INET Electronics & Trade LTD.
Complete System Hardware & Software Solution

INET

Industry Leading Imaging Solutions

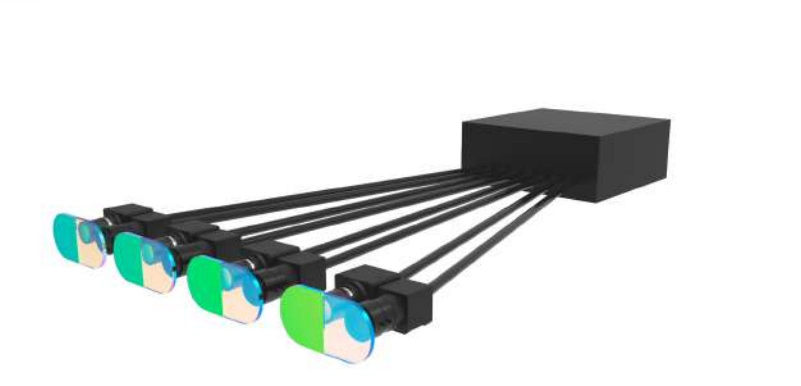
May 2021

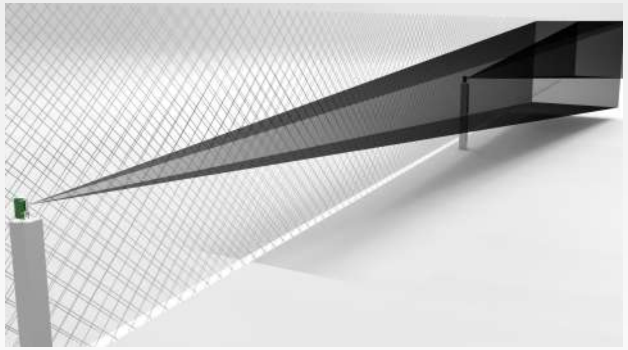
INET Introduction

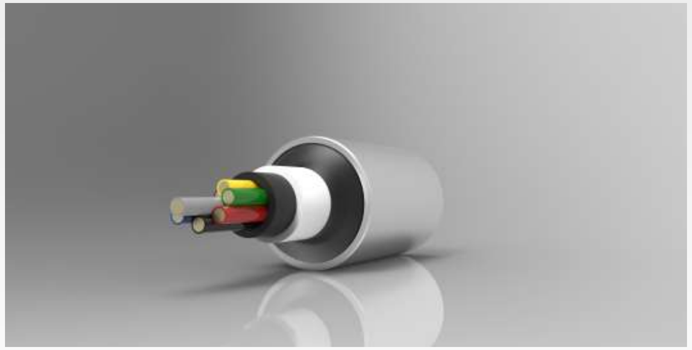
INET provides Optics and Electro-optic solutions, From board level up to full system solution. INET will be an executive consulting and connection firm servicing the electro-optical industry, exploiting and capitalizing on experience, reputation and networks.

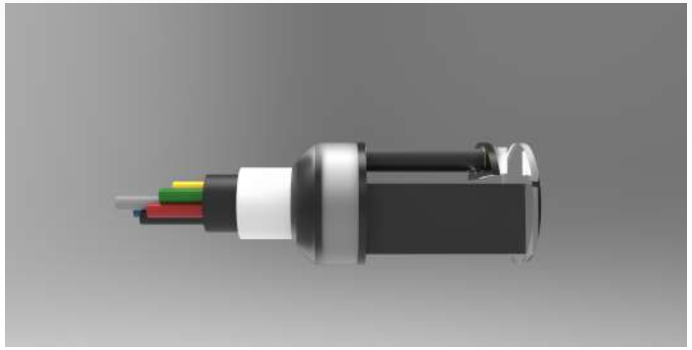
Established in 2008 by Ilan Eliezer, 20 years semiconductor sales experience,
INET become main Camera Module supplier among Israel’s largest companies
with special focus on Startups industry and new projects in wide range of applications.

In-House Designs Services

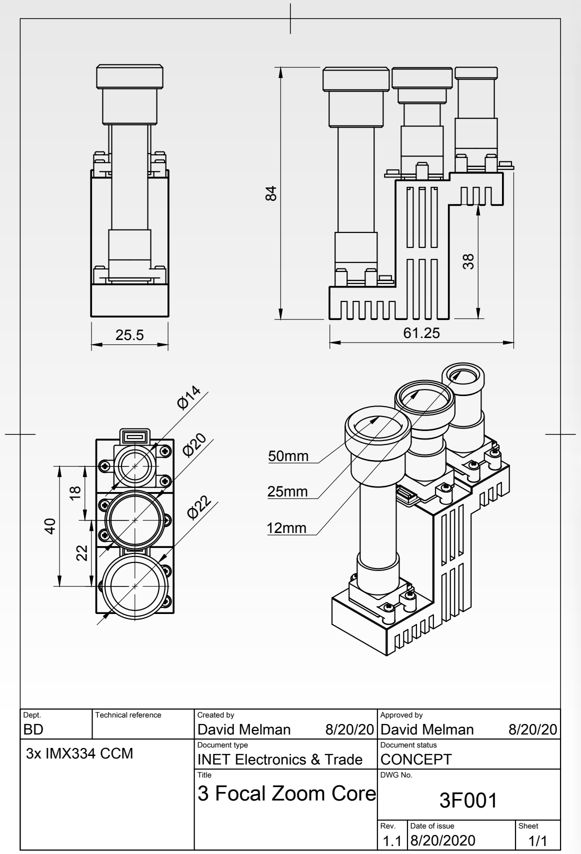








In-House Designs Services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84
38
61.25
Ø14
Ø20
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18
40
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50mm
25mm
12mm

Dept. BD
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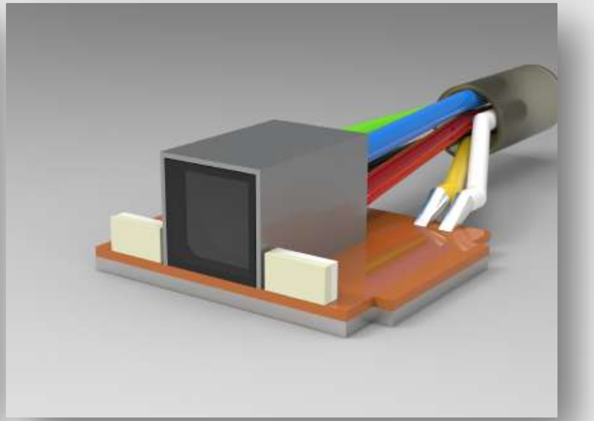
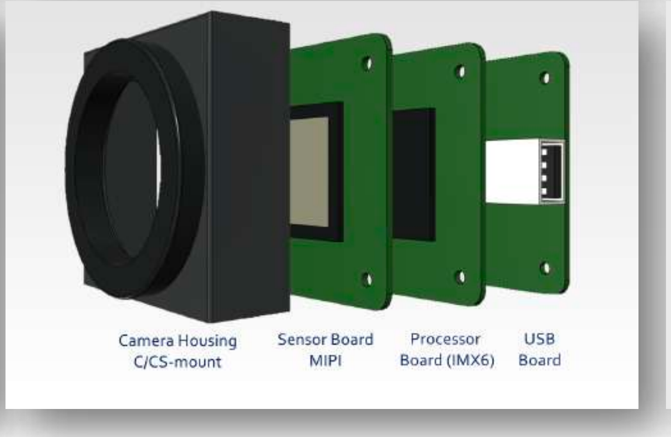
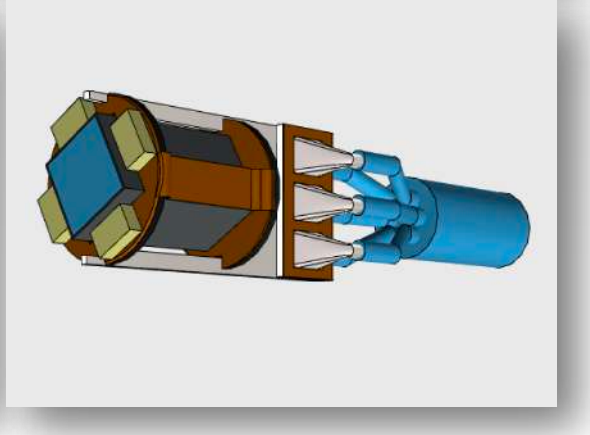



Camera Housing C/CS-mount
Sensor Board MIPI
Processor Board (IMX6)
USB Board



INET Introduction

INET is supporting customers from the block diagram stage with monthly shipments of MP. Focusing on design activity, definition cameras, according to customers' applications and our supplier roadmaps

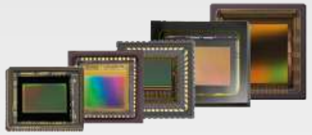
- Defining with customer the relevant sensor, optics, holder, mechanics of his application.

- Supporting cameras peripherals ICs: encoders, IMU, accelerometers, ISP and displays.

INET Solutions

ISP Implement

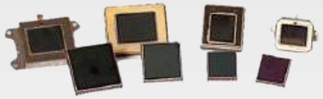
Sensors



Modules

Board Level Camera

LWIR & MWIR
Sensors and Cameras



RF Cables

VIS Optics

MV Solutions

Block/Zoom Cameras

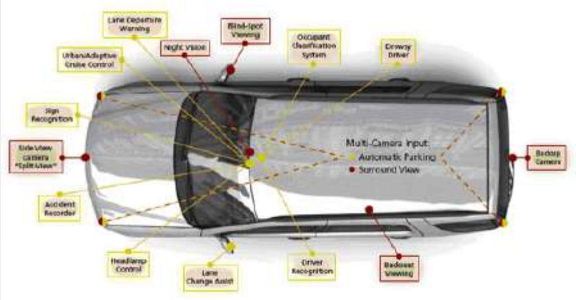
LWIR & MWIR & SWIR
Lenses and Optics

INET APPLICATIONS

Mobile phones

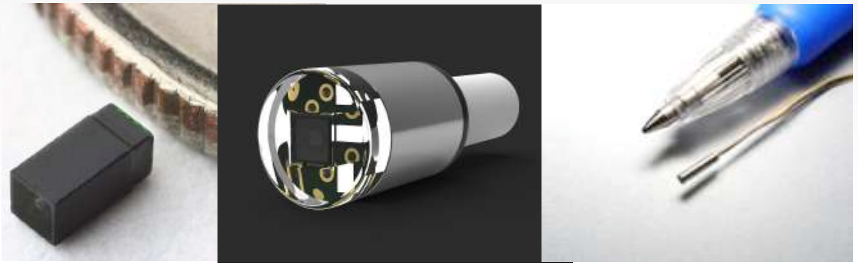
Security and Surveillance

Automotive


Lane Departure Warning
Blind-Spot Viewing
Night Vision
Urban/Adaptive Cruise Control
Occupant Classification System
Drowsy Driver
Sign Recognition
Side View Camera "Split-View"
Multi-Camera Input:
Automatic Parking
Surround View
Backup Camera
Accident Recorder
Headlamp Control
Lane Change Assist
Driver Recognition
Backseat Viewing

3D & AR-VR

Medical

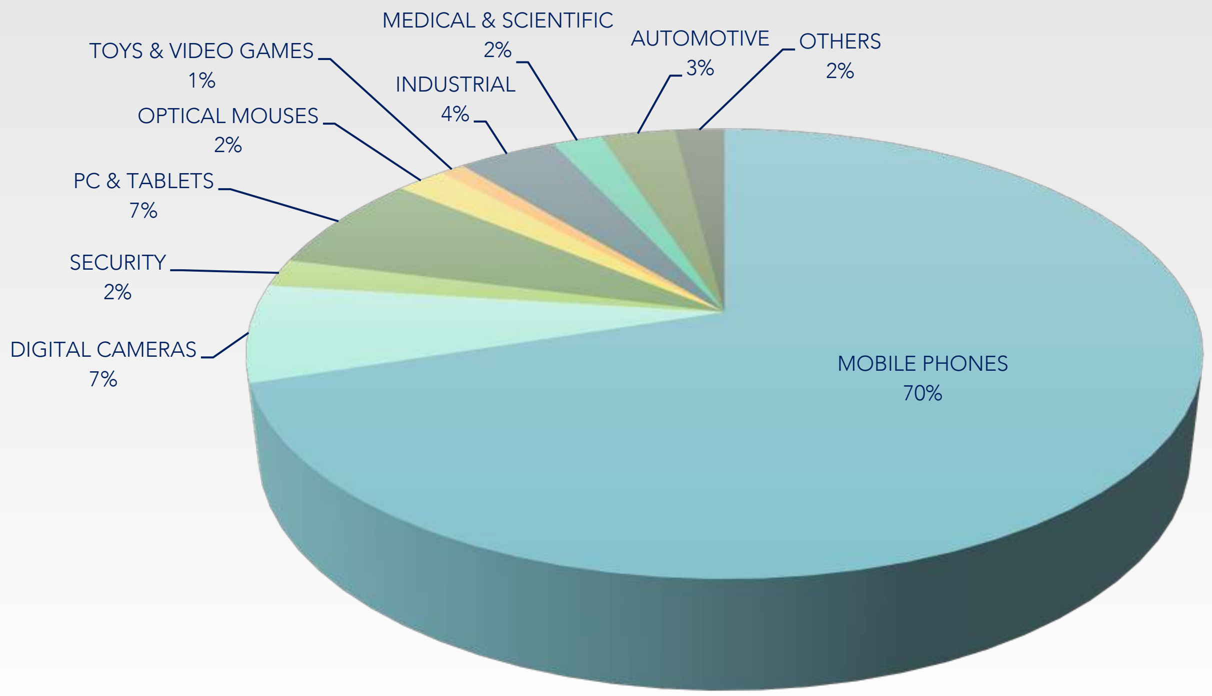


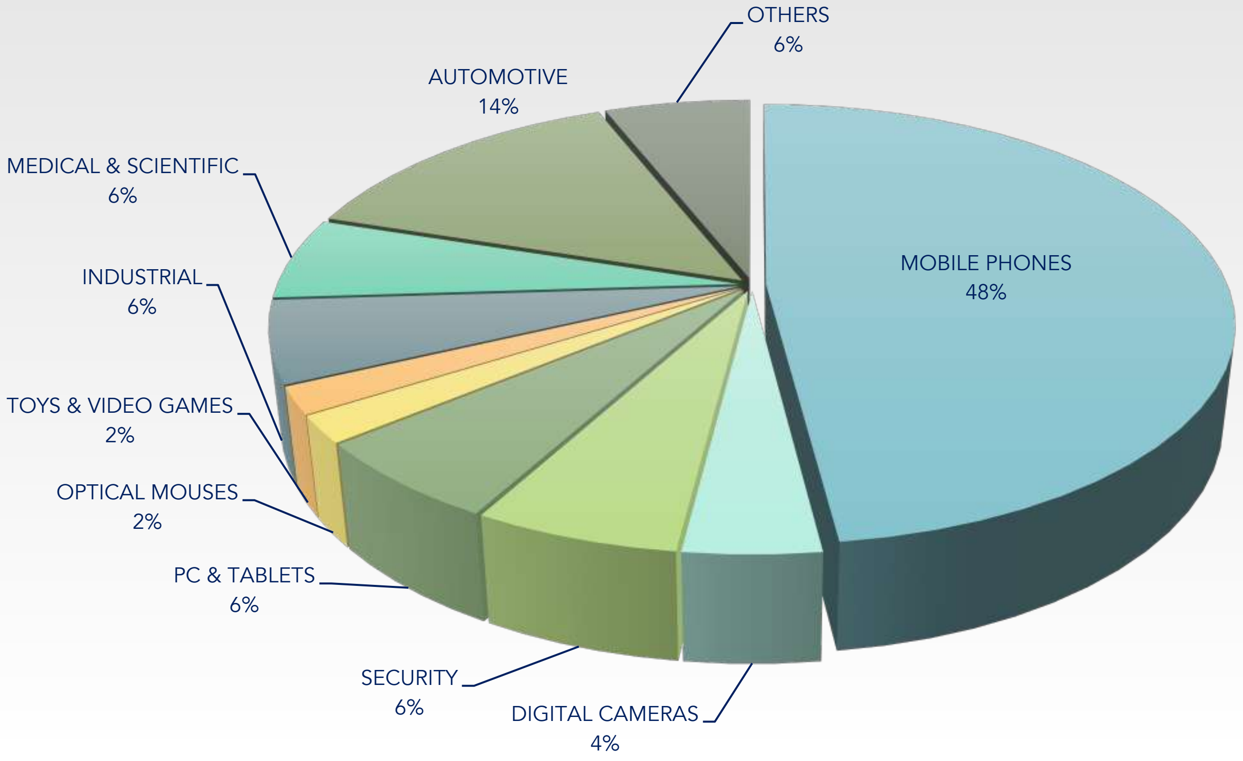
Others

INET Suppliers

2008	2010	2011	2014	2015	2018	2020	2021
Sunny	OmniVision.	KINKO LENSES CONEXANT TRULY	Fujikura BOSCH Invented for life	Synaptics SunplusIT	Asia Optical dahua TECHNOLOGY Gpixel HIGH SPEED INTERCONNECTS Shalom EO	APPRO.PHO i3system i3system, Inc. CIS FOXLINK VC vision components Dream CHIP	Vista InnoTech Ltd. PROBEDIGITAL gigajot GLOBAL SENSOR TECHNOLOGY

Camera Module Market Growth





INET Customers

intel®
tyco
MOBILEYE® An Intel Company
CROW

Elbit Systems
Johnson&Johnson
mantis vision
INFINITY augmented reality

ORCAM
Medigus
essence Better life made possible™

ContinUse Biometrics
unispectral
INUITIVE
core photonics

Omnivision

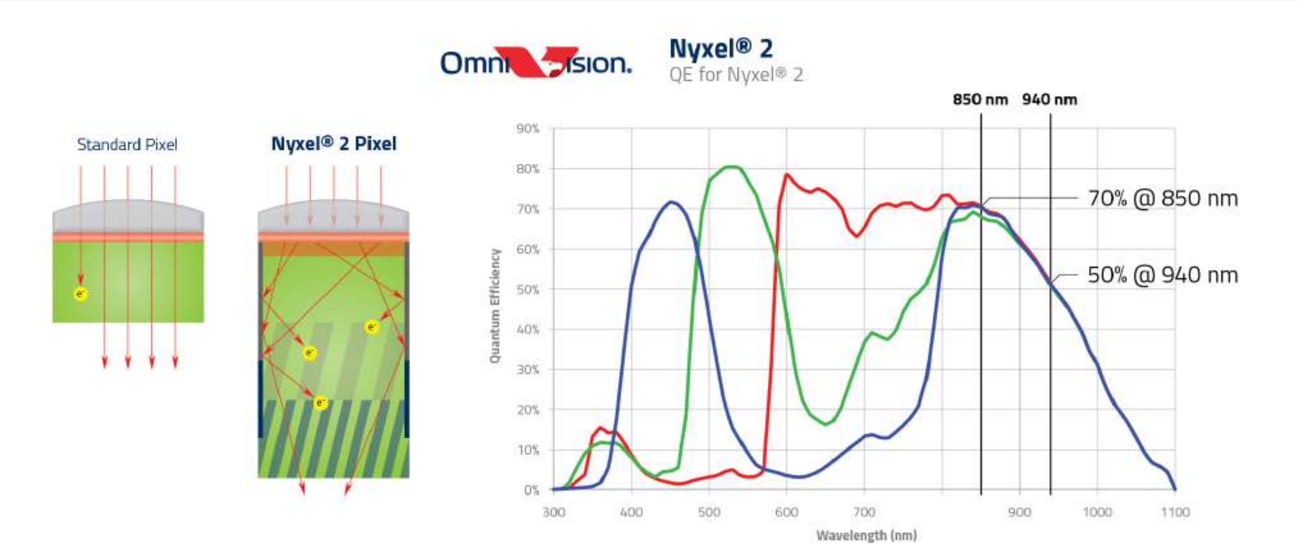
Technology Leader

Founded in 1995
OmniVision Technologies, Inc. develops and delivers advanced imaging solutions to a variety of industrial and consumer markets:

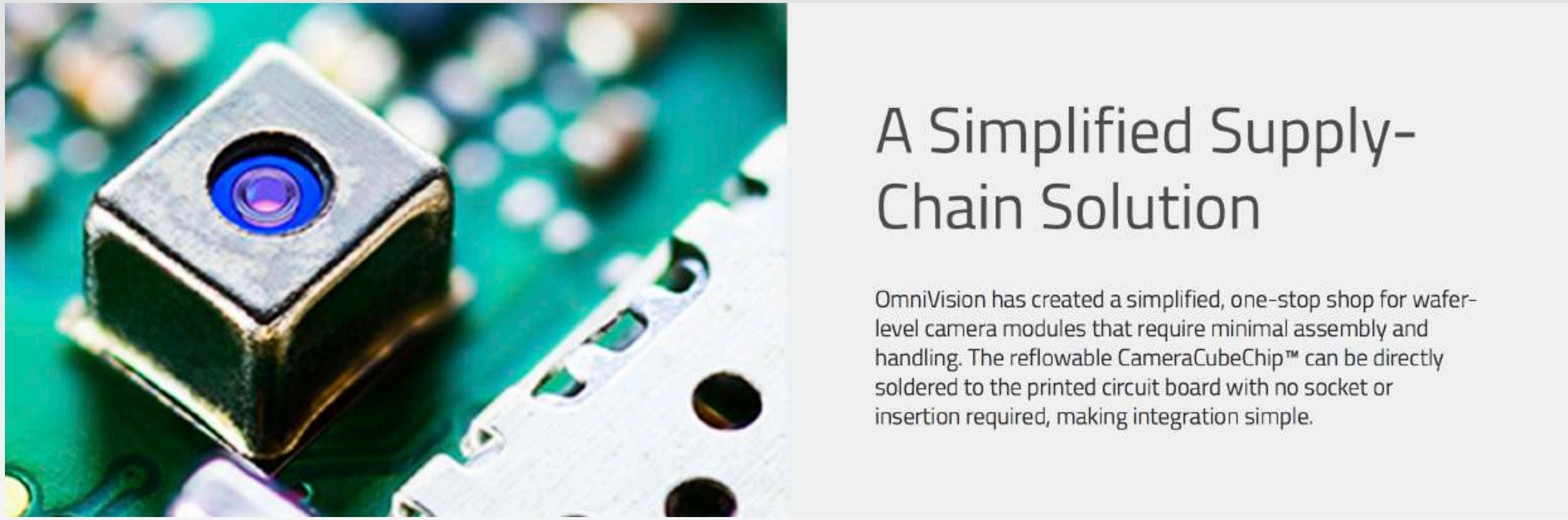
Automotive, Medical Imaging, Mobile Devices, Surveillance, AR, VR, Drones, Robotics ,Notebooks & Entertainment.

