA-UA	Hawk	320x240	110x90	5m	940nm	USB 3.0
OPNCAM8008A/A92-1MA-UA	Hawk	320x240	24x18	10m	940nm	USB 3.0

Software



<http://www.opnous.com/jp>