



CIS PRODUCT LINEUP

Camera & Imaging Systems



About us

Corporate name	CIS Corporation	
Location	539-5, Higashi Asakawa-machi, Hachioji-shi, Tokyo, 193-0834, JAPAN Tel 042-664-5535 (Head Quarters)	
Foundation	September 1 st , 1978	
President	Yusuke Muraoka	
ISO	ISO9001:2015 edition	ISO14001 (HQ only)

Corporate History

Sep. 1978	Founded CAFLO Corporation
Mar. 1991	Started manufacturing VCC camera series (CCD models)
Jan. 1992	Renamed to CIS Corporation
May. 1995	Acquired ISO9002 certification
Nov. 1995	First shipment of CE certified products
Jun. 1996	Started manufacturing digital cameras
May. 1998	Acquired ISO9001 certification
Dec. 2000	Acquired ISO14001 certification
Apr. 2002	Increased capital to 60 Million YEN
Nov. 2002	Acquired ISO9001 certification, year 2000 version
Aug. 2003	Certified as SONY Green Partner
Oct. 2004	Increased capital to 90 Million YEN
Oct. 2005	Established Software Development Center
Sep. 2007	Opened Hachioji Office
May. 2011	Opened Solution Development Center in Nakano, Japan
Mar. 2015	Reacquired ISO14001 certification
Mar. 2018	Acquired ISO9001 certification (year 2015 version) and ISO14001 certification (year 2015 version) from the third-party institution
Dec. 2020	Relocated Sales Div. and Engineering Div. to Takao

From Camera to Imaging Systems

Imaging System Solution

CIS has consistently pursued “small footprint”, “high speed”, and “high performance” in our product design and development. While maintaining these key product features, CIS is pursuing new technologies such as new sensors, new digital interface, hardware and software integration, and proprietary signal processing algorithm.

CIS offers total imaging solution to meet with customer’s various needs, by way of proposing optimal system architecture and the most suitable camera interface, electric and mechanical design, development of system software, and when applicable, development of image processing application software.

Expert Engineering Teams

We have in-house professional teams devoted to mechanical design, circuit design, FPGA logic development, system software development and algorithm development. From planning to design, entire engineering processes are handled within CIS.

We can provide one-stop-shop services for realizing your requirements in design, development and mass production of image processing systems and cameras.

Furthermore, we have started releasing unique, high image-quality color cameras incorporating Clairvu™, CIS’s proprietary image processing engine.

Manufacturing



CIS runs its own clean rooms for the assembly and inspection in Tokyo, Japan.

With its thorough quality assurance system and know-hows acquired over 20+ years in operation, we have won high appraisal from our customers, and we will strive to remain so.

※ The chassis for cameras in 29mm cubic size (29×29×29mm) is solid color design.

VGA

SXGA



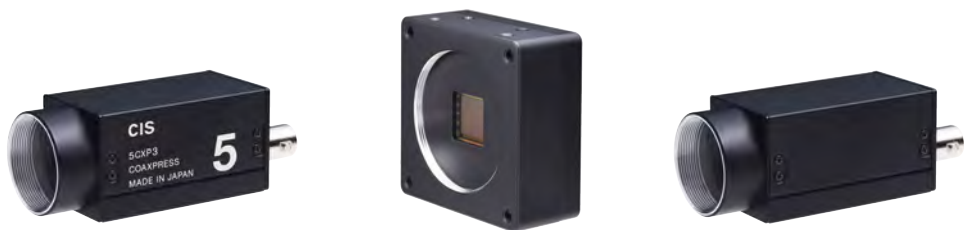
	VGA High speed	SXGA High speed
Interface	CXP3 × 1lane	CXP1-CXP3 × 1lane
Model name (B/W) (Color) (NIR)	VCC-VCXP5M VCC-VCXP5R	VCC-SXCXP3M VCC-SXCXP3R VCC-SXCXP3NIR (Near-infrared)
Sensor	Pregius IMX287	PYTHON 1300
Sensor size	1/2.9 type CMOS	1/2 type CMOS
Unit cell size (μm)	6.9 μm × 6.9 μm	4.8 μm × 4.8 μm
Effective pixels (H) × (V)	720 × 540	1280 × 1024
Resolution	VGA	SXGA
Frame rate	583fps(at VGA), 523fps(CXP3 · 8bit), 437fps(CXP3 · 10bit), 320fps(CXP3 · 12bit)	168fps(CXP3 · 8bit)
Pixel clock	74.25MHz	72MHz
Shutter	OFF~1/20,000s	OFF~1/10,000s
Lens mount	C mount	C mount
Dimensions (W) × (H) × (D)mm	29 × 29 × 29	29 × 29 × 29
Features	Connector: BNC, External trigger, Long distance transmission, ROI, H&V flip, Defective pixel correction, Gain: 0~48dB, PoCXP	Connector: BNC, External trigger, Long distance transmission, ROI, Sub-sampling, Defective pixel correction, Sequence control, Shading correction, PoCXP, NIR model is also available