OmniVision's core strengths are its proprietary image sensing, state-of-the-art CMOS processing, and packaging technologies. Through superior pixel design, semiconductor manufacturing processes and package development, OmniVision sensors enable customers to capture images at higher resolutions, lower light levels, with better image quality, and in less space than ever before.

VGA and 1.3MP Imagers
Wafer-Level Camera Module
INTRODUCING
Nyxel™ Technology
&
Global Shutter BSI
Standard Pixel
Nyxel Pixel
QE 850nm - 60%
QE 940nm - 40%

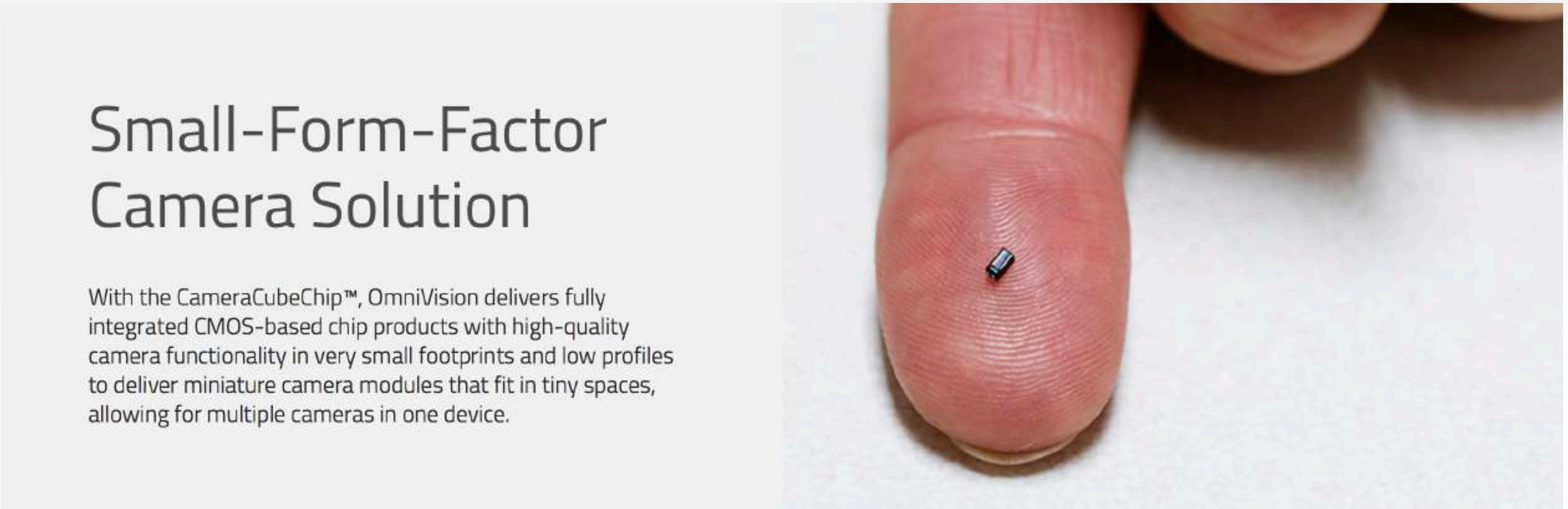


Omnivision CameraCubeChip



A Simplified Supply-Chain Solution

OmniVision has created a simplified, one-stop shop for wafer-level camera modules that require minimal assembly and handling. The reflowable CameraCubeChip™ can be directly soldered to the printed circuit board with no socket or insertion required, making integration simple.



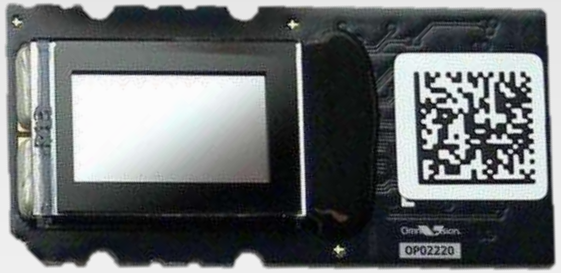
Small-Form-Factor Camera Solution

With the CameraCubeChip™, OmniVision delivers fully integrated CMOS-based chip products with high-quality camera functionality in very small footprints and low profiles to deliver miniature camera modules that fit in tiny spaces, allowing for multiple cameras in one device.

Omnivision LCOS

OmniVision's LCOS technology enables a turnkey solution with image sensor and LCOS display technologies.

OmniVision's LCOS technology targets AR and VR , smart shelves, pico projectors, automotive and medical applications.



Full digital single chip LCOS panel

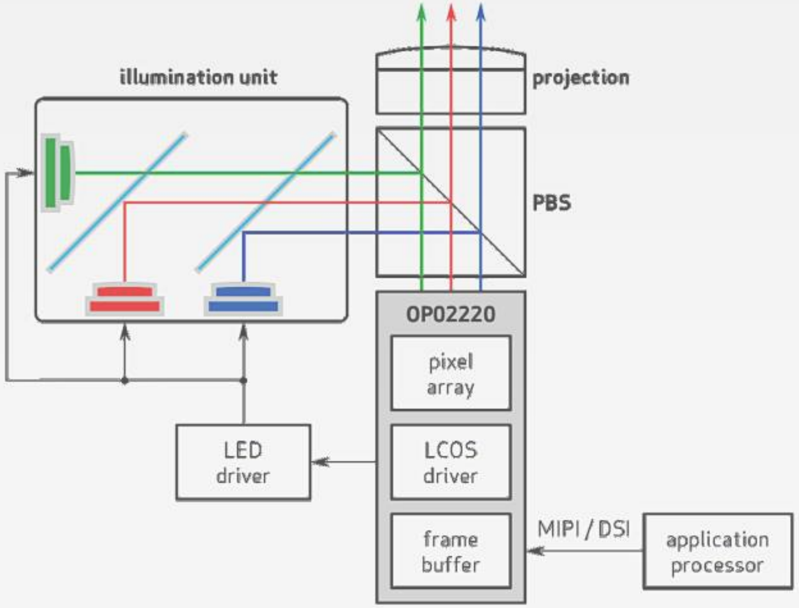
Integrated driver function and frame buffers in a single chip LCOS panel simplifies the system design and makes the system compact with the small form factor.

Low power consumption

All in one LCOS successfully reduces the power consumption by 40% compared to the 2 chip solution. It is ideal for wearable devices, such as AR and VR products.

High resolution and high frame rate

OmniVision's LCOS products feature high resolution, high frame rate, and up to 6 color fields to deliver crisp clear stable images without image retention.

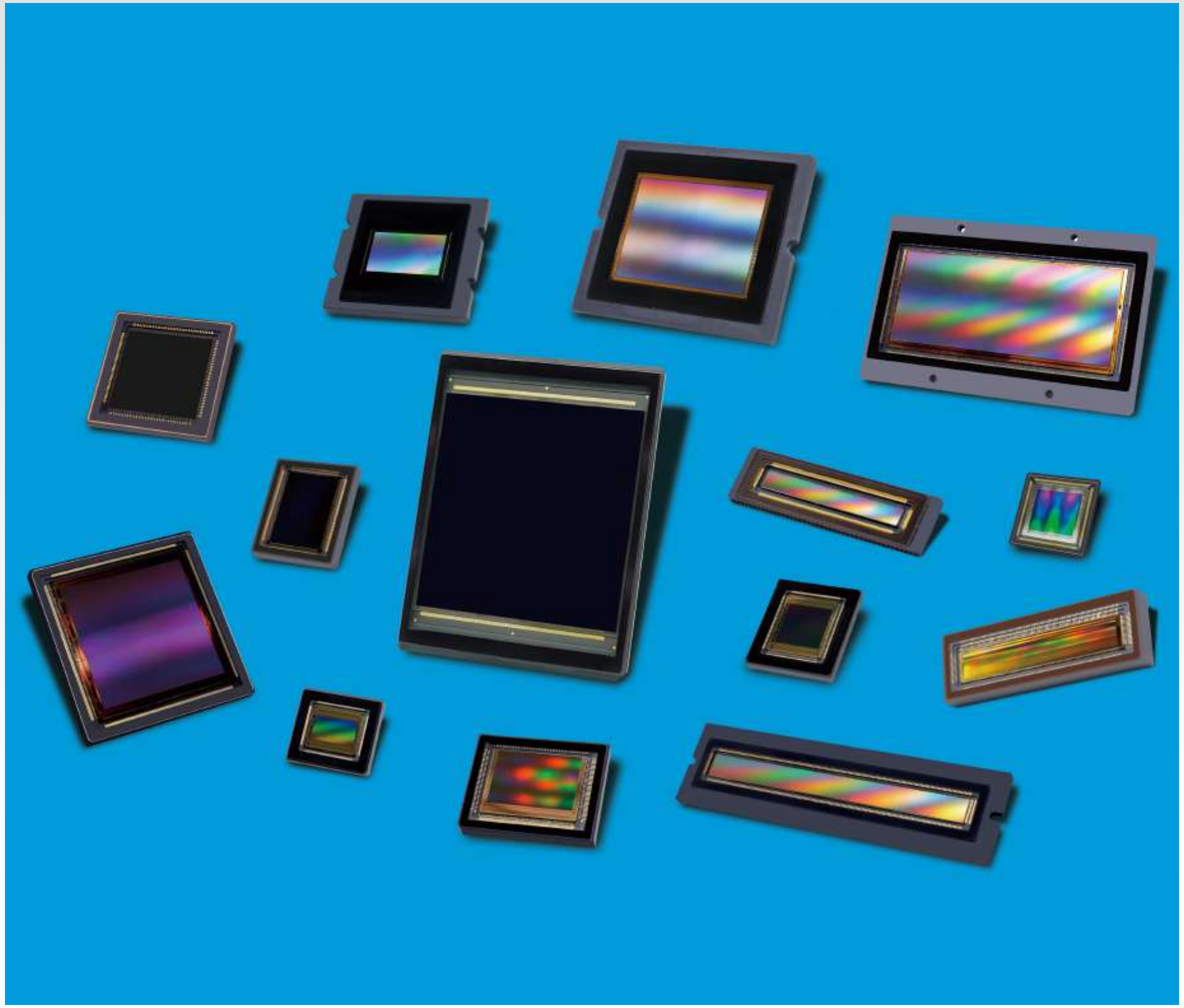

illumination unit
projection
PBS
OP02220
pixel array
LCOS driver
frame buffer
LED driver
MIPI / DSI
application processor

Gpixel

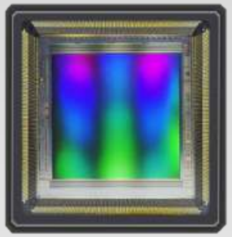
CMOS IMAGE SENSORS FOR PROFFESIONAL APPLICATIONS

Gpixel is a turnkey supplier of advanced off-the-shelf, customized and full custom CMOS image sensors, developed by a seasoned, multi-disciplinary team of image sensor experts. From the offices in Changchun, China (headquarters) and Antwerp, Belgium is Gpixel specialized in providing high-end CMOS image sensor solutions for industrial, professional, medical and scientific applications.

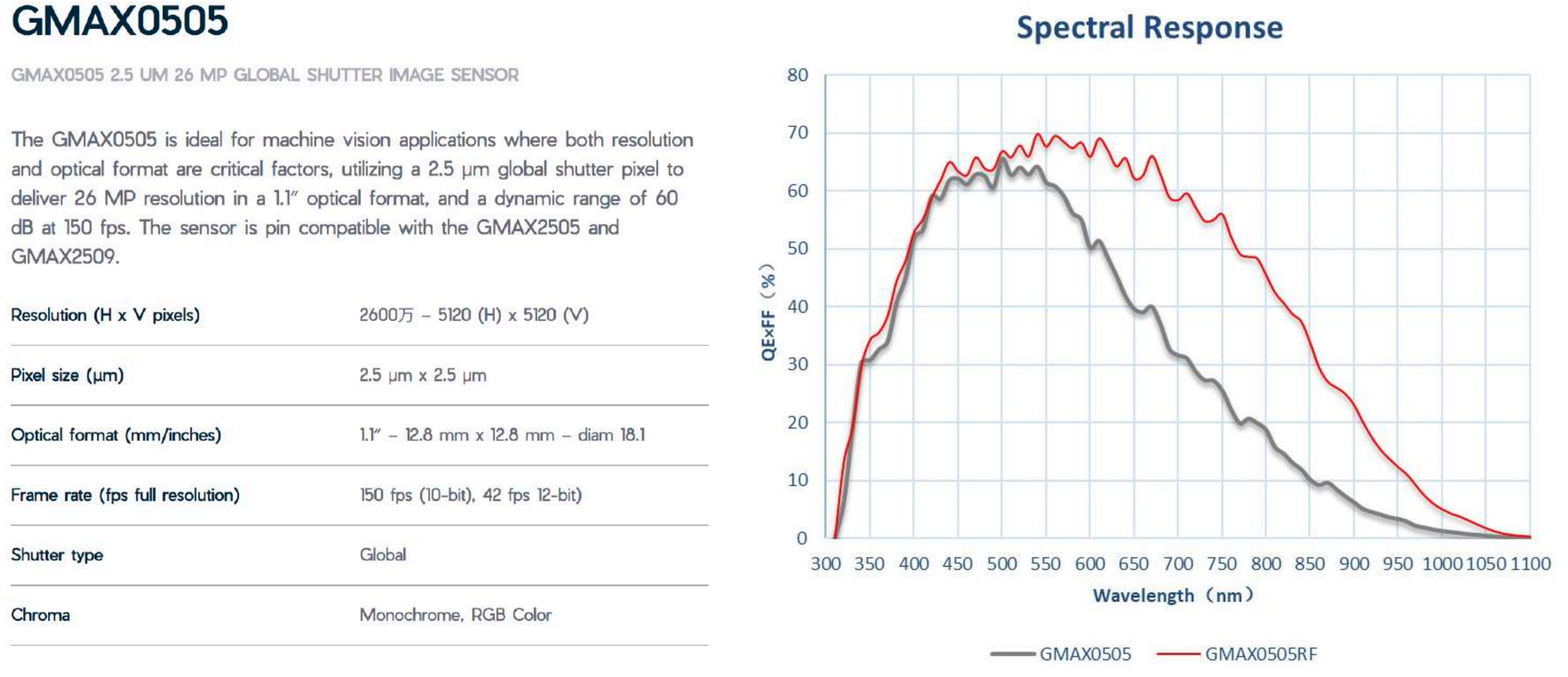
Founded in 2012 by experienced CMOS image sensor designers and semiconductor physicists, Gpixel is committed to continuously innovate and work in close cooperation with its customers and business partners to deliver the most state-of-art CMOS image sensor technologies and products to the global market.



Click Here - Full Sensors Catalogue



Gpixel - Red Fox NIR-enhancing



GMAX0505

GMAX0505 2.5 UM 26 MP GLOBAL SHUTTER IMAGE SENSOR

The GMAX0505 is ideal for machine vision applications where both resolution and optical format are critical factors, utilizing a 2.5 μm global shutter pixel to deliver 26 MP resolution in a 1.1″ optical format, and a dynamic range of 60 dB at 150 fps. The sensor is pin compatible with the GMAX2505 and GMAX2509.

Resolution (H x V pixels)	2600万 – 5120 (H) x 5120 (V)
Pixel size (μm)	2.5 μm x 2.5 μm
Optical format (mm/inches)	1.1″ – 12.8 mm x 12.8 mm – diam 18.1
Frame rate (fps full resolution)	150 fps (10-bit), 42 fps 12-bit)
Shutter type	Global
Chroma	Monochrome, RGB Color

Spectral Response
QE×FF（%）
80
70
60
50
40
30
20
10
0
300
350
400
450
500
550
600
650
700
750
800
850
900
950
1000
1050
1100
Wavelength（nm）
GMAX0505
GMAX0505RF

Gpixel – GLUX Series

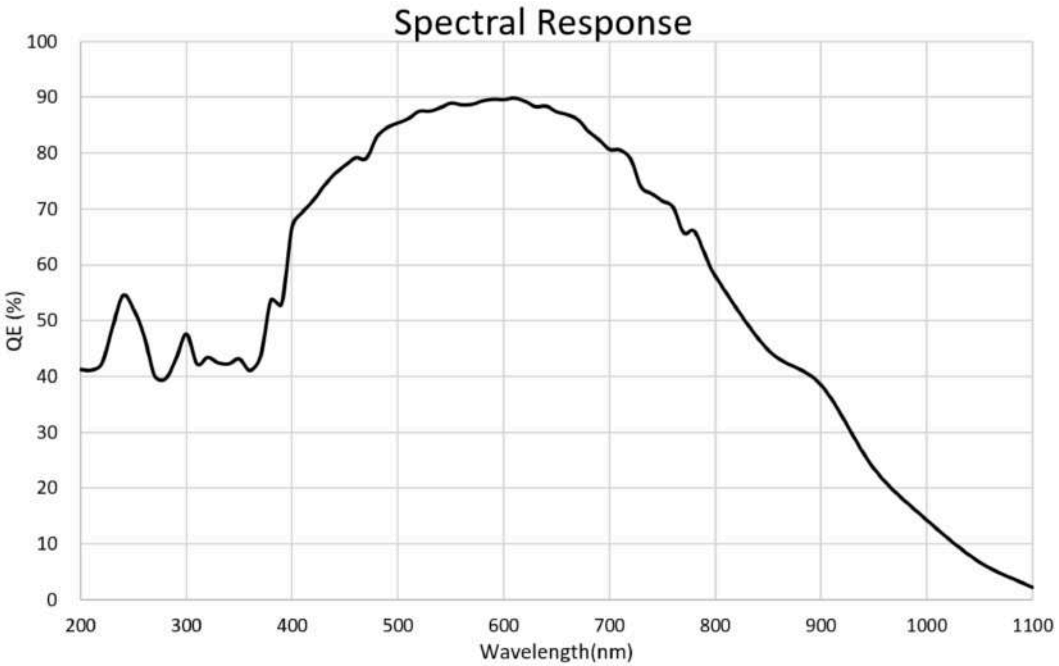
GLUX9701BSI

GLUX9701BSI 9.76 UM 1.3 MP ROLLING SHUTTER IMAGE SENSOR

GLUX9701BSI, a 1" sized, high sensitivity BSI sCMOS image sensor with a resolution of 1.3 MP (1280 x 1024) and large 9.76 µm x 9.76 µm pixels.