2M



	2M High speed	2M High speed
Interface	CXP1-CXP3 × 1lane	CXP3 · CXP6 × 1lane
Model name (B/W) (Color)	VCC-2CXP2M	VCC-2CXP6M VCC-2CXP6R
Sensor	PYTHON 2000	Pregius IMX422
Sensor size	2/3 type CMOS	1/1.7 type CMOS
Unit cell size (μm)	4.8 μm × 4.8 μm	4.5 μm × 4.5 μm
Effective pixels (H) × (V)	1984 × 1264	1632 × 1248
Resolution	2M	2M
Frame rate	85fps(CXP3 · 8bit/CXP3 · 10bit)	239fps(CXP6 · 8bit), 195fps(CXP6 · 10bit), 166fps(CXP6 · 12bit), 120fps(CXP3 · 8bit), 97fps(CXP3 · 10bit), 83fps(CXP3 · 12bit)
Pixel clock	72MHz	74.25MHz
Shutter	OFF~1/5,000s	OFF~1/66,000s
Lens mount	C mount	C mount
Dimensions (W) × (H) × (D)mm	29 × 29 × 29	29 × 29 × 55
Features	Connector: BNC, External trigger, Long distance transmission, ROI, Sub-sampling, Defective pixel correction, Shading correction, PoCXP	Connector: BNC, External trigger, Long distance transmission, ROI, 2 × 2 binning (B/W model only), Defective pixel correction, PoCXP

5M



	5M High speed	5M High speed	5M High speed
Interface	CXP1-CXP6 × 1lane	CXP3-CXP6 × 1lane/2lanes	CXP6 × 1lane, CXP3 × 1lane
Model name (B/W) (Color) (NIR)	VCC-5CXP3M VCC-5CXP3R VCC-5CXP3NIR (Near-infrared)	VCC-5CXP4M VCC-5CXP4R	VCC-5CXP7M VCC-5CXP7R
Sensor	PYTHON 5000	Pregius IMX250	Pregius IMX547
Sensor size	1 type CMOS	2/3 type CMOS	1/1.8 type CMOS
Unit cell size (μm)	4.8 μm × 4.8 μm	3.45 μm × 3.45 μm	2.74 μm × 2.74 μm
Effective pixels (H) × (V)	2592 × 2048	2464 × 2056	2472 × 2064
Resolution	5M	5M	5M
Frame rate	85fps(CXP6 · 8bit/CXP6 · 10bit), 43fps(CXP3 · 8bit/CXP3 · 10bit)	163fps (CXP6 · 8bit × 2lanes)	101fps(8bit)
Pixel clock	72MHz	74.25MHz	74.25MHz
Shutter	OFF~1/10,000s	TBD	TBD
Lens mount	C mount	C mount	C mount
Dimensions (W) × (H) × (D)mm	29 × 29 × 55	55 × 55 × 30	29 × 29 × 55
Features	Connector: BNC, External trigger, Long distance transmission, ROI, Sub-sampling, Defective pixel correction, Sequence control, Shading correction, PoCXP, NIR model is also available	Connector: BNC, External trigger, Long distance transmission, ROI, H&V flip, Defective pixel correction, Gain0~36dB, PoCXP/External power supply is selectable	Connector: BNC, External trigger, Long distance transmission, ROI, 2 × 2 binning (B/W model only), Defective pixel correction, Shading correction, Gain, Gamma correction