Resolution (H x V pixels)	1.3 MP – 1280 (H) x 1024 (V)
Pixel size (µm)	9.76 µm x 9.76 µm
Optical format (mm/inches)	1" – 12.493mm x 9.994mm – diam 16
Frame rate (fps full resolution)	30fps @ HDR, 25fps @ low noise
Shutter type	Rolling
Chroma	Mono

ULTRA LOW LIGHT

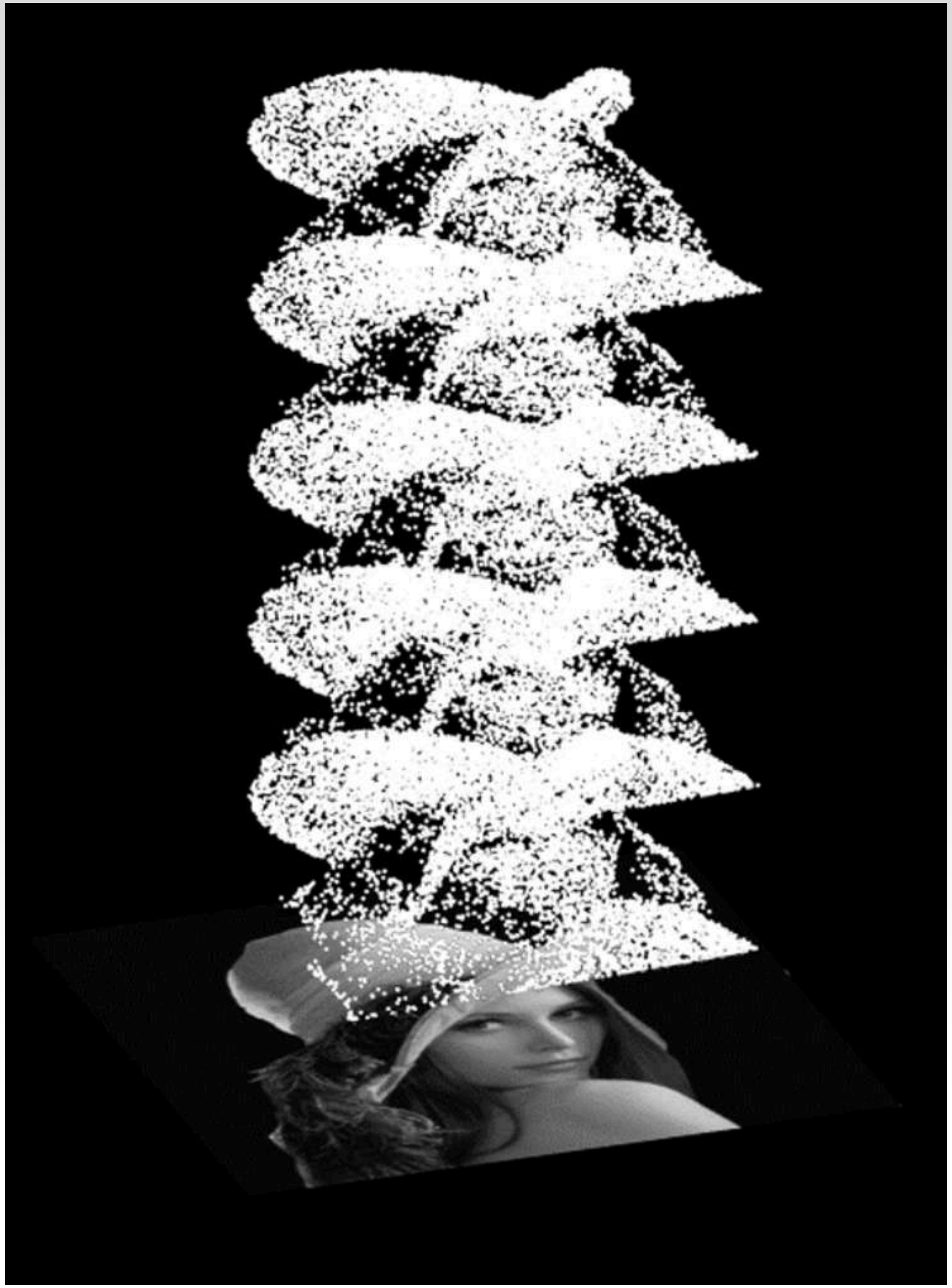


Gigajot Technologies

Quanta Image Sensor

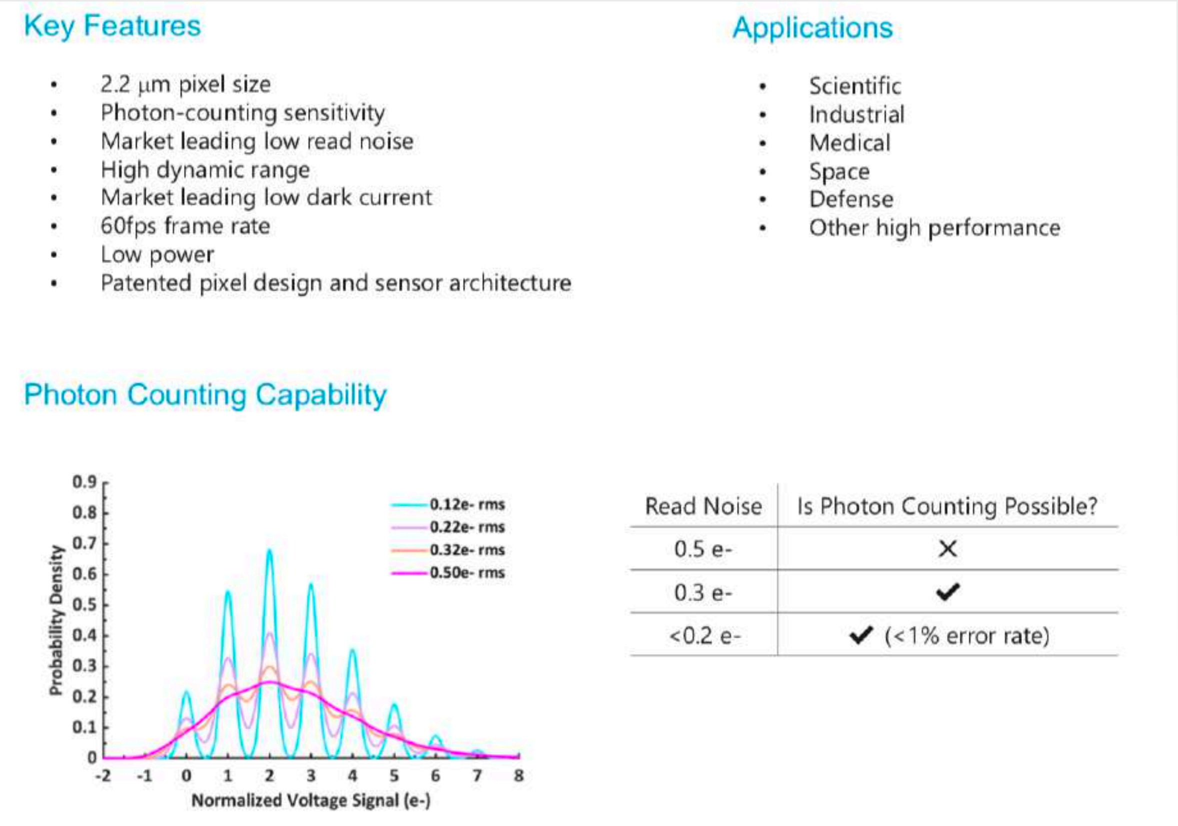
R&D for commercialization of the Quanta Image Sensor, CMOS imager with accurate photon-counting and photon number resolving capabilities at room temperature.

The QIS is a platform technology and can be used in a wide range of imaging and photonics applications ranging from consumer to high-end (e.g. scientific). It provides excellent photon-counting capability, low dark current, high resolution, and high-speed operation. Also, QIS is compatible with the mainstream CMOS image sensor processes. The QIS devices can be designed and implemented in different formats (from a few pixels to hundreds of megapixels), different pixel sizes (from sub-micron to more than ten microns), and different spectral sensitivity (UV-VIS-NIR).



Gigajot Technologies

GJ00422
4MP Quanta Image Sensor
Reliable Photon Counting at Room Temperature and Full Speed



Key Features
- 2.2 µm pixel size
- Photon-counting sensitivity
- Market leading low read noise
- High dynamic range
- Market leading low dark current
- 60fps frame rate
- Low power
- Patented pixel design and sensor architecture

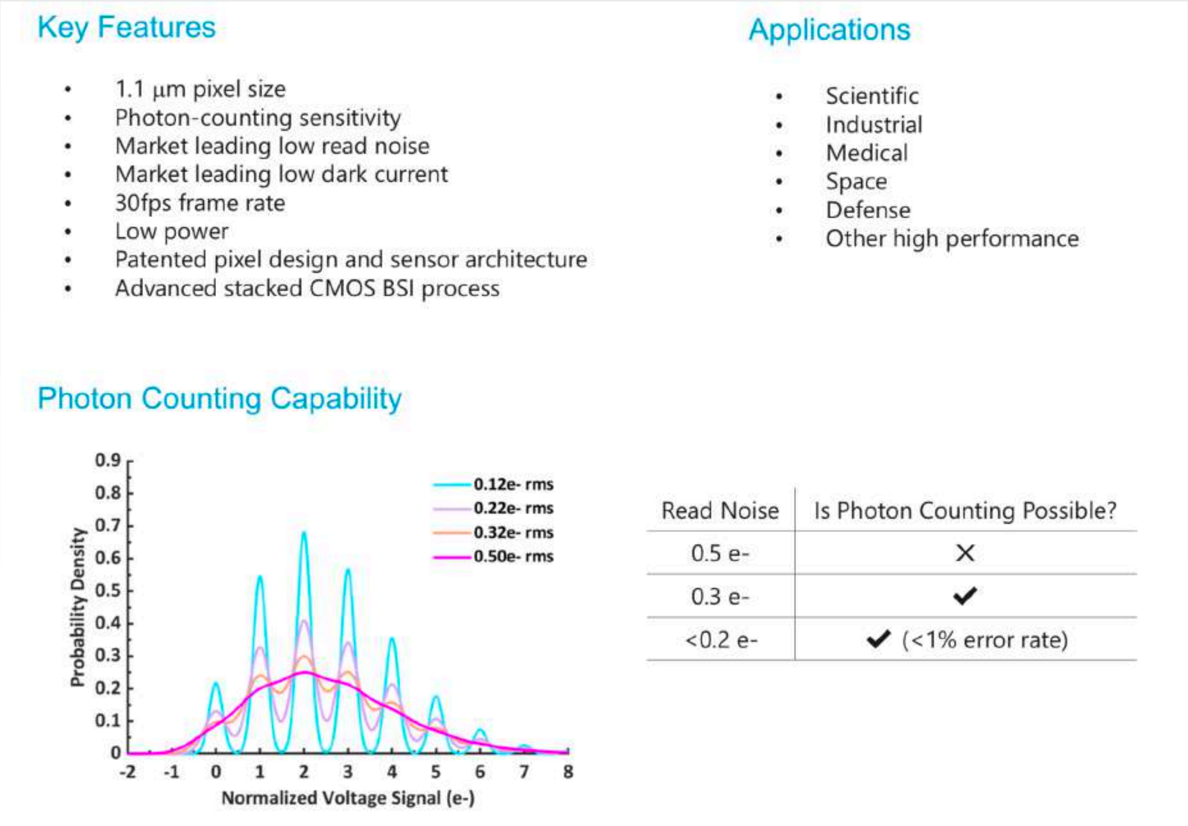
Applications
- Scientific
- Industrial
- Medical
- Space
- Defense
- Other high performance

Photon Counting Capability

0.12e- rms
0.22e- rms
0.32e- rms
0.50e- rms
Probability Density
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9
-2 -1 0 1 2 3 4 5 6 7 8
Normalized Voltage Signal (e-)

Read Noise	Is Photon Counting Possible?
0.5 e-	✗
0.3 e-	✓
<0.2 e-	✓ (<1% error rate)

GJ01611
16MP Quanta Image Sensor
Reliable Photon Counting at Room Temperature and Full Speed



Key Features
- 1.1 µm pixel size
- Photon-counting sensitivity
- Market leading low read noise
- Market leading low dark current
- 30fps frame rate
- Low power
- Patented pixel design and sensor architecture
- Advanced stacked CMOS BSI process

Applications
- Scientific
- Industrial
- Medical
- Space
- Defense
- Other high performance

Photon Counting Capability

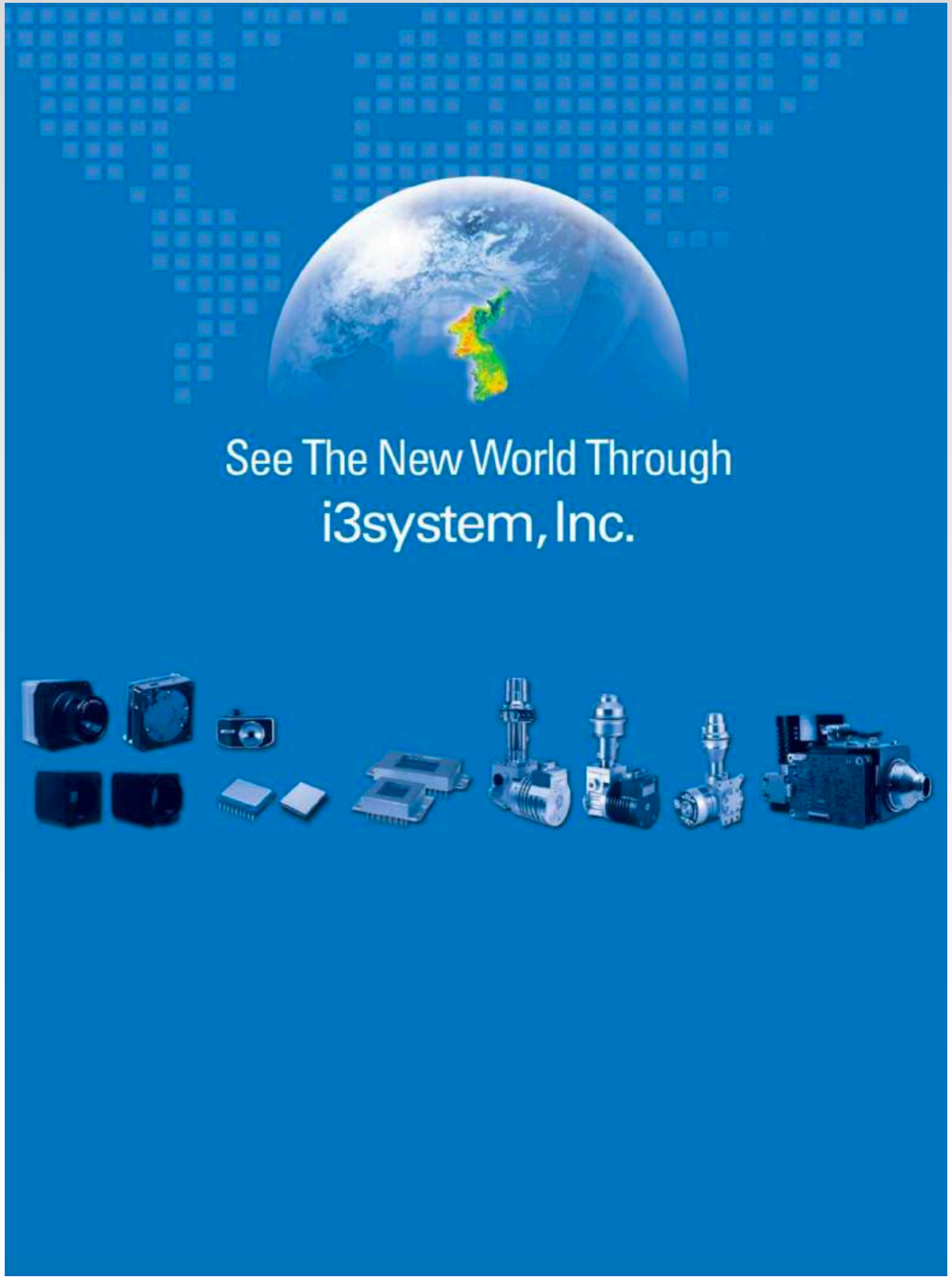
0.12e- rms
0.22e- rms
0.32e- rms
0.50e- rms
Probability Density
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9
-2 -1 0 1 2 3 4 5 6 7 8
Normalized Voltage Signal (e-)

Read Noise	Is Photon Counting Possible?
0.5 e-	✗
0.3 e-	✓
<0.2 e-	✓ (<1% error rate)

I3 Systems

See The New World Through

Rising Star in the design, the manufacture of the thermal imaging detector and the X-ray detector.
i3system, Inc. which was founded in 1998, has developed capsule endoscope for medical use and cooled infrared detectors for thermal imaging cameras for Korean military use. We later expanded our business to X-ray imaging detectors for dental X-ray imaging equipment's such as panoramic and cephalometric systems. i3system, inc. is officially designated as a military product contractor for Korean military since 2010 by Korean government.
I3system also develop and manufacture uncooled IR detectors for uncooled thermal imaging cameras for commercial products such as security, surveillance, radiometry devices and night vision systems as well as military product for personal rifle of Korean Army. Our products for military use include IR scene projector, real time scene simulator, IR camera and laser detector. We are now expanding our commercial business to space area with IR detector and camera electronics for satellite applications.



I3 Systems

Cooled Detectors

InSb 1280×1024 (10um)

InSb 1280×1024 (15um)

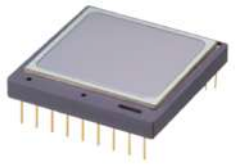
InSb 640×512 (15um)

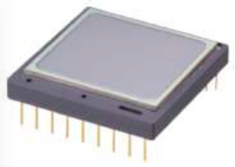
320×256 (30um) (QWIP)

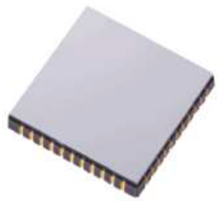
InSb 640×512 (15um)

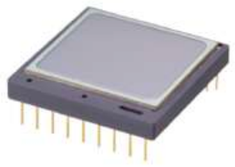
InSb 320×256 (30um)

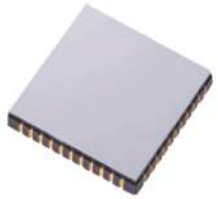
Uncooled Detectors


LWIR 1024×768 (12um)


LWIR 640×480 (12um)

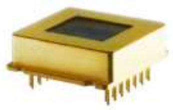

LWIR 384×288 (12um)


LWIR 640×480 (17um)


LWIR 384×288 (17um)

WLP 8um Upcoming !

SWIR Detector


SWIR 640×512 (15µm)

X-ray Detectors

Panoramic

Cephalometric

I3 Thermal-Expert - OEM Cores

E2 series - TE-Engine (12㎛)

TE Engine (12㎛) is compact, light weight Thermal Camera.
Various output interfaces are selectable to meet own application.
Based on uncooled 12㎛ detector, XGA (1024x768), VGA (640x480), and QVGA (384x288) resolutions are available up to 30Hz (60Hz).
Compared to TE Engine (17㎛), the size has reduced approximately 60%, but shows equal performance.

Array format, Pixel pitch	1024x768, 12㎛
Thermal sensitivity (NETD)	50mk / F#1.0, Room Temperature
Wavelength band	8 to 14 µ m
Power consumption	< 2.5W @ 30Hz (Steady State)
Video output format	Digital: Camera Link, USB, LVDS, LVCMOS, BT656 Analog : NTSC, PAL
Control	RS-232(RS-485 optional)
Frame rate	30Hz
Time to first image	< 7 sec max. (Typ. < 6 sec)
Dimensions (W x H x D)	30mm x 36mm x 27mm
Weight	< 50g (Without Lens)
Operating temperature	-10°C ~ 65°C
Scene range temperature	-10°C ~ 150°C

E1 series - TE-Engine (17㎛)

TE-Engine (17 ㎛) is compact, light weight Thermal Imager.
Various output interfaces are selectable to meet your own application.
Based on uncooled 17 ㎛ detector, both VGA (640x480) and QVGA (384x288) resolutions are available up to 30 Hz.
TE Engine is a precise thermal imager that can be installed into your complete product.

Array format, Pixel pitch	640x480, 17㎛
Thermal sensitivity (NETD)	≤ 50mk(35mk optional)@F/1, 300K
Spectral range	8 to 14 µm
Power consumption	<2.0W @ (30Hz)
Video output format	Digital: Camera Link, USB, LVDS, LV CMOS, BT656, IP(OnVif) Analog: NTSC, PAL
Control	USB2.0, RS-232, I2C, UART
Frame rate	30Hz
Time to first image	< 10sec
Dimensions (W x H x D) (with lens mount)	42.5mm x 44.6mm x 41.1mm
Weight	< 110g (without lens)
Operating temperature	-10°C ~ 65°C (-40°C ~ 65°C optional)
Storage temperature	-40°C ~ 85°C

LWIR 19mm f/1.0

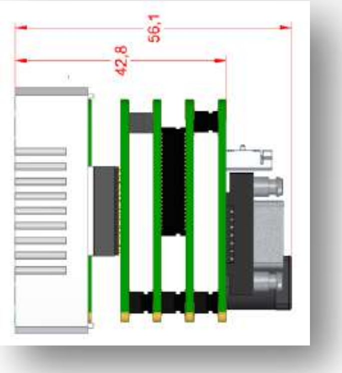
LWIR 6.8mm f/1.4

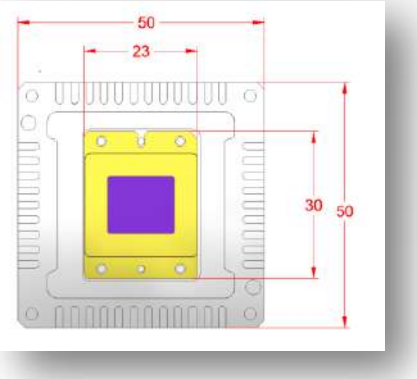
I3 Thermal-Expert - OEM Cores

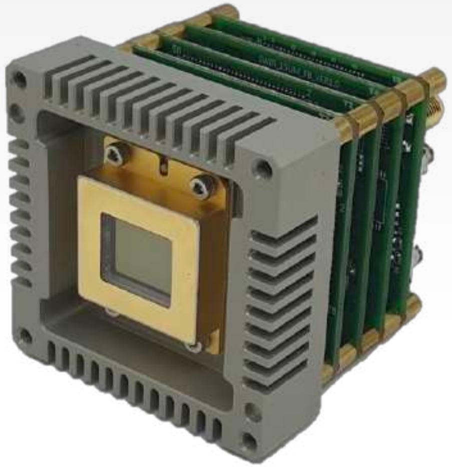
SWIR VGA CORE

SWIR VGA Engine is a brand-new module based on i3system VGA InGaAs sensor. It can be easily and quickly adapted in your system. A Well-established InGaAs technology of i3system provides excellent reliability and performances in operability, responsivity, noise and dark current.

Sensor	InGaAs
Format	640 × 512
Pitch	15 um
Spectral range	0.6 ~ 1.7 um
Quantum efficiency (1.2 ~ 1.6 um)	≥ 70 %
Readout Floor Noise	≤ 50 e-
NEP	≤1 fW
Image correction/enhancement algorithms	NUC, BPR, AGC, Image Filter, NR
Frame rate	30 Hz
Time to image	< 10 sec
Latency	Sub frame
Supply Voltage	5V
Power consumption	< 5.0W at 71°C (detector)
Video output	Camera Link
Polarity invert	Yes
Image flip	Yes
Size	50x50x56.1 mm
Weight	≤ 150g



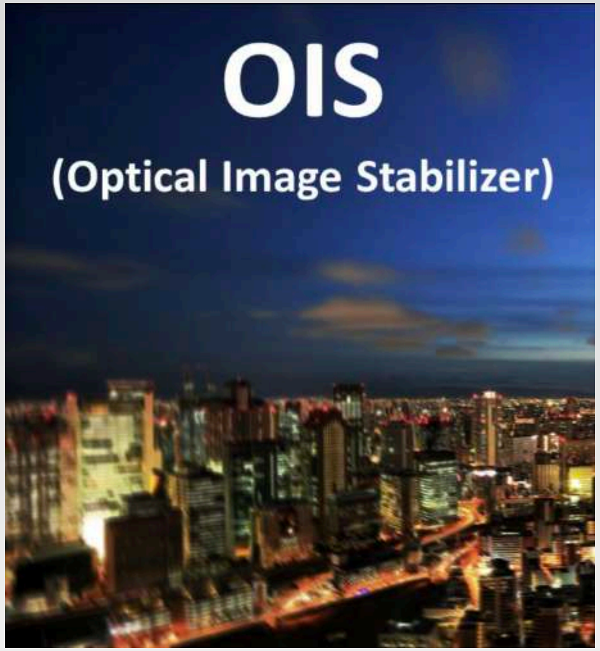


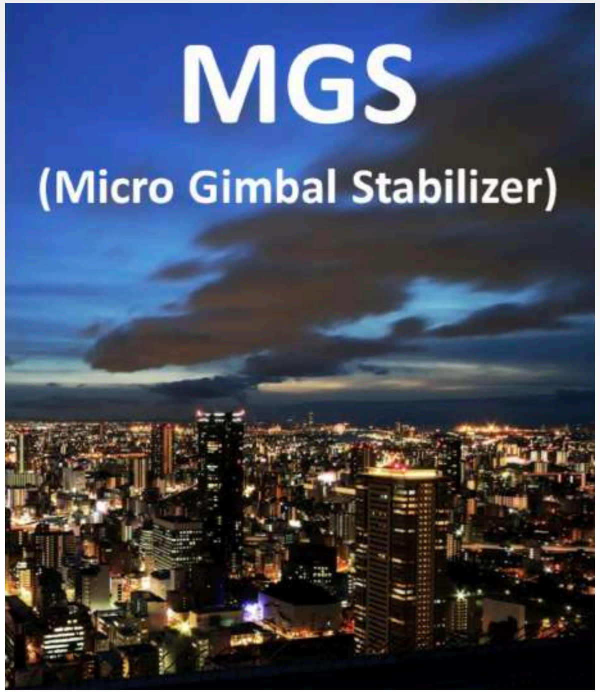


Vista Innotech

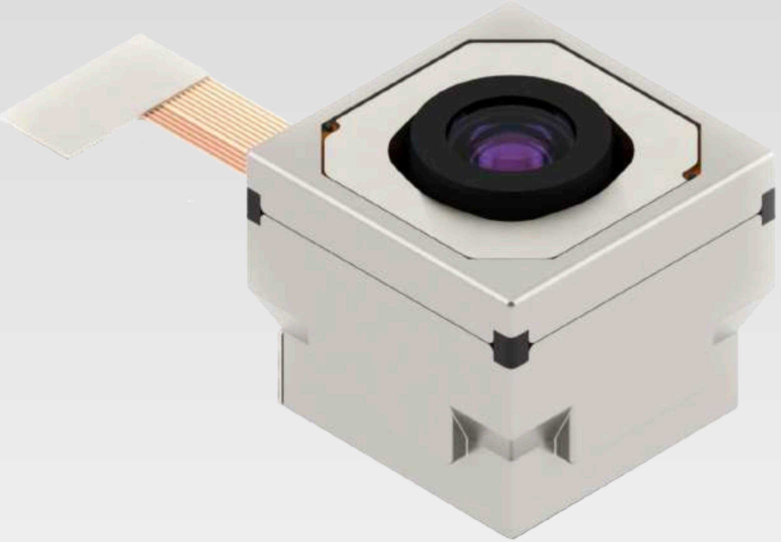
World′s Smallest Gimbal Stabilizer Module

Vista Innotech Limited (VIT) is a new startup company inventing innovative technology and one stop solutions for Micro Gimbal Stabilizer (MGS) Compact Camera Modules (CCMs). The solutions are with integrated designs, superb anti-shaking performance and 15+ pending patents.


OIS
(Optical Image Stabilizer)

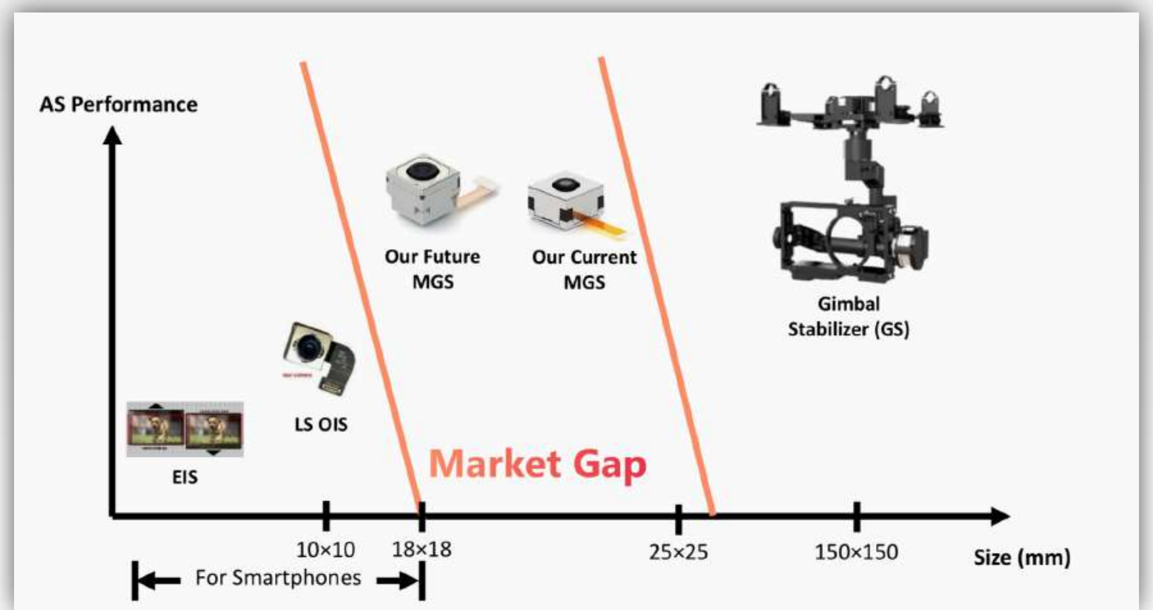

MGS
(Micro Gimbal Stabilizer)

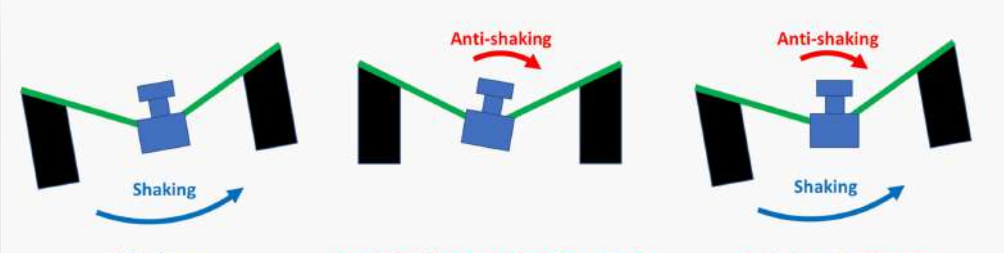
Vista Innotech



World's Smallest Gimbal Stabilizer Module

- Mechanical stabilizer
- Large compensation angle (±5deg)
- Suitable for super wide-angle lens
- Integrated and compact design
- Simple and easy to use solution
- Much lower power consumption than GS




Shaking
Anti-shaking
Anti-shaking
Shaking
Shaking
+
Anti-shaking motion by MGS
=
Stabilized camera

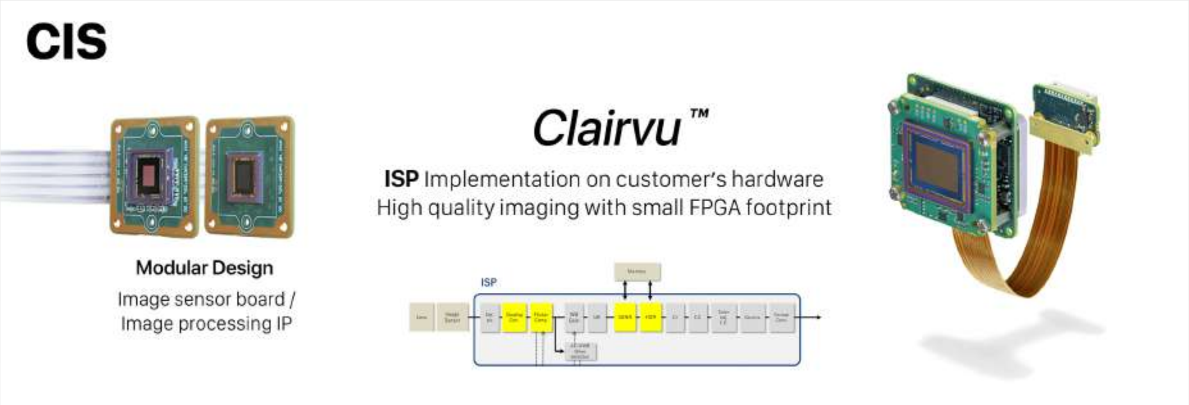
CIS

Welcome New Technological Challenges

CIS Corporation is a manufacturer of industrial cameras. We develop, design, manufacture, and market high quality industrial camera systems and board cameras for machine vision and security camera applications. We began manufacturing industrial cameras under our own brand in 1991, and have consistently pursued “high-density packaging”, “high speed”, and “high performance” ever since.

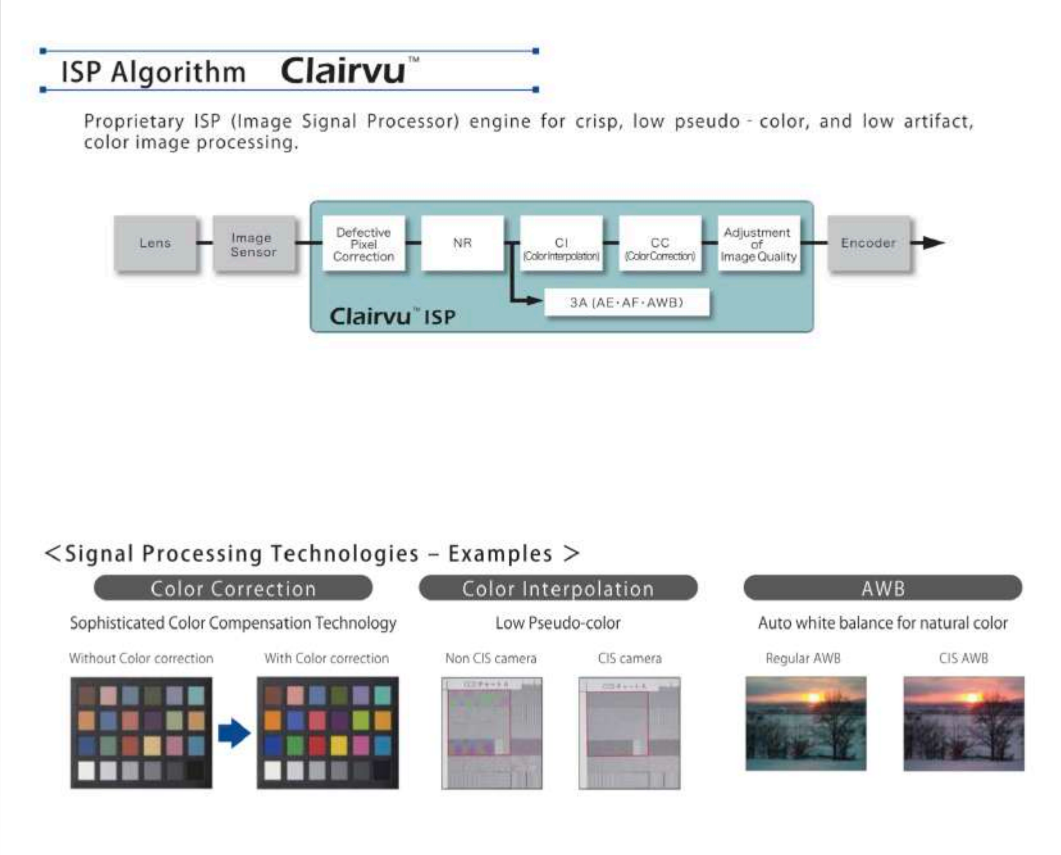
We are developing cameras featuring unique high-speed, high-resolution and CMOS image sensors equipped with faster interfaces ranging from CoaXPress to optical I/F.
We also have dedicated teams for the design and development of signal processing using both FPGA and Texas Instruments’ digital media processors.

As for our image process technology “Clarivu™”, we provide licenses of our IP for incorporation into our customers’ products. The number of licensees is on a steady rise, and we will carry on promoting our technology for use in such areas as medical, broadcasting and food inspection applications which are all new business terrains to CIS.


CIS
Modular Design
Image sensor board /
Image processing IP
Clairvu™
ISP Implementation on customer's hardware
High quality imaging with small FPGA footprint
ISP

Click Here - Off-The-Shelf Camera Catalogue

CIS - ISP Solution



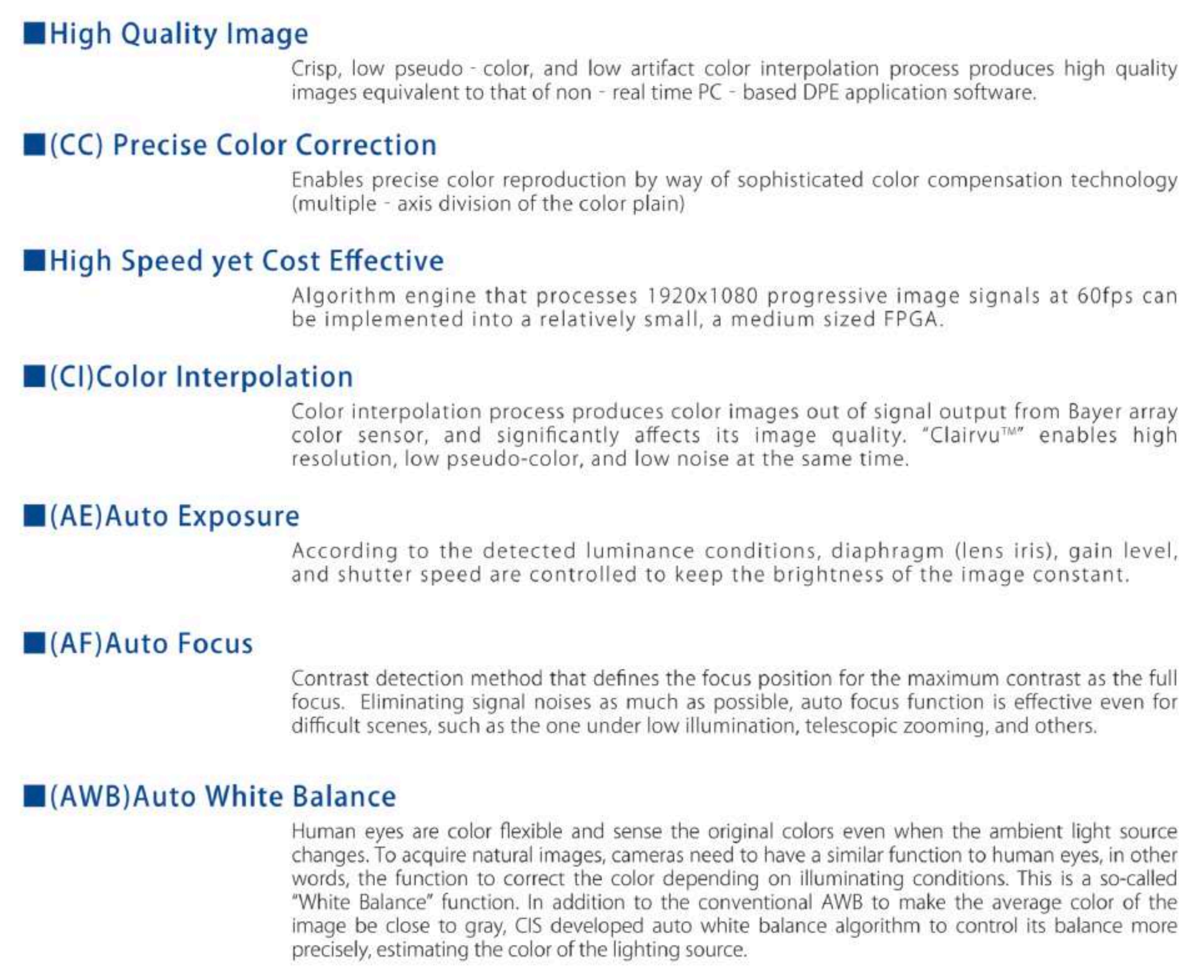
ISP Algorithm **Clairvu™**

Proprietary ISP (Image Signal Processor) engine for crisp, low pseudo - color, and low artifact, color image processing.

Lens
Image Sensor
Defective Pixel Correction
NR
CI (Color Interpolation)
CC (Color Correction)
Adjustment of Image Quality
Encoder
3A (AE·AF·AWB)
Clairvu™ ISP

<Signal Processing Technologies – Examples >

Color Correction
Sophisticated Color Compensation Technology
Without Color correction
With Color correction
Color Interpolation
Low Pseudo-color
Non CIS camera
CIS camera
AWB
Auto white balance for natural color
Regular AWB
CIS AWB



High Quality Image

Crisp, low pseudo - color, and low artifact color interpolation process produces high quality images equivalent to that of non - real time PC - based DPE application software.

(CC) Precise Color Correction

Enables precise color reproduction by way of sophisticated color compensation technology (multiple - axis division of the color plain)

High Speed yet Cost Effective

Algorithm engine that processes 1920x1080 progressive image signals at 60fps can be implemented into a relatively small, a medium sized FPGA.

(CI)Color Interpolation

Color interpolation process produces color images out of signal output from Bayer array color sensor, and significantly affects its image quality. "Clairvu™" enables high resolution, low pseudo-color, and low noise at the same time.

(AE)Auto Exposure

According to the detected luminance conditions, diaphragm (lens iris), gain level, and shutter speed are controlled to keep the brightness of the image constant.

(AF)Auto Focus

Contrast detection method that defines the focus position for the maximum contrast as the full focus. Eliminating signal noises as much as possible, auto focus function is effective even for difficult scenes, such as the one under low illumination, telescopic zooming, and others.

(AWB)Auto White Balance

Human eyes are color flexible and sense the original colors even when the ambient light source changes. To acquire natural images, cameras need to have a similar function to human eyes, in other words, the function to correct the color depending on illuminating conditions. This is a so-called "White Balance" function. In addition to the conventional AWB to make the average color of the image be close to gray, CIS developed auto white balance algorithm to control its balance more precisely, estimating the color of the lighting source.