12M

20M

24M



	12M High speed	20M High speed	24M Small size
Interface	CXP3-CXP6 × 1lane/2lanes	CXP12 × 1lane/2lanes, CXP6 × 1lane/2lanes, CXP3 × 1lane	CXP6 × 1lane
Model name (B/W) (Color)	VCC-12CXP4M VCC-12CXP4R	VCC-20CXP6M VCC-20CXP6R	VCC-24CXP7M
Sensor	Pregius IMX253	Pregius IMX531	Pregius IMX540
Sensor size	1.1 type CMOS	1.1 type CMOS	1.2 type CMOS
Unit cell size (μm)	3.45 μm × 3.45 μm	2.74 μm × 2.74 μm	2.74 μm × 2.74 μm
Effective pixels (H) × (V)	4096 × 3000	4512 × 4512	5328 × 4608
Resolution	12M	20M	24M
Frame rate	65fps(CXP6 · 8bit/10bit × 2lanes), 32fps(CXP6 · 8bit/10bit × 1lane, CXP3 · 8bit/10bit × 2lanes), 16fps(CXP3 · 8bit/10bit × 1lane)	79.6fps(CXP12 · 8bit × 2lanes)	21.9fps(8bit)
Pixel clock	74.25MHz	74.25MHz	74.25MHz
Shutter	OFF~1/51,000s	2.68 μs~200ms	OFF~1/83,333s
Lens mount	M42 mount	M48 mount	C mount
Dimensions (W) × (H) × (D)mm	55 × 55 × 30	65 × 65 × 93.3	29 × 29 × 55
Features	Connector: BNC, External trigger, Long distance transmission, ROI, 2 × 2 binning (B/W model only), Defective pixel correction, Shading correction, Gain: 0~36dB	Connector: HD-BNC, External trigger, Long distance transmission, ROI, H&V flip, Binning, Defective pixel correction, Shading correction, Gain, Gamma correction, PoCXP	Connector: BNC, External trigger, Long distance transmission, ROI, Defective pixel correction, Shading correction, Gain, Gamma correction

25M



Without heatsink



With heatsink

	25M High speed	25M Ultra-high speed
Interface	CXP1-CXP6 × 4lanes	CXP6/12 × 4lanes/1lane
Model name (B/W) (Color) (NIR) (Binning)	VCC-25CXP1M VCC-25CXP1R VCC-25CXP1NIR (Near-infrared) VCC-25CXP1MBN (with Binning mode)	VCC-25CXPHSM-F / VCC-25CXPHSM (without heatsink) VCC-25CXPHSR-F / VCC-25CXPHSR (without heatsink) VCC-25CXPHSNIR-F / VCC-25CXPHSNIR (Near-infrared · without heatsink)
Sensor	PYTHON 25K	GMAX0505
Sensor size	APS-H CMOS	1.1type CMOS
Unit cell size (μm)	4.5 μm × 4.5 μm	2.5 μm × 2.5 μm
Effective pixels (H) × (V)	5120 × 5120	5120 × 5120
Resolution	25M	25M
Frame rate	82fps(CXP6 · 8bit), 65fps(CXP6 · 10bit), 40fps(CXP3 · 8bit), 34fps(CXP3 · 10bit)	150fps(CXP12 × 4 · 8bit), 141fps(CXP12 × 4 · 10bit), 88fps(CXP6 × 4 · 8bit), 68fps(CXP6 × 4 · 10bit), 44fps(CXP12 × 1 · 8bit), 35fps(CXP12 × 1 · 10bit), 23fps(CXP6 × 1 · 8bit), 18fps(CXP6 × 1 · 10bit)
Pixel clock	72MHz	-
Shutter	OFF~1/30,000s	6 μs~2s
Lens mount	M48 mount	M48 mount
Dimensions (W) × (H) × (D)mm	65 × 65 × 65	65 × 125 × 93.3 (VCC-25CXPHSM-F / VCC-25CXPHSR-F / VCC-25CXPHSNIR-F) 65 × 65 × 93.3 (VCC-25CXPHSM / VCC-25CXPHSR / VCC-25CXPHSNIR) ※Heat dissipation is necessary for this model without heatsink.
Features	Connector: DIN, External trigger, Long distance transmission, ROI, Sub-sampling, Binning (Binning model only), Defective pixel correction, Sequence control, Shading correction, PoCXP, NIR model and Binning model are also available.	Connector: HD-BNC, External trigger, Long distance transmission, ROI, Defective pixel correction, Shading correction, Gamma correction, PoCXP, NIR model is also available