CIS – Pixel Shift

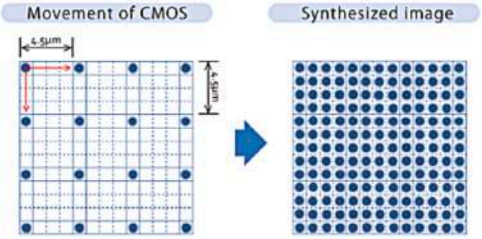
Pixel Shift Technology Camera

CMOS	Max 400M pixels Ultra-high resolution
Interface	CoaXPress
Model name (B/W) (Color)	**VCC-25CXP1MPS** **VCC-25CXP1RPS**
Sensor	PYTHON25K
Sensor size	APS-H CMOS
Unit cell size (μm)	4.5 μm × 4.5 μm
Effective pixels (H) x (V)	5120 × 5120
Resolution (B/W) (Color)	25M・100M・400M 25M・25M(Equivalent to 3CMOS True color)・104M(Equivalent to 3CMOS True color)
Frame rate (B/W) (Color)	81fps・10fps・2.5fps 81fps・4fps
Pixel clock	72MHz
Shutter	1/30～1/30,000s
Lens mount	M48 mount
Dimensions (W)x(H)x(D)mm	65×65×77
Features	Global shutter,DIN connector B/W：20480×20480 Color：5120×5120/10240×10240(Equivalent to 3CMOS True color) Build-in Piezo actuator drive unit

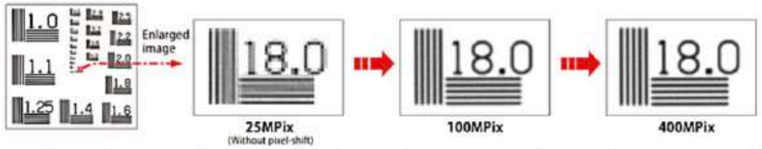
【Precise image sensor positioning】

In the case of VCC-25CXP1MPS, an ultra high def image of 400M pix. is generated using 25M pixel CMOS. This is done by shifting X and Y axes between the sensor's pixel pitch 4 times in each direction (4x4 of 4.5 μm/4), capturing images at each position, and synthesizing them to create a single image.

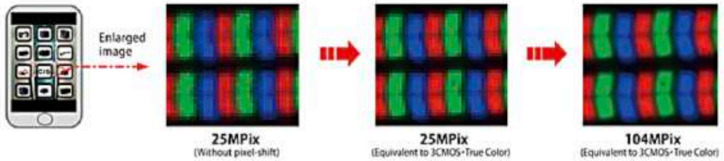
Displacement accuracy of the pixel shift is less than ±0.2 μm. The time required for the CMOS to move to the predefined position is less than 10ms.

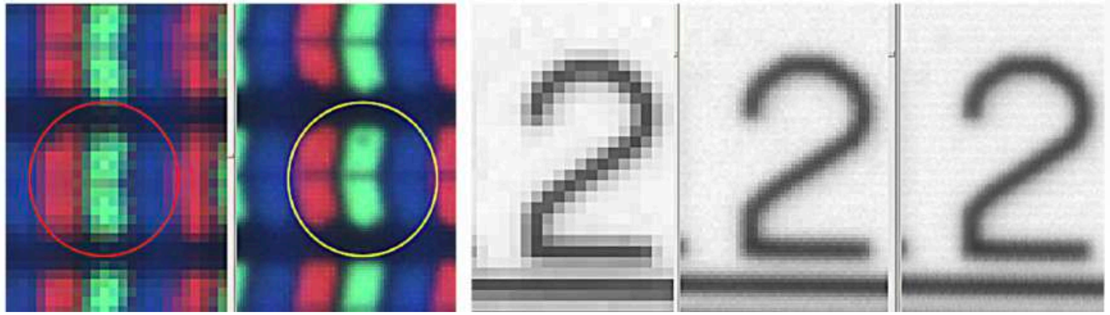

Movement of CMOS
4.5μm
4.5μm
Synthesized image

Shoot a chart by VCC-25CXP1MPS (B/W)


1.0
1.1
1.25
1.4
1.6
1.8
2.0
2.2
Enlarged image
18.0
18.0
18.0
25MPix
(Without pixel-shift)
100MPix
400MPix

Shoot a LCD of smart phone by VCC-25CXP1RPS (Color)


Enlarged image
25MPix
(Without pixel-shift)
25MPix
(Equivalent to 3CMOS・True Color)
104MPix
(Equivalent to 3CMOS・True Color)



Vision Components

Embedded Solutions
VC mission is offering the customers the best solution possible. This principle is basic to all our developments and enables us to guarantee optimal performance with our SMART CAMERAS.

During the recent years, VC EMBEDDED VISION PORTFOLIO has been growing enormously along with our customers' demands. VC STANDARD MODELS are designed for a broad range of inspection tasks and find their use in many application areas around the world. Of course, being a reliable OEM partner, we also offer INDIVIDUAL SOLUTIONS for specific applications.

VC
pro
Z
VC
nano
Z
Out 3
Out 2
Out 1
Out 0
Power
Trig in
In 1
In 0

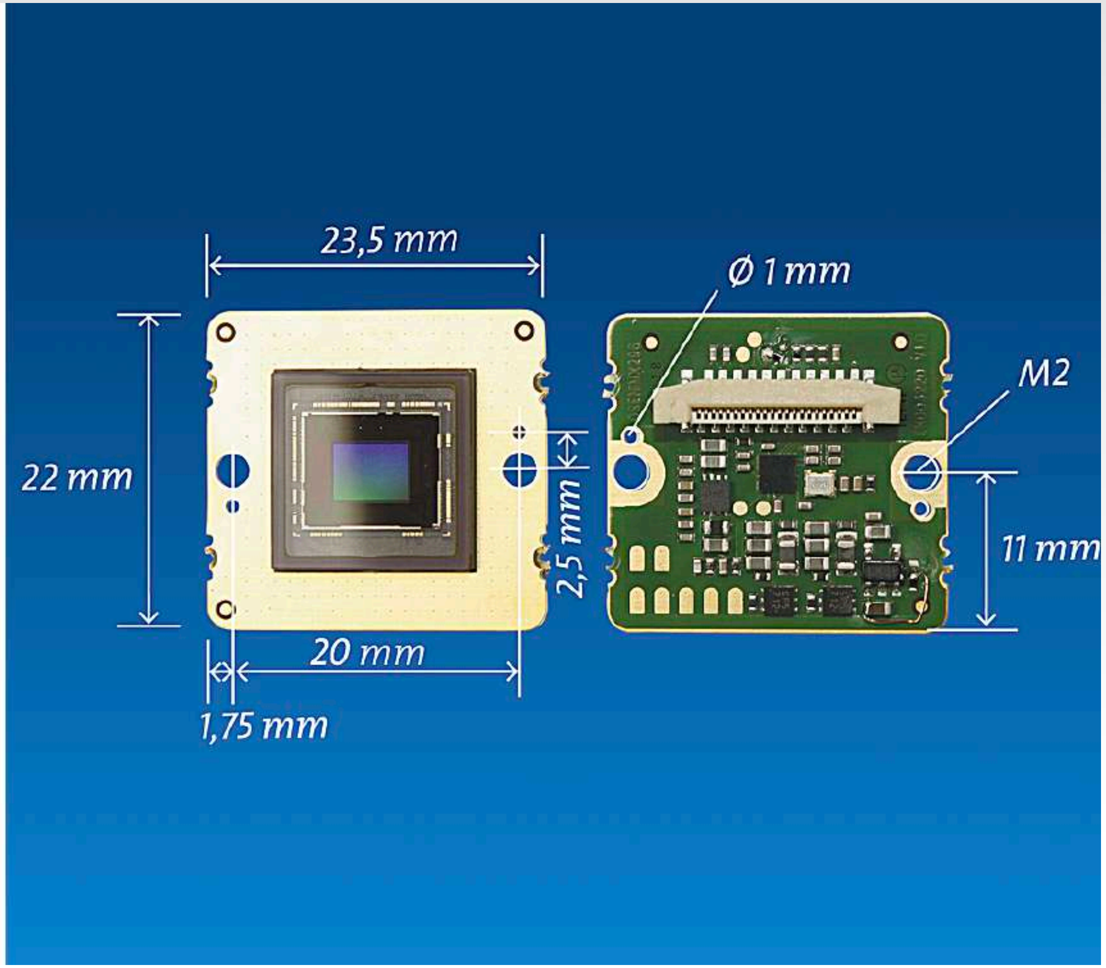
Vision Components - MIPI Camera Modules

MIPI CSI-2 Camera Modules for Embedded Vision

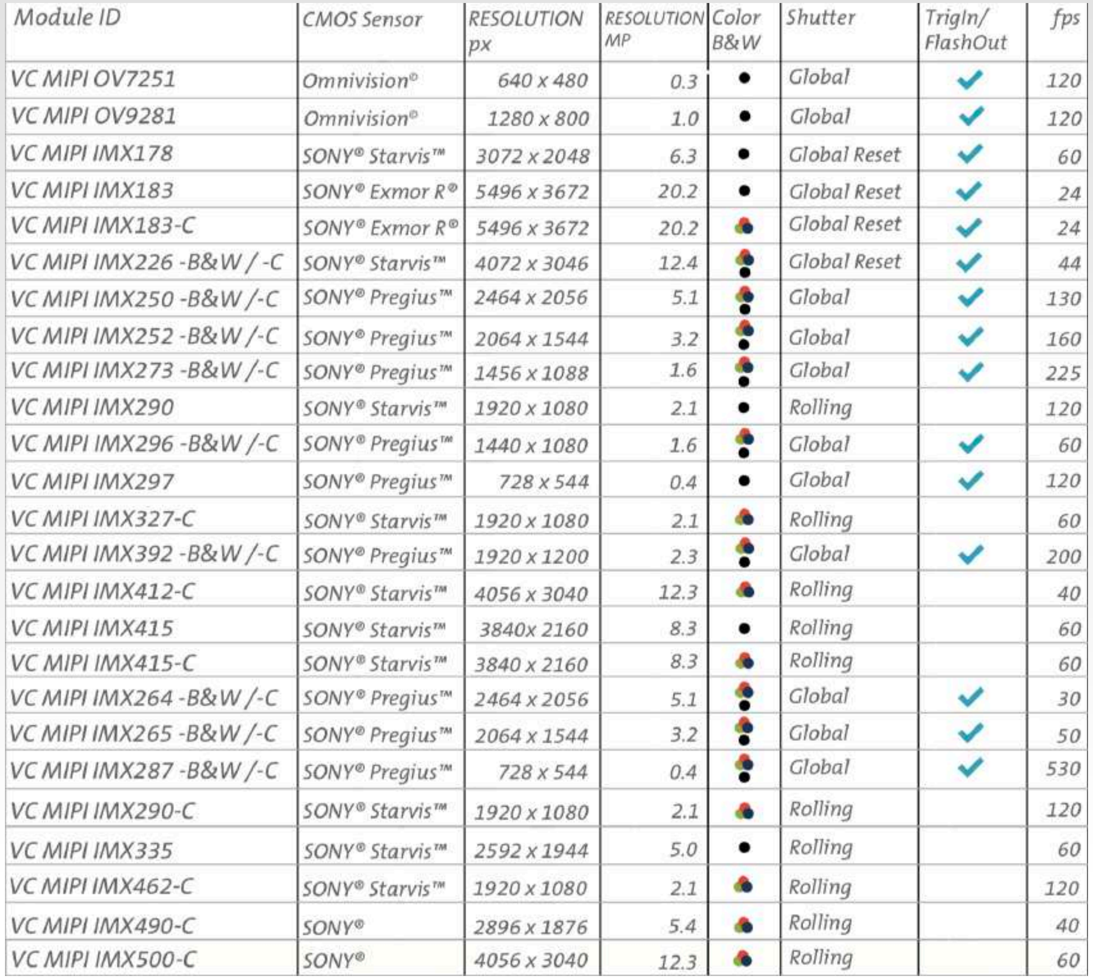
The VC MIPI camera boards support the MIPI© CSI-2 (Camera Serial Interface) specification and they are available with many different image sensors, e.g. from z.B. from Omnivision© and from the series Sony Pregius® und Sony Starvis®. The miniature cameras are COMPATIBLE WITH MANY CPU BOARDS. With our VC ADAP96 BOARD, a CSI & Ethernet Adaptor Board, we offer the perfect solution to make an intelligent VC camera from a 96board!

MIPI CSI-2 camera modules are ideal for multi camera applications including mobile and distributed applications like autonomous driving, UAVs, Smart City, medical technology, and laboratory automation.

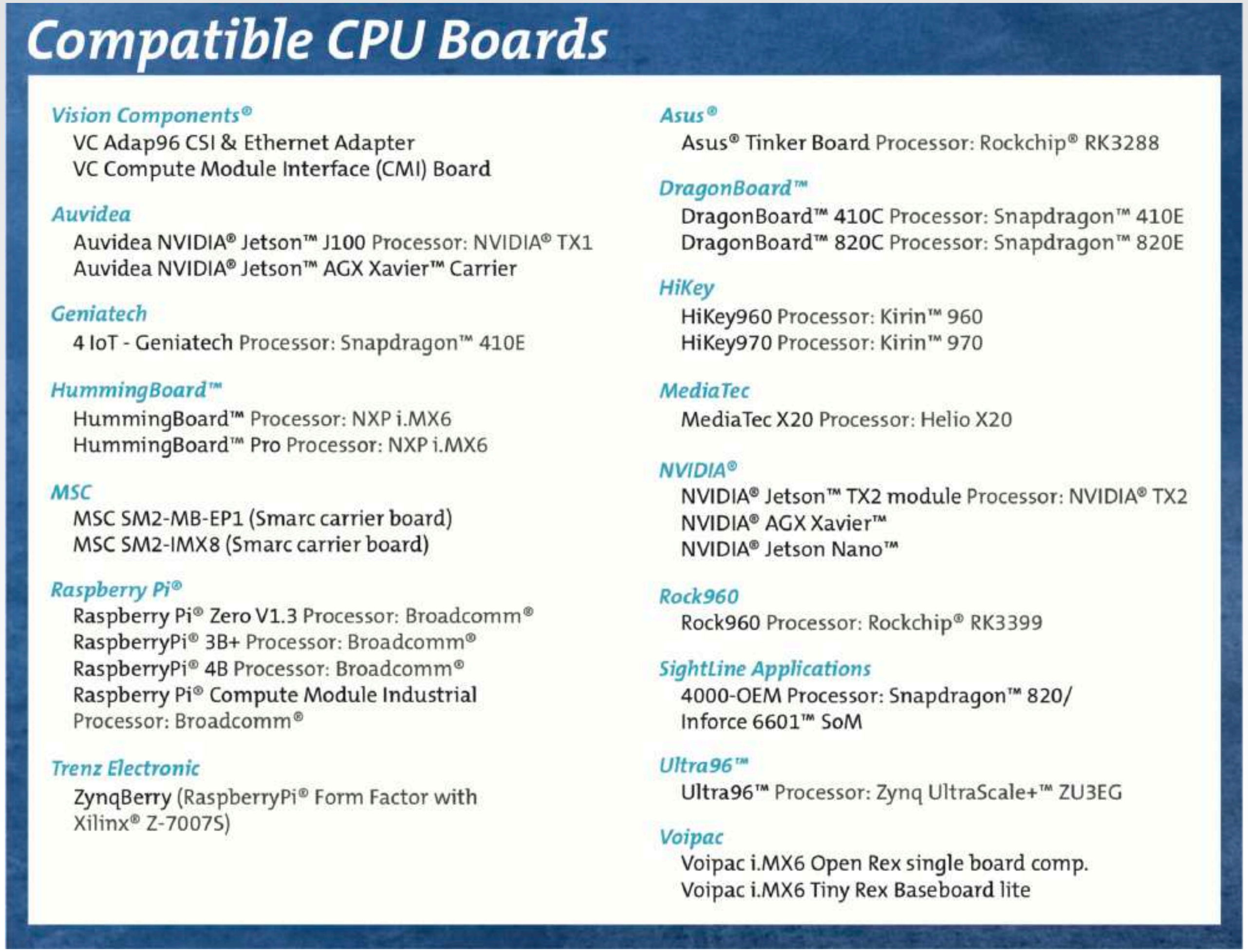
With MIPI sensor boards we offer OEMs a highly versatile component for their embedded vision solutions – and it's all made in Germany!



Vision Components - MIPI Camera Modules



Module ID	CMOS Sensor	RESOLUTION px	RESOLUTION MP	Color B&W	Shutter	TrigIn/ FlashOut	fps
VC MIPI OV7251	Omnivision®	640 x 480	0.3	●	Global	✓	120
VC MIPI OV9281	Omnivision®	1280 x 800	1.0	●	Global	✓	120
VC MIPI IMX178	SONY® Starvis™	3072 x 2048	6.3	●	Global Reset	✓	60
VC MIPI IMX183	SONY® Exmor R®	5496 x 3672	20.2	●	Global Reset	✓	24
VC MIPI IMX183-C	SONY® Exmor R®	5496 x 3672	20.2	🔴	Global Reset	✓	24
VC MIPI IMX226 -B&W / -C	SONY® Starvis™	4072 x 3046	12.4	🔴 ●	Global Reset	✓	44
VC MIPI IMX250 -B&W /-C	SONY® Pregius™	2464 x 2056	5.1	🔴 ●	Global	✓	130
VC MIPI IMX252 -B&W /-C	SONY® Pregius™	2064 x 1544	3.2	🔴 ●	Global	✓	160
VC MIPI IMX273 -B&W /-C	SONY® Pregius™	1456 x 1088	1.6	🔴 ●	Global	✓	225
VC MIPI IMX290	SONY® Starvis™	1920 x 1080	2.1	●	Rolling		120
VC MIPI IMX296 -B&W /-C	SONY® Pregius™	1440 x 1080	1.6	🔴 ●	Global	✓	60
VC MIPI IMX297	SONY® Pregius™	728 x 544	0.4	●	Global	✓	120
VC MIPI IMX327-C	SONY® Starvis™	1920 x 1080	2.1	🔴	Rolling		60
VC MIPI IMX392 -B&W /-C	SONY® Pregius™	1920 x 1200	2.3	🔴 ●	Global	✓	200
VC MIPI IMX412-C	SONY® Starvis™	4056 x 3040	12.3	🔴	Rolling		40
VC MIPI IMX415	SONY® Starvis™	3840x 2160	8.3	●	Rolling		60
VC MIPI IMX415-C	SONY® Starvis™	3840 x 2160	8.3	🔴	Rolling		60
VC MIPI IMX264 -B&W /-C	SONY® Pregius™	2464 x 2056	5.1	🔴 ●	Global	✓	30
VC MIPI IMX265 -B&W /-C	SONY® Pregius™	2064 x 1544	3.2	🔴 ●	Global	✓	50
VC MIPI IMX287 -B&W /-C	SONY® Pregius™	728 x 544	0.4	🔴 ●	Global	✓	530
VC MIPI IMX290-C	SONY® Starvis™	1920 x 1080	2.1	🔴	Rolling		120
VC MIPI IMX335	SONY® Starvis™	2592 x 1944	5.0	●	Rolling		60
VC MIPI IMX462-C	SONY® Starvis™	1920 x 1080	2.1	🔴	Rolling		120
VC MIPI IMX490-C	SONY®	2896 x 1876	5.4	🔴	Rolling		40
VC MIPI IMX500-C	SONY®	4056 x 3040	12.3	🔴	Rolling		60



Compatible CPU Boards

Vision Components®
VC Adap96 CSI & Ethernet Adapter
VC Compute Module Interface (CMI) Board

Auvidea
Auvidea NVIDIA® Jetson™ J100 Processor: NVIDIA® TX1
Auvidea NVIDIA® Jetson™ AGX Xavier™ Carrier

Geniatech
4 IoT - Geniatech Processor: Snapdragon™ 410E

HummingBoard™
HummingBoard™ Processor: NXP i.MX6
HummingBoard™ Pro Processor: NXP i.MX6

MSC
MSC SM2-MB-EP1 (Smarc carrier board)
MSC SM2-IMX8 (Smarc carrier board)

Raspberry Pi®
Raspberry Pi® Zero V1.3 Processor: Broadcomm®
RaspberryPi® 3B+ Processor: Broadcomm®
RaspberryPi® 4B Processor: Broadcomm®
Raspberry Pi® Compute Module Industrial Processor: Broadcomm®

Trenz Electronic
ZynqBerry (RaspberryPi® Form Factor with Xilinx® Z-7007S)

Asus®
Asus® Tinker Board Processor: Rockchip® RK3288

DragonBoard™
DragonBoard™ 410C Processor: Snapdragon™ 410E
DragonBoard™ 820C Processor: Snapdragon™ 820E

HiKey
HiKey960 Processor: Kirin™ 960
HiKey970 Processor: Kirin™ 970

MediaTec
MediaTec X20 Processor: Helio X20

NVIDIA®
NVIDIA® Jetson™ TX2 module Processor: NVIDIA® TX2
NVIDIA® AGX Xavier™
NVIDIA® Jetson Nano™

Rock960
Rock960 Processor: Rockchip® RK3399

SightLine Applications
4000-OEM Processor: Snapdragon™ 820/ Inforce 6601™ SoM

Ultra96™
Ultra96™ Processor: Zynq UltraScale+™ ZU3EG

Voipac
Voipac i.MX6 Open Rex single board comp.
Voipac i.MX6 Tiny Rex Baseboard lite