50M

120M



	50M High resolution	120M Ultra-high resolution
Interface	CXP3/6 × 4lanes, CXP12 × 2lanes/1lane	CXP3/6 × 4lanes, CXP6 × 2lanes
Model name (B/W) (Color)	VCC-50CXP1M VCC-50CXP1R	VCC-120CXP1M VCC-120CXP1R
Sensor	CMV50000	120MXSM
Sensor size	35mm CMOS	APS-H CMOS
Unit cell size (μm)	4.6 μm × 4.6 μm	2.2 μm × 2.2 μm
Effective pixels (H) × (V)	7920 × 6004	13264 × 9180
Resolution	50M	120M
Frame rate	30.6fps(CXP12 × 2lanes/CXP6 × 4lanes), 15.3fps(CXP12 × 1lane/CXP6 × 2lanes/CXP3 × 4lanes), 7.7fps(CXP6 × 1lane)	9.4fps(CXP3 · 8bit × 4lanes/CXP6 · 8bit × 2lanes/ CXP6 · 8bit × 4lanes/CXP6 · 10bit × 4lanes)
Pixel clock	69MHz	-
Shutter	OFF~1/10,000s	OFF~1/20,000s
Lens mount	M58 mount	M48 mount
Dimensions (W) × (H) × (D)mm	75 × 75 × 85	65 × 65 × 68
Features	Connector: HD-BNC, External trigger, Long distance transmission, ROI, Defective pixel correction, Shading correction, Gain, PoCXP, CXP2.0 complied	Rolling shutter, Connector: DIN, Long distance transmission, ROI, Defective pixel correction, Shading correction, Strobe out, Long time exposure, PoCXP, High-speed processing

127M

250M



	127M Ultra-high resolution	250M Ultra-high resolution
Interface	CXP12 × 2lanes	CXP6 × 4lanes
Model name (B/W)	VCC-127CXP6M	VCC-250CXP1M
Sensor	Pregius IMX661	CANON LI8020SAM
Sensor size	3.6 type CMOS	APS-H type CMOS
Unit cell size (μm)	3.45 μm × 3.45 μm	1.5 μm × 1.5 μm
Effective pixels (H) × (V)	13408 × 9528	19568 × 12588
Resolution	127M	250M
Frame rate	18fps(8bit)	5fps(CXP6 · 8bit/10bit), 3.2fps(CXP6 · 12bit)
Pixel clock	74.25MHz	-
Shutter	TBD	200 μs~15s
Lens mount	M72 mount	M48 mount
Dimensions (W) × (H) × (D)mm	100 × 100 × 100	100 × 100 × 95.6
Features	External trigger, ROI, Defective pixel correction, Shading correction, Gain control, Gamma correction, Flat field correction, Cooling fan installed	Rolling shutter, Connector: DIN, External trigger, Long distance transmission, ROI, Binning, Defective pixel correction, Shading correction, Strobe pulse control, Gain, Gamma correction, PoCXP, Cooling fan installed

SWIR camera

SXGA



CIS SWIR camera, VCC-SXCXP1SW, can detect and inspect objects in the region of 400nm to 1,700nm wavelength spectrum.