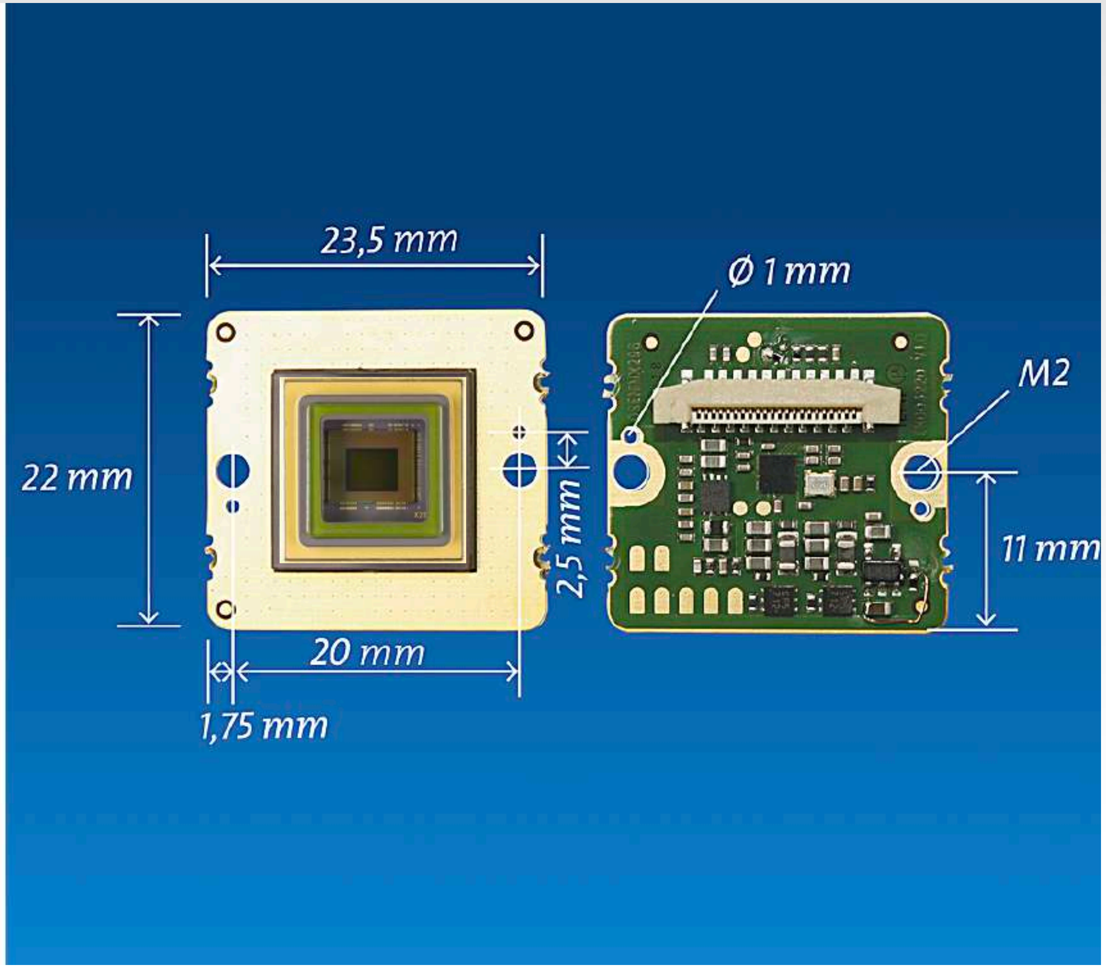
NEW

Vision Components - MIPI Camera Modules

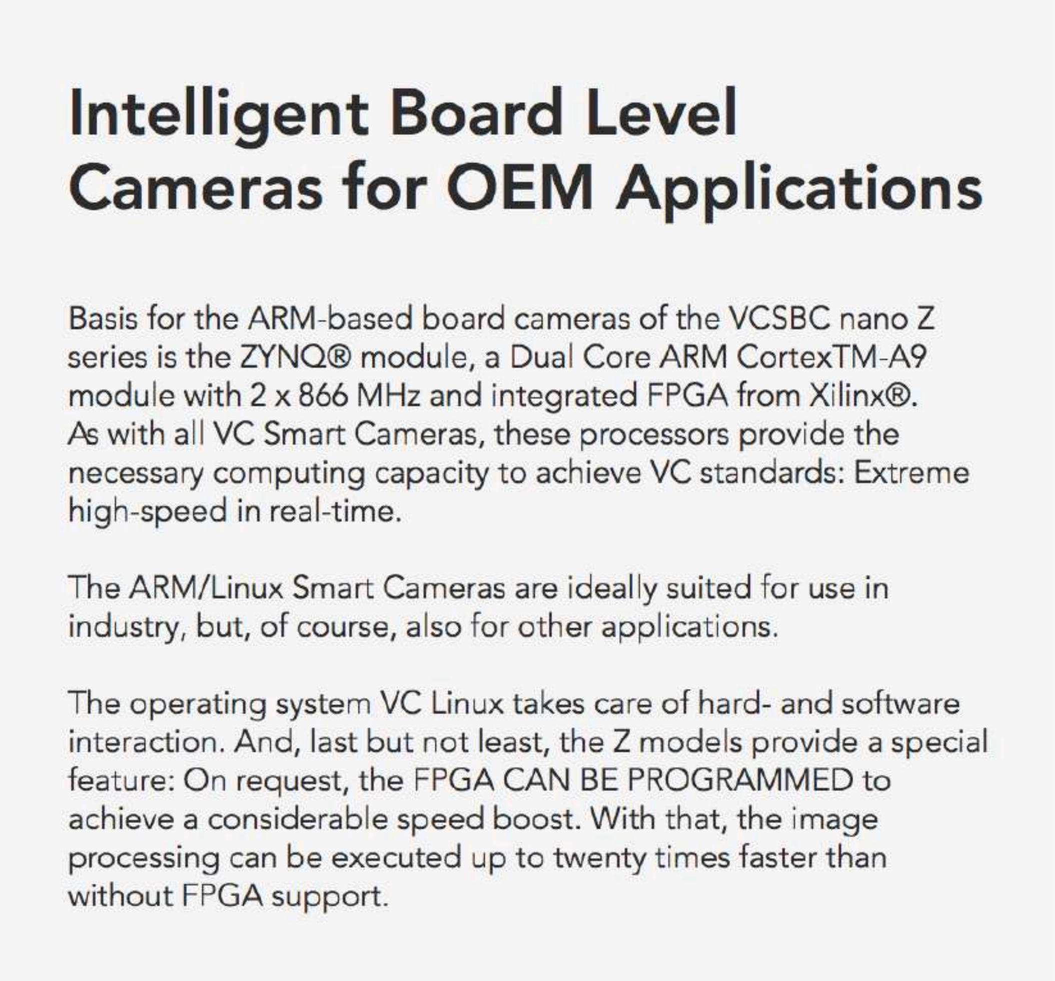
MIPI CSI-2 SWIR Camera Modules for Embedded Vision

VC MIPI IMX990-SWIR
1/2" CMOS sensor, SWIR, SONY
1280 x 1024 pixel, 1.3 MP
134 fps, global shutter
trigger input/flash trigger output

VC MIPI IMX991-SWIR
1/4" CMOS sensor, SWIR, SONY
640 x 512 pixel, 0.3 MP
258 fps, global shutter
trigger input/flash trigger output



Vision Components – Board Level Camera

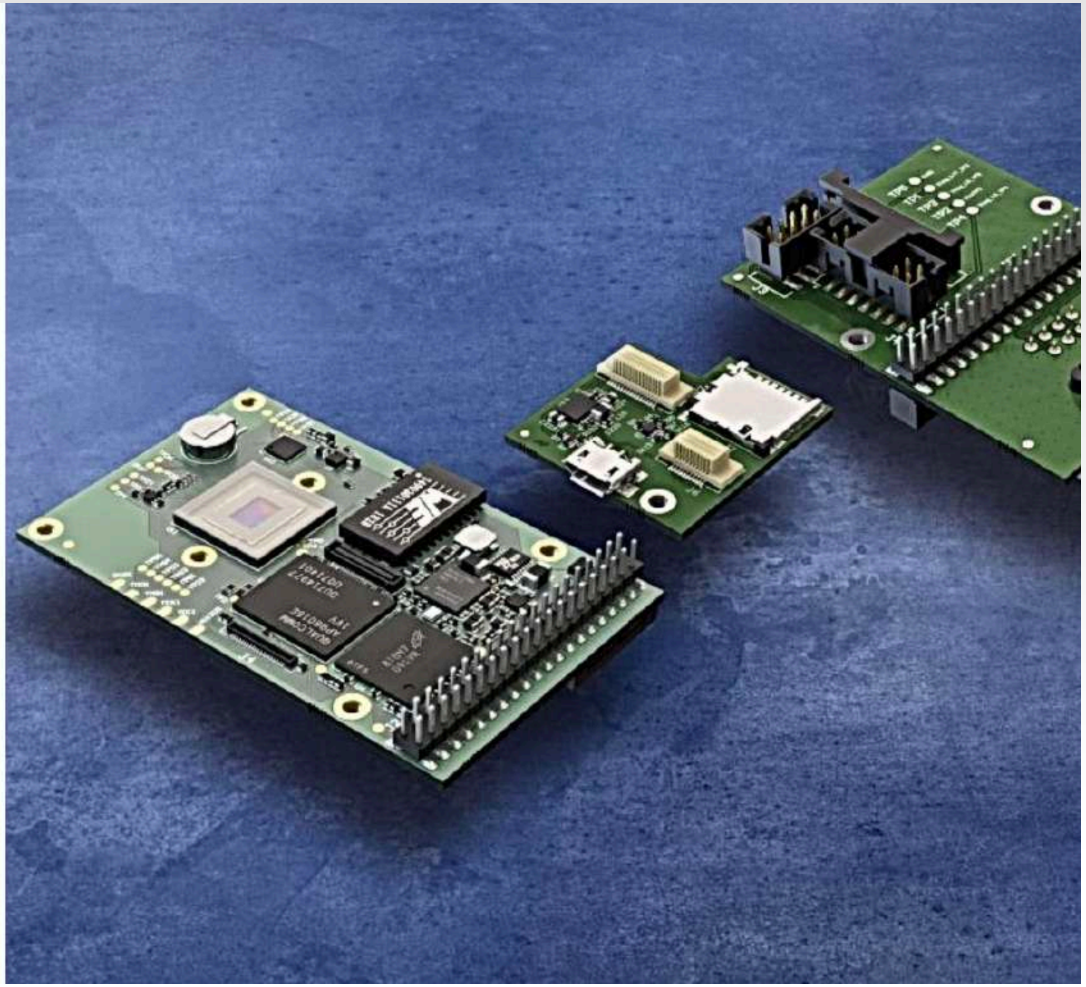


Intelligent Board Level Cameras for OEM Applications

Basis for the ARM-based board cameras of the VCSBC nano Z series is the ZYNQ® module, a Dual Core ARM CortexTM-A9 module with 2 x 866 MHz and integrated FPGA from Xilinx®. As with all VC Smart Cameras, these processors provide the necessary computing capacity to achieve VC standards: Extreme high-speed in real-time.

The ARM/Linux Smart Cameras are ideally suited for use in industry, but, of course, also for other applications.

The operating system VC Linux takes care of hard- and software interaction. And, last but not least, the Z models provide a special feature: On request, the FPGA CAN BE PROGRAMMED to achieve a considerable speed boost. With that, the image processing can be executed up to twenty times faster than without FPGA support.



Appro Photoelectron

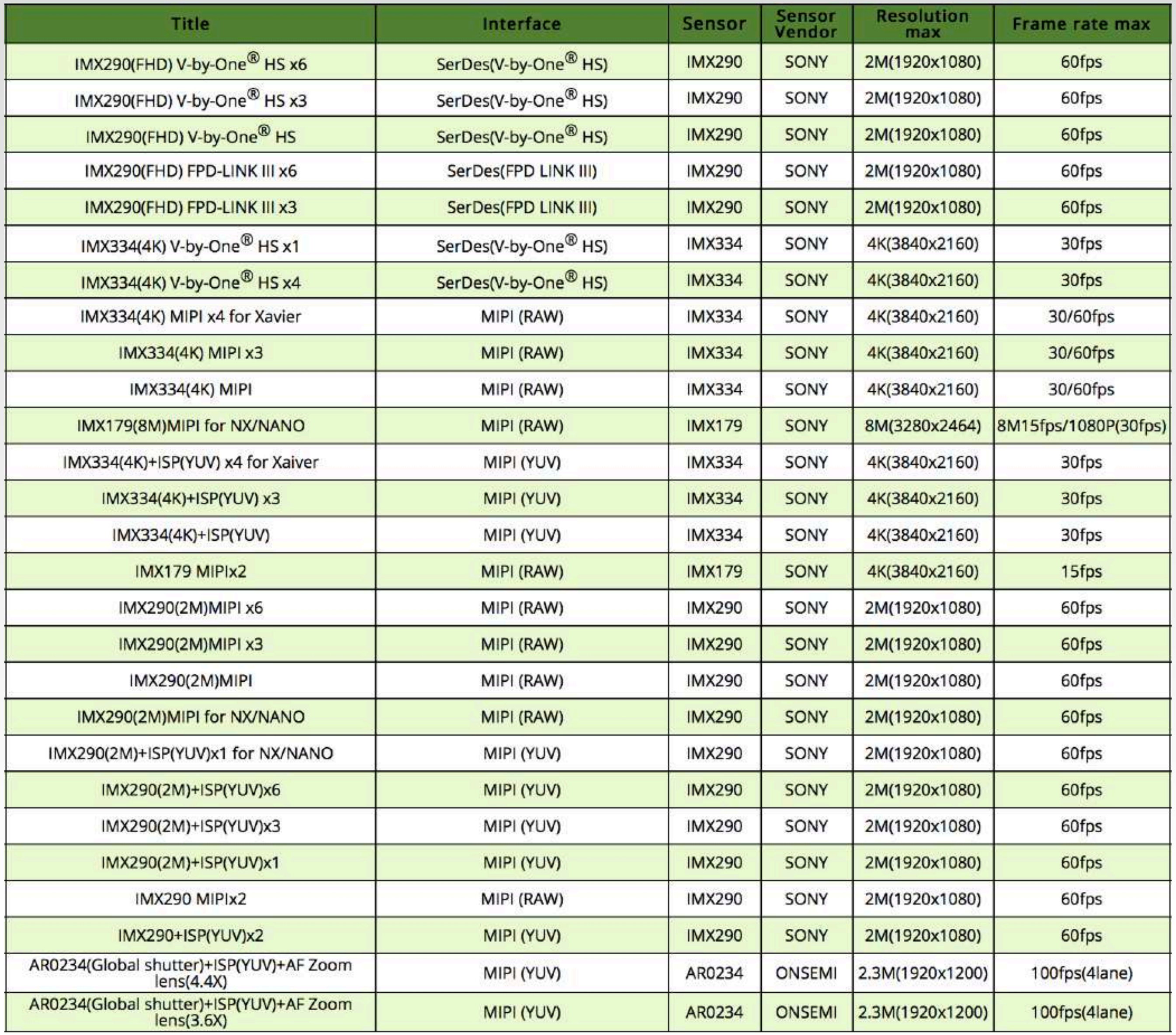
Nvidia Mipi / Serdes Camera Module Solutions

APPRO was established in 1999 and dedicated itself to be a professional design house for image products to help customers to develop products using Nvida signal process as its core system. APPRO provides all customers the most competitive price to have excellent market share.

Besides, APPRO also cooperates with SONY Taiwan providing high resolution of CCD/CMOS technical supports in Mobile phone and Camera modules as a total photoelectron- integrated solution.

Appro Photoelectron

Appro Photoelectron Inc. has extensive experience in the image processing industry serving large OEMs. They have created solutions for various verticals such as consumer and industrial devices, security and surveillance, and automotive embedded products. Appro has been enabled by the Jetson camera toolchain to develop imaging solutions for any camera system needs for the Jetson Embedded Program. They can support a variety of imaging sensors, including for multiple-sensor applications, tuned on, both, external ISPs or NVIDIA's on-chip ISP.



Title	Interface	Sensor	Sensor Vendor	Resolution max	Frame rate max
IMX290(FHD) V-by-One® HS x6	SerDes(V-by-One® HS)	IMX290	SONY	2M(1920x1080)	60fps
IMX290(FHD) V-by-One® HS x3	SerDes(V-by-One® HS)	IMX290	SONY	2M(1920x1080)	60fps
IMX290(FHD) V-by-One® HS	SerDes(V-by-One® HS)	IMX290	SONY	2M(1920x1080)	60fps
IMX290(FHD) FPD-LINK III x6	SerDes(FPD LINK III)	IMX290	SONY	2M(1920x1080)	60fps
IMX290(FHD) FPD-LINK III x3	SerDes(FPD LINK III)	IMX290	SONY	2M(1920x1080)	60fps
IMX334(4K) V-by-One® HS x1	SerDes(V-by-One® HS)	IMX334	SONY	4K(3840x2160)	30fps
IMX334(4K) V-by-One® HS x4	SerDes(V-by-One® HS)	IMX334	SONY	4K(3840x2160)	30fps
IMX334(4K) MIPI x4 for Xavier	MIPI (RAW)	IMX334	SONY	4K(3840x2160)	30/60fps
IMX334(4K) MIPI x3	MIPI (RAW)	IMX334	SONY	4K(3840x2160)	30/60fps
IMX334(4K) MIPI	MIPI (RAW)	IMX334	SONY	4K(3840x2160)	30/60fps
IMX179(8M)MIPI for NX/NANO	MIPI (RAW)	IMX179	SONY	8M(3280x2464)	8M15fps/1080P(30fps)
IMX334(4K)+ISP(YUV) x4 for Xaiver	MIPI (YUV)	IMX334	SONY	4K(3840x2160)	30fps
IMX334(4K)+ISP(YUV) x3	MIPI (YUV)	IMX334	SONY	4K(3840x2160)	30fps
IMX334(4K)+ISP(YUV)	MIPI (YUV)	IMX334	SONY	4K(3840x2160)	30fps
IMX179 MIPIx2	MIPI (RAW)	IMX179	SONY	4K(3840x2160)	15fps
IMX290(2M)MIPI x6	MIPI (RAW)	IMX290	SONY	2M(1920x1080)	60fps
IMX290(2M)MIPI x3	MIPI (RAW)	IMX290	SONY	2M(1920x1080)	60fps
IMX290(2M)MIPI	MIPI (RAW)	IMX290	SONY	2M(1920x1080)	60fps
IMX290(2M)MIPI for NX/NANO	MIPI (RAW)	IMX290	SONY	2M(1920x1080)	60fps
IMX290(2M)+ISP(YUV)x1 for NX/NANO	MIPI (YUV)	IMX290	SONY	2M(1920x1080)	60fps
IMX290(2M)+ISP(YUV)x6	MIPI (YUV)	IMX290	SONY	2M(1920x1080)	60fps
IMX290(2M)+ISP(YUV)x3	MIPI (YUV)	IMX290	SONY	2M(1920x1080)	60fps
IMX290(2M)+ISP(YUV)x1	MIPI (YUV)	IMX290	SONY	2M(1920x1080)	60fps
IMX290 MIPIx2	MIPI (RAW)	IMX290	SONY	2M(1920x1080)	60fps
IMX290+ISP(YUV)x2	MIPI (YUV)	IMX290	SONY	2M(1920x1080)	60fps
AR0234(Global shutter)+ISP(YUV)+AF Zoom lens(4.4X)	MIPI (YUV)	AR0234	ONSEMI	2.3M(1920x1200)	100fps(4lane)
AR0234(Global shutter)+ISP(YUV)+AF Zoom lens(3.6X)	MIPI (YUV)	AR0234	ONSEMI	2.3M(1920x1200)	100fps(4lane)

Dream-Chip

ATOM
cameras
BROADCAST & CINEMA PRODUCTS

Accelerates Your Product Innovation

Germany's largest independent Engineering Service Provider with a cutting-edge focus on the development and design of ASICs, SoCs, FPGAs, Embedded Software and discrete Systems.
More than 25 years of experience in the micro-electronics industry make us experts in turnkey solutions from specification to production and delivery – including embedded Linux or Android based board support packages (BSP), Linux or Android driver development or porting and high-speed PCB design with all necessary qualifications CE and FCC.
Whether they are in the automotive, broadcast, consumer, industrial or medical market – our clients know they can always rely on our expertise and outstanding engineering skills.

ASIC & FPGA design »
Embedded Software design »
PCB & System design »

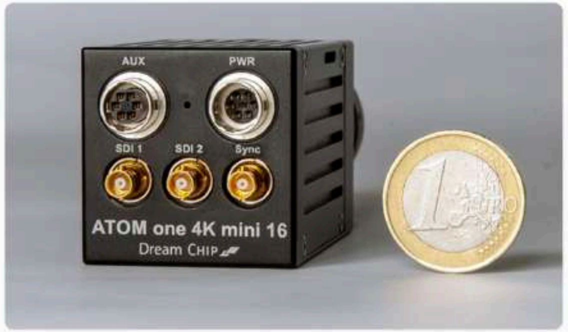
[Click Here – Atom Off-The-Shelf SDI Cameras]

Dream-Chip - Atom Camera Series

Atom one mini Waterproof

Smallest SDI broadcast waterproofed camera

- FULL HD resolution
- RS 485 control + power on **breakout cable**
- One 3G-SDI output
- Size : 32mm x 32mm x 51mm
- Weight : 115 g
- Rolling shutter
- Sensor size : 1/2.5"
- Mount : S-Mount
- Wide angle : 85° @3.4mm lens (included)



ATOM One 4K Mini 16

Smallest UHD 1" Global shutter / (4K HDR) camera

- 4K resolution
- RS 485 control + power on hirose connector
- Two 4K-SDI output (one can be downscaled to 3G)
- Genlock
- Size : 36mm x 36mm x 79mm
- Weight : 123 g
- **Global** shutter
- Sensor size : **1"**
- Mount : C-Mount
- Wide angle : 98° @6mm lens
- Microphone (stereo)

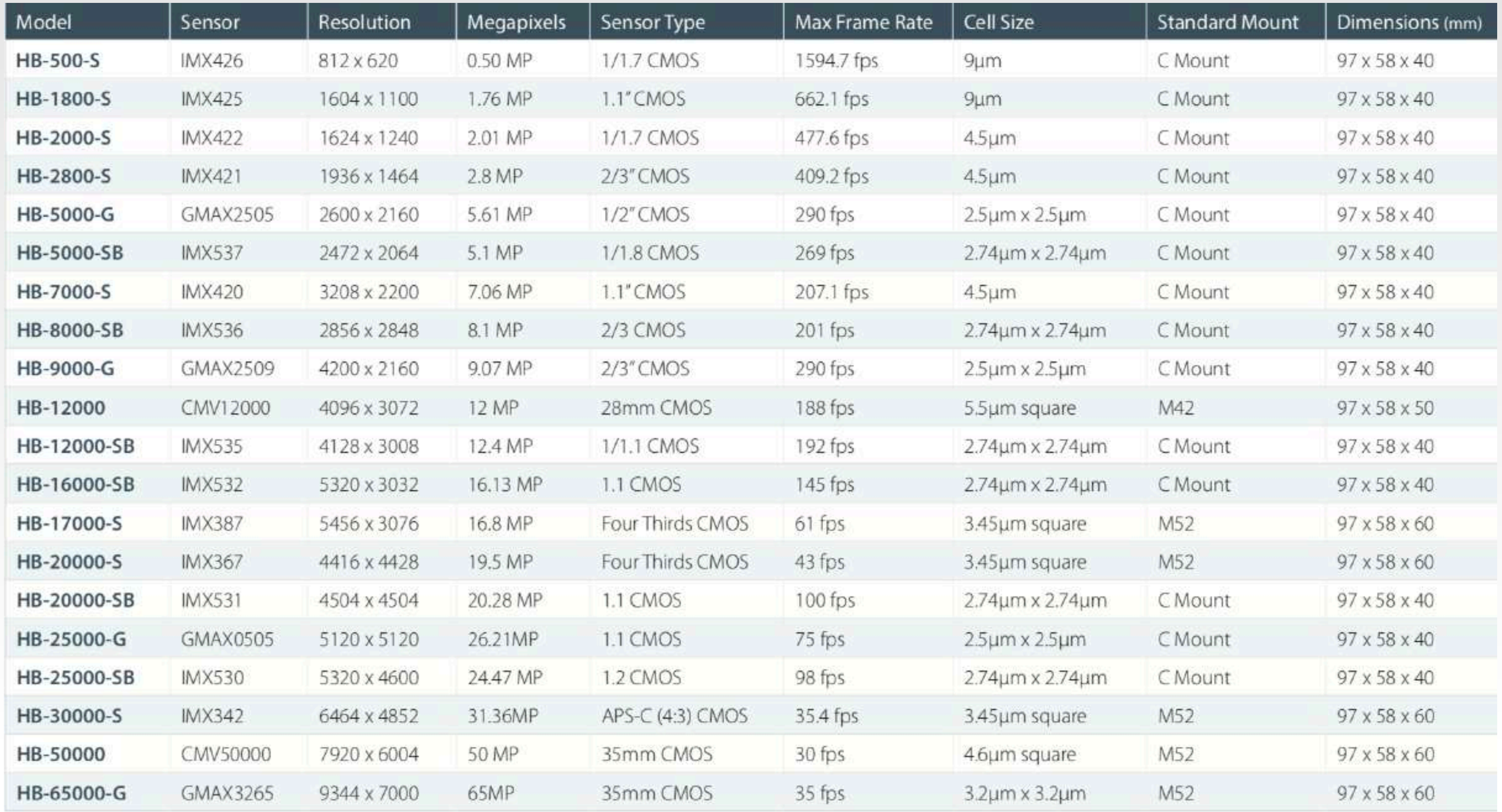
Emergent Vision Technologies

The World’s First Provider of 10 and 25 Gigabit Ethernet Cameras

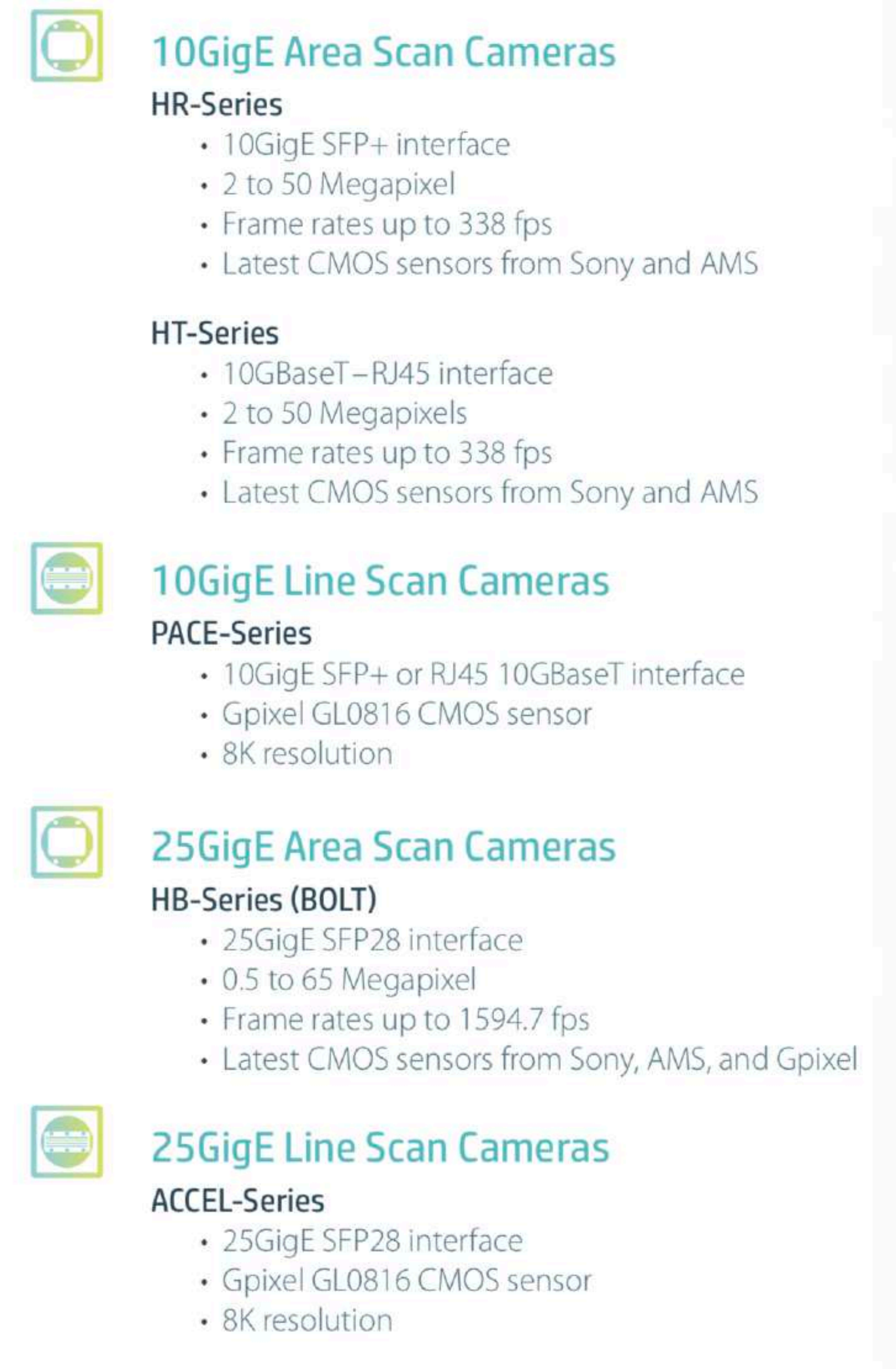
Emergent Vision Technologies was founded in 2007 in Vancouver, Canada. We are the first providers of cameras based on the 10 Gigabit Ethernet (10GigE) and 25 Gigabit Ethernet (25GigE) interfaces.
Our team comes with a vast experience in machine vision and high-speed imaging solutions from design to engineering, manufacturing, consulting, and technical support.

emergent
vision technologies

Emergent Vision Technologies



Model	Sensor	Resolution	Megapixels	Sensor Type	Max Frame Rate	Cell Size	Standard Mount	Dimensions (mm)
HB-500-S	IMX426	812 x 620	0.50 MP	1/1.7 CMOS	1594.7 fps	9µm	C Mount	97 x 58 x 40
HB-1800-S	IMX425	1604 x 1100	1.76 MP	1.1" CMOS	662.1 fps	9µm	C Mount	97 x 58 x 40
HB-2000-S	IMX422	1624 x 1240	2.01 MP	1/1.7 CMOS	477.6 fps	4.5µm	C Mount	97 x 58 x 40
HB-2800-S	IMX421	1936 x 1464	2.8 MP	2/3" CMOS	409.2 fps	4.5µm	C Mount	97 x 58 x 40
HB-5000-G	GMAX2505	2600 x 2160	5.61 MP	1/2" CMOS	290 fps	2.5µm x 2.5µm	C Mount	97 x 58 x 40
HB-5000-SB	IMX537	2472 x 2064	5.1 MP	1/1.8 CMOS	269 fps	2.74µm x 2.74µm	C Mount	97 x 58 x 40
HB-7000-S	IMX420	3208 x 2200	7.06 MP	1.1" CMOS	207.1 fps	4.5µm	C Mount	97 x 58 x 40
HB-8000-SB	IMX536	2856 x 2848	8.1 MP	2/3 CMOS	201 fps	2.74µm x 2.74µm	C Mount	97 x 58 x 40
HB-9000-G	GMAX2509	4200 x 2160	9.07 MP	2/3" CMOS	290 fps	2.5µm x 2.5µm	C Mount	97 x 58 x 40
HB-12000	CMV12000	4096 x 3072	12 MP	28mm CMOS	188 fps	5.5µm square	M42	97 x 58 x 50
HB-12000-SB	IMX535	4128 x 3008	12.4 MP	1/1.1 CMOS	192 fps	2.74µm x 2.74µm	C Mount	97 x 58 x 40
HB-16000-SB	IMX532	5320 x 3032	16.13 MP	1.1 CMOS	145 fps	2.74µm x 2.74µm	C Mount	97 x 58 x 40
HB-17000-S	IMX387	5456 x 3076	16.8 MP	Four Thirds CMOS	61 fps	3.45µm square	M52	97 x 58 x 60
HB-20000-S	IMX367	4416 x 4428	19.5 MP	Four Thirds CMOS	43 fps	3.45µm square	M52	97 x 58 x 60
HB-20000-SB	IMX531	4504 x 4504	20.28 MP	1.1 CMOS	100 fps	2.74µm x 2.74µm	C Mount	97 x 58 x 40
HB-25000-G	GMAX0505	5120 x 5120	26.21MP	1.1 CMOS	75 fps	2.5µm x 2.5µm	C Mount	97 x 58 x 40
HB-25000-SB	IMX530	5320 x 4600	24.47 MP	1.2 CMOS	98 fps	2.74µm x 2.74µm	C Mount	97 x 58 x 40
HB-30000-S	IMX342	6464 x 4852	31.36MP	APS-C (4:3) CMOS	35.4 fps	3.45µm square	M52	97 x 58 x 60
HB-50000	CMV50000	7920 x 6004	50 MP	35mm CMOS	30 fps	4.6µm square	M52	97 x 58 x 60
HB-65000-G	GMAX3265	9344 x 7000	65MP	35mm CMOS	35 fps	3.2µm x 3.2µm	M52	97 x 58 x 60



10GigE Area Scan Cameras

HR-Series

- 10GigE SFP+ interface
- 2 to 50 Megapixel
- Frame rates up to 338 fps
- Latest CMOS sensors from Sony and AMS

HT-Series

- 10GBaseT – RJ45 interface
- 2 to 50 Megapixels
- Frame rates up to 338 fps
- Latest CMOS sensors from Sony and AMS

10GigE Line Scan Cameras

PACE-Series

- 10GigE SFP+ or RJ45 10GBaseT interface
- Gpixel GL0816 CMOS sensor
- 8K resolution

25GigE Area Scan Cameras

HB-Series (BOLT)

- 25GigE SFP28 interface
- 0.5 to 65 Megapixel
- Frame rates up to 1594.7 fps
- Latest CMOS sensors from Sony, AMS, and Gpixel

25GigE Line Scan Cameras

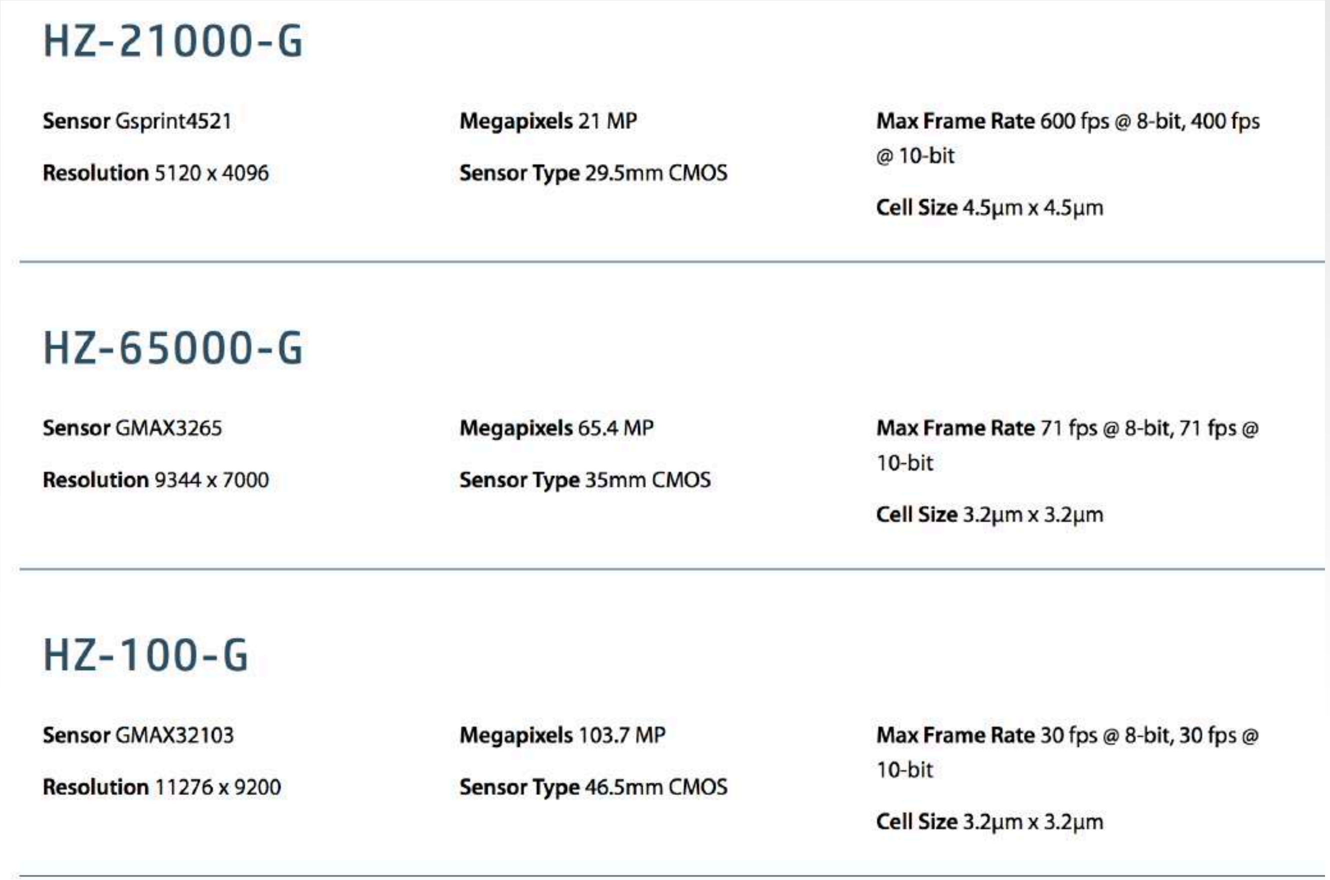
ACCEL-Series

- 25GigE SFP28 interface
- Gpixel GL0816 CMOS sensor
- 8K resolution

NEW

Emergent Vision Technologies

100 GIGE



HZ-21000-G

Sensor Gsprint4521

Resolution 5120 x 4096

Megapixels 21 MP

Sensor Type 29.5mm CMOS

Max Frame Rate 600 fps @ 8-bit, 400 fps @ 10-bit

Cell Size 4.5μm x 4.5μm

HZ-65000-G

Sensor GMAX3265

Resolution 9344 x 7000

Megapixels 65.4 MP

Sensor Type 35mm CMOS

Max Frame Rate 71 fps @ 8-bit, 71 fps @ 10-bit

Cell Size 3.2μm x 3.2μm

HZ-100-G

Sensor GMAX32103

Resolution 11276 x 9200

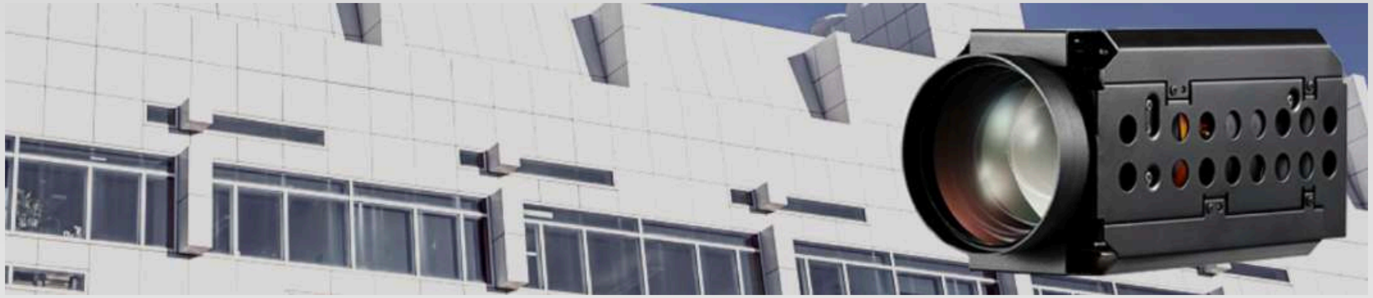
Megapixels 103.7 MP

Sensor Type 46.5mm CMOS

Max Frame Rate 30 fps @ 8-bit, 30 fps @ 10-bit

Cell Size 3.2μm x 3.2μm

100GIGE
ZENITH
QSFP28
IO / PWR
emergent
vision technologies

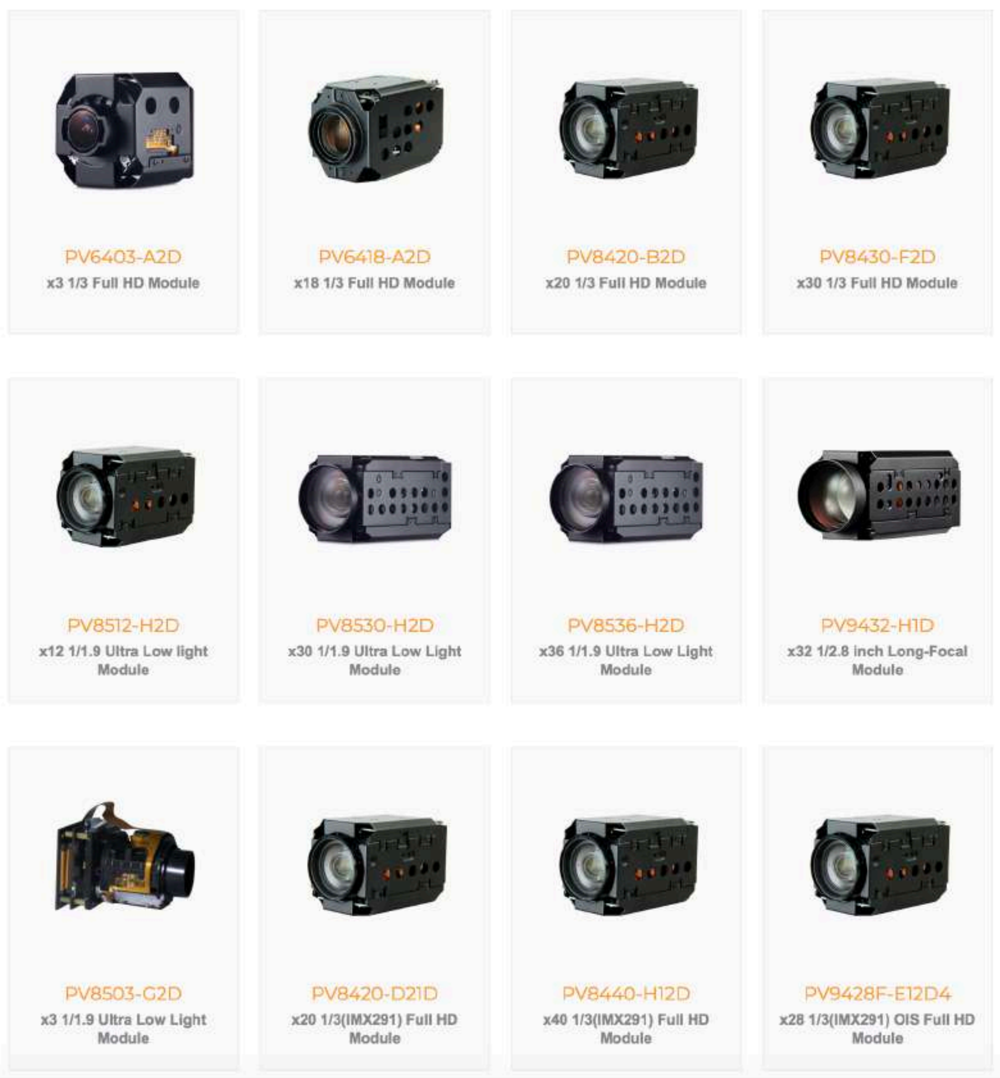


Probe Digital

Digital & Network Zoom Cameras

PROBE DIGITAL is the global leader in network video products and the leading independent provider of IP video surveillance solutions like a PTZ cameras.