	SXGA Visible+SWIR image sensor
Interface	CXP3 × 1lane
Model name (B/W)	VCC-SXCXP1SW
Sensor	SenSWIR IMX990 (SWIR)
Sensor size	1/2 type
Unit cell size (μm)	5 μm × 5 μm
Effective pixels (H) × (V)	1296 × 1032
Resolution	SXGA
Frame rate	134.7fps(8bit), 125.3fps(10bit), 71.5fps(12bit)
Pixel clock	74.25MHz
Shutter	TBD
Lens mount	C mount
Dimensions (W) × (H) × (D)mm	65 × 65 × 65
Features	Connector: BNC, External trigger, ROI, H&V flip, Lighting trigger control, Detection wavelength spectrum: 400nm~1700nm, 5 wavelengths lighting control, PoCXP



400M



	Max. 400M pixels Ultra-high resolution
Interface	CXP3-CXP6 × 4lanes
Model name (B/W) (Color)	VCC-25CXP1MPS VCC-25CXP1RPS
Sensor	PYTHON 25K
Sensor size	APS-H CMOS
Unit cell size (μm)	4.5 μm × 4.5 μm
Effective pixels (H) × (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	81.8fps(CXP6 · 8bit at 25M), 11.1fps(CXP6 · 8bit at 100M), 2.7fps (CXP6 · 8bit at 400M)
Pixel clock	72MHz
Shutter	OFF~1/30,000s
Lens mount	M48 mount
Dimensions (W) × (H) × (D)mm	65 × 65 × 93.3
Features	Global shutter, Connector: DIN B/W: 10240 × 10240/20480 × 20480 Color: 5120 × 5120/10240 × 10240(Equivalent to 3CMOS True color) Build-in Piezo actuator drive unit, Provides pixel-shift image composition software

Pixel-shift Technology

CIS realized ultra-high resolution cameras by using patented piezo-actuator-based pixel shift technology. This technology increases the resolution by shifting the sensor in μm order, creating virtual pixels in between physical pixels, and by synthesizing images obtained at each position. For color models, the same technology is applied for obtaining all R, G, and B information in each and every pixel, thereby producing an image quality equivalent to 3-image sensor cameras. These cameras are suitable not only for Machine Vision applications, but also for research applications and image archiving purposes.

VCC-25CXP1MPS
(25M Pixel-shift camera B/W model)

Watch

Without pixel-shift (25M)

Enlarged image

16 times pixel-shift (400M)

Enlarged image

VCC-25CXP1RPS
(25M Pixel-shift camera Color model)

Body tissue

Without pixel-shift (25M)

Enlarged image

16 times pixel-shift
(104M Equivalent to 3CMOS · True color)

Enlarged image

※ The camera chassis for cameras in 29mm cubic size (29 × 29 × 29mm) is solid color design.

VGA



	VGA 1TAP, 2TAP, 3TAP	VGA 1TAP, 2TAP, 3TAP Pixel clock selectable	VGA High speed
Interface	PoCL・non-PoCL (Auto selection)	PoCL・non-PoCL (Auto selection)	PoCL・non-PoCL
Model name (B/W) (Color)	VCC-VCL3M VCC-VCL3R	VCC-VCL5M VCC-VCL5R	VCC-GC20V41CL / PCL VCC-FC20V49CL / PCL
Sensor	PYTHON 300	Pregius IMX287	CMV2000
Sensor size	1/4 type CMOS	1/2.9 type CMOS	1/4 type CMOS
Unit cell size (μm)	4.8 μm × 4.8 μm	6.9 μm × 6.9 μm	5.5 μm × 5.5 μm
Effective pixels (H) × (V)	640 × 480	720 × 540	640 × 480
Resolution	VGA	VGA	VGA
Frame rate	Base: 538fps(3tap) 268fps(2tap) 134fps(1tap)	Base: 578fps(3tap・at VGA) 519fps(3tap) 317fps(2tap) 175fps(1tap)	Base: 502fps(2tap)
Pixel clock	72MHz・36MHz (Selectable with 2TAP output)	74.25MHz・64.969MHz・37.125MHz (Selectable)	79.99MHz
Shutter	OFF~1/10,752s	OFF~1/50,000s	OFF~1/50,000s
Lens mount	C mount	C mount	C mount
Dimensions (W) × (H) × (D)mm	29 × 29 × 29	29 × 29 × 29	29 × 29 × 29
Features	External trigger, ROI, Sub-sampling, Defective pixel correction, Power auto selection ※ Baud rate needs to be specified when ordering	External trigger, ROI, H&V flip, Defective pixel