PROBE DIGITAL has been developing products and technology that add value to network IP video surveillance and PTZ since 2007.
One of the special features of PROBE DIGITAL is that it owns multidisciplinary technology.



PV6403-A2D
x3 1/3 Full HD Module

PV6418-A2D
x18 1/3 Full HD Module

PV8420-B2D
x20 1/3 Full HD Module

PV8430-F2D
x30 1/3 Full HD Module

PV8512-H2D
x12 1/1.9 Ultra Low light Module

PV8530-H2D
x30 1/1.9 Ultra Low Light Module

PV8536-H2D
x36 1/1.9 Ultra Low Light Module

PV9432-H1D
x32 1/2.8 inch Long-Focal Module

PV8503-G2D
x3 1/1.9 Ultra Low Light Module

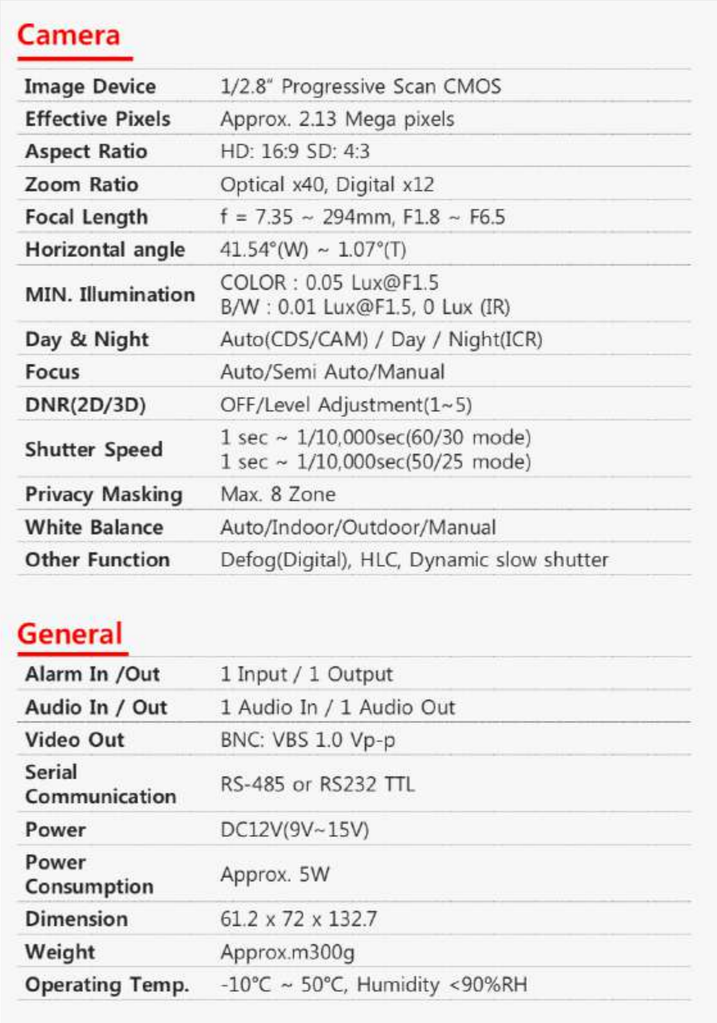
PV8420-D21D
x20 1/3(IMX291) Full HD Module

PV8440-H12D
x40 1/3(IMX291) Full HD Module

PV9428F-E12D4
x28 1/3(IMX291) OIS Full HD Module

Probe Digital

2MP 40x HD IP
Zoom Block Camera
NEW PYN-8440U2F

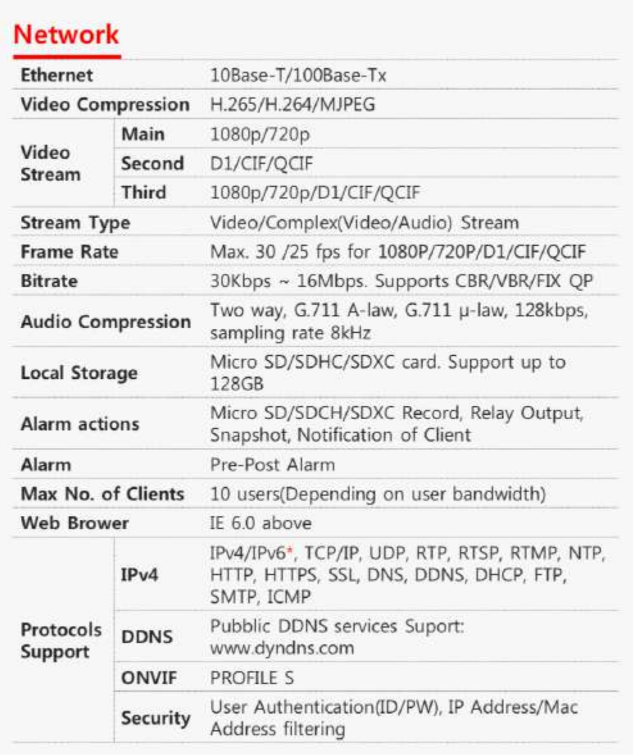


Camera

Image Device	1/2.8" Progressive Scan CMOS
Effective Pixels	Approx. 2.13 Mega pixels
Aspect Ratio	HD: 16:9 SD: 4:3
Zoom Ratio	Optical x40, Digital x12
Focal Length	f = 7.35 ~ 294mm, F1.8 ~ F6.5
Horizontal angle	41.54°(W) ~ 1.07°(T)
MIN. Illumination	COLOR : 0.05 Lux@F1.5 B/W : 0.01 Lux@F1.5, 0 Lux (IR)
Day & Night	Auto(CDS/CAM) / Day / Night(ICR)
Focus	Auto/Semi Auto/Manual
DNR(2D/3D)	OFF/Level Adjustment(1~5)
Shutter Speed	1 sec ~ 1/10,000sec(60/30 mode) 1 sec ~ 1/10,000sec(50/25 mode)
Privacy Masking	Max. 8 Zone
White Balance	Auto/Indoor/Outdoor/Manual
Other Function	Defog(Digital), HLC, Dynamic slow shutter

General

Alarm In /Out	1 Input / 1 Output
Audio In / Out	1 Audio In / 1 Audio Out
Video Out	BNC: VBS 1.0 Vp-p
Serial Communication	RS-485 or RS232 TTL
Power	DC12V(9V~15V)
Power Consumption	Approx. 5W
Dimension	61.2 x 72 x 132.7
Weight	Approx.m300g
Operating Temp.	-10℃ ~ 50℃, Humidity <90%RH



Network

Ethernet		10Base-T/100Base-Tx
Video Compression		H.265/H.264/MJPEG
Video Stream	**Main**	1080p/720p
	Second	D1/CIF/QCIF
	Third	1080p/720p/D1/CIF/QCIF
Stream Type		Video/Complex(Video/Audio) Stream
Frame Rate		Max. 30 /25 fps for 1080P/720P/D1/CIF/QCIF
Bitrate		30Kbps ~ 16Mbps. Supports CBR/VBR/FIX QP
Audio Compression		Two way, G.711 A-law, G.711 μ-law, 128kbps, sampling rate 8kHz
Local Storage		Micro SD/SDHC/SDXC card. Support up to 128GB
Alarm actions		Micro SD/SDCH/SDXC Record, Relay Output, Snapshot, Notification of Client
Alarm		Pre-Post Alarm
Max No. of Clients		10 users(Depending on user bandwidth)
Web Brower		IE 6.0 above
Protocols Support	**IPv4**	IPv4/IPv6*, TCP/IP, UDP, RTP, RTSP, RTMP, NTP, HTTP, HTTPS, SSL, DNS, DDNS, DHCP, FTP, SMTP, ICMP
	DDNS	Pubblic DDNS services Suport: www.dyndns.com
	ONVIF	PROFILE S
	Security	User Authentication(ID/PW), IP Address/Mac Address filtering

Probe Digital

No.	Model	CMOS Sensor			Aperture	Focal Length	Optical Zoom	Resolution	Interface	Development Status	Remark
		Sensor	Active Pixel	Optical Size						2020 June	
1	PYD-8503Z2F	IMX385	2.13MP	1/2"	F1.5~F2.5	3.6~10mm	3x	1920x1080/60fps	Digital	Mass Production	Ultra low light
2	PYN-8503Z2F								IP	Mass Production	
3	PYD-8503Y2F	IMX385	2.13MP	1/2"	F1.2~F2.0	3.6~11mm	3x	1920x1080/60fps	Digital	To be dated	Ultra low light
4	PYN-8503Y2F								IP	To be dated	
5	PYD-8512Z2F	IMX385	2.13MP	1/2"	F1.5~F1.9	7~84mm	12x	1920x1080/60fps	Digital	Mass Production	Ultra low light
6	PYN-8512Z2F								IP	Mass Production	
7	PYD-8518Z2F	IMX385	2.13MP	1/2"	F1.5~F1.9	6.6~117mm	18x	1920x1080/60fps	Digital	To be dated	Ultra low light
8	PYN-8518Z2F								IP	To be dated	
9	PYD-8536Z2F	IMX385	2.13MP	1/2"	F1.5~F4.8	5.8~210mm	36x	1920x1080/60fps	Digital	Mass Production	Ultra low light
10	PYN-8536Z2F								IP	Mass Production	
11	PYN-8536Z2F-D	IMX385	2.13MP	1/2"	F1.5~F4.8	5.8~210mm	36x	1920x1080/30fps	IP	Mass Production	H/W Defog
12	PYD-8545Z2F	IMX385	2.13MP	1/2"	F1.4~F4.5	5.7~256mm	45x	1920x1080/60fps	Digital	Mass Production	Ultra low light + Long Range
13	PYN-8545Z2F								IP	Mass Production	
14	PYD-8555U2F	IMX385	2.13MP	1/2"	F1.8~F5.0	10~550mm	55x	1920x1080/60fps	Digital	To be dated	Ultra low light + Long Range
15	PYN-8555U2F								IP	To be dated	
16	PYD-8588Z2F	IMX385	2.13MP	1/2"	F2.1~F11.2	10.5~920mm	88x	1920x1080/60fps	Digital	To be dated	Ultra low light + Long Range
17	PYN-8588Z2F								IP	To be dated	
18	PYD-8405Y2F	IMX327	2.13MP	1/2.8"	F1.3~F2.1	2.7~13.5mm	5x	1920x1080/60fps	Digital	To be dated	STARVIS
19	PYN-8405Y2F								IP	To be dated	
20	PYD-8423Z2F	IMX327	2.13MP	1/2.8"	F1.5~F3.2	5~117mm	23x	1920x1080/60fps	Digital	Mass Production	STARVIS
21	PYN-8423Z2F								IP	Mass Production	
22	PYD-8430Z2F	IMX327	2.13MP	1/2.8"	F1.5~F4.0	4.7~141mm	30x	1920x1080/60fps	Digital	Mass Production	STARVIS
23	PYN-8430Z2F								IP	Mass Production	
24	PYD-8440U2F	IMX327	2.13MP	1/2.8"	F1.8~F6.5	7.35~294mm	42x	1920x1080/60fps	Digital	Mass Production	STARVIS
25	PYN-8440U2F								IP	Mass Production	
26	PYN-3505Z2F-G	IMX265	3.19MP	1/1.8"	F1.3~F1.5	10.5~47mm	5x	2048x1536/30fps	IP	Mass Production	Global Sutter
27	PYN-9703Z2I	IMX334	8.42MP	1/1.8"	F1.35~F2.2	9~32mm	3x	3840x2160/30fps	IP	To be dated	4K
28	PYN-9720Z2I	IMX334	8.42MP	1/1.8"	F1.6~F4.1	6.5~125mm	20x	3840x2160/30fps	IP	To be dated	4K
29	PYN-9735Z2I	IMX334	8.42MP	1/1.8"	F1.4~F4.9	6.4~220mm	36x	3840x2160/30fps	IP	To be dated	4K

Japan Quality

Myutron

High End Optics

Myutron design, develop, and manufacture optical component such as lens, prism, and illumination for machine vision.

Myutron goal is to provide the best product which meet customer's requirement for machine vision application.

Japan Quality

Myutron

Machine Vision Lenses

Fixed Focal Length

Line Sensor

Macro

Telecentric

Security Lenses

Zoom Lenses

Vari Focal Length

Fixed Focal Length

SWIR Fixed Focal Length

Specialized in Collimator Lenses

Asia Optical

Asia Optical always believes in creative design of optical components to bring human beings to the new state of high-tech life. Therefore, Asia Optical keeps expanding its operation and aims to lead technological trend.

ShalomEO

Optical Components For Versatile Applications

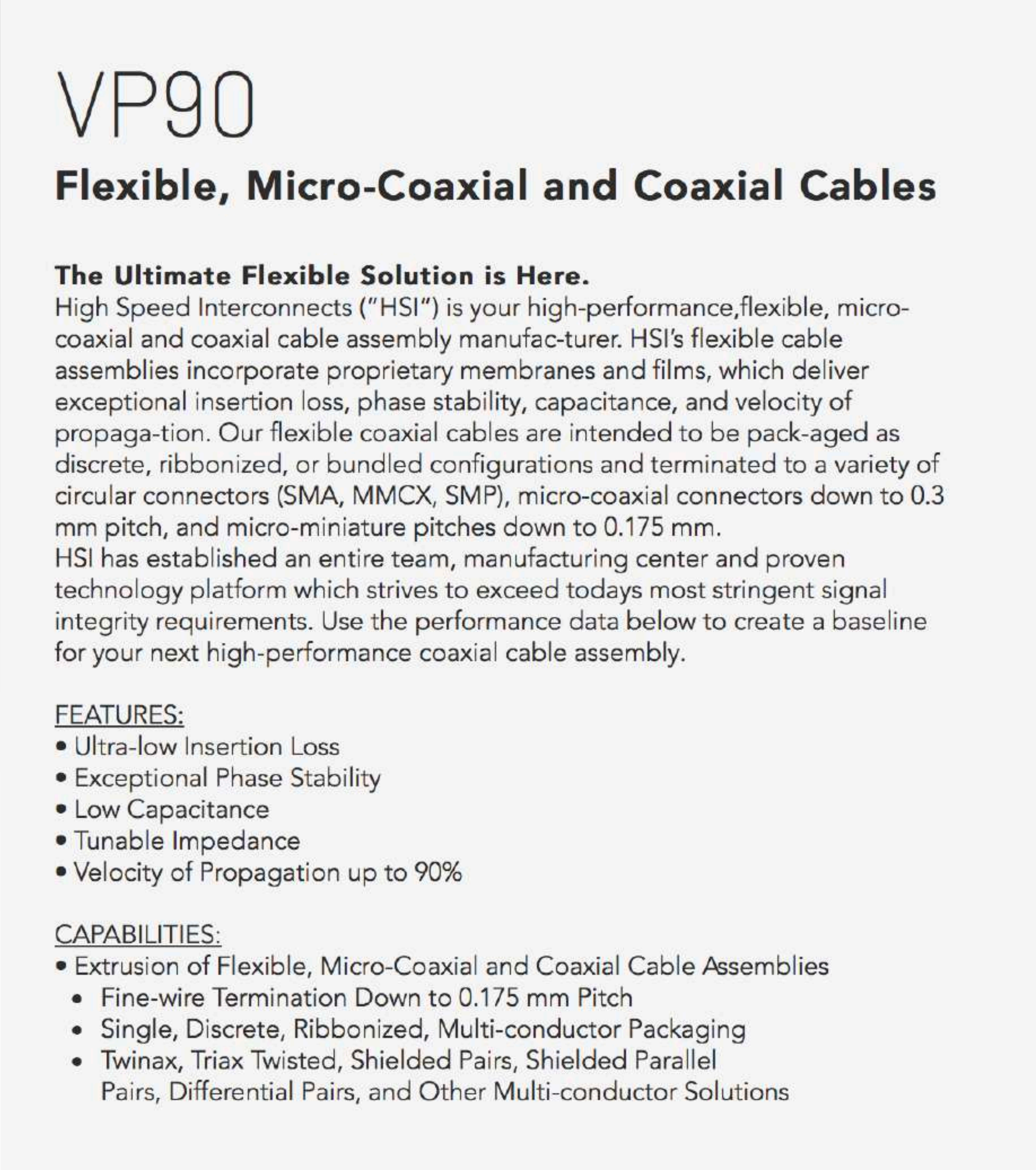
Hangzhou Shalom EO is a leading supplier of crystals, optics, OEM components products, a wide range of the products are offered:

- Crystals, optics and components for laser systems and applications;
- IR lenses, windows and optics for thermal imaging cameras and applications;
- Scintillation crystals and components for X-ray, nuclear ray detection;
- SAW crystals and wafers, Sapphire and other crystal and optics products for semiconductor, industrial, medical, scientific and research applications.

HSI

High-Performance
Cable Assemblies You Can Rely On

High Speed Interconnects (HSI) is a leading American company which extrudes and assembles high-performance coaxial cable, exceeding today's signal integrity requirements. HSI's low-loss, low-capacitance, phase-stable, coaxial interconnect solutions are available in a variety of cable constructions, which include circular and micro coaxial connector terminations down to 0.3 mm pitch; and fine wire, direct-to-board terminations down to 0.175 mm.



VP90

Flexible, Micro-Coaxial and Coaxial Cables

The Ultimate Flexible Solution is Here.
High Speed Interconnects ("HSI") is your high-performance,flexible, micro-coaxial and coaxial cable assembly manufac-turer. HSI's flexible cable assemblies incorporate proprietary membranes and films, which deliver exceptional insertion loss, phase stability, capacitance, and velocity of propaga-tion. Our flexible coaxial cables are intended to be pack-aged as discrete, ribbonized, or bundled configurations and terminated to a variety of circular connectors (SMA, MMCX, SMP), micro-coaxial connectors down to 0.3 mm pitch, and micro-miniature pitches down to 0.175 mm.
HSI has established an entire team, manufacturing center and proven technology platform which strives to exceed todays most stringent signal integrity requirements. Use the performance data below to create a baseline for your next high-performance coaxial cable assembly.

FEATURES:
- Ultra-low Insertion Loss
- Exceptional Phase Stability
- Low Capacitance
- Tunable Impedance
- Velocity of Propagation up to 90%

CAPABILITIES:
- Extrusion of Flexible, Micro-Coaxial and Coaxial Cable Assemblies
  - Fine-wire Termination Down to 0.175 mm Pitch
  - Single, Discrete, Ribbonized, Multi-conductor Packaging
  - Twinax, Triax Twisted, Shielded Pairs, Shielded Parallel Pairs, Differential Pairs, and Other Multi-conductor Solutions

Sunny

The Company has strong capabilities in R&D and manufacturing. With great reputation among its customers worldwide, the company has extended its market in forty countries and regions and has become the most important supplier to many Tier 1 customers domestically and internationally. The company has also gained significant global market share in compact module camera, lens sets for mobile devices and automotive lenses.

The company has five production sites in Yangtze River Delta, Pearl River Delta, Bohai Bay and Central Plain Areas, respectively. There are also R&D center and local customer support offices in North America, Japan, South Korea, Singapore, and Taiwan.

Truly

Truly Opto-electronics Ltd. is committed to developing, manufacturing and selling capacitive touch panel, compact camera module, touch display integrated module, fingerprint identification, precision glass etc.

The capacity touch panel of Truly Opto-electronics Ltd. includes OGS type and Film type. With leading production facilities, Truly has one world-leading cell OGS production line, one sheet OGS production line , one automotive roll-to-roll film production line, one traditional glass CTP production line, one film CTP production line and one cover lens production line.

Truly Opto compact camera module has both COB and CSP manufacturing process. Truly can produce 21 mega pixel camera module, and has its own high precise wafer cutting production line . TRULY camera module has been widely used in mobile phone, tablet PC, consumer electronics, automotive ,industrial and medical products.

Thank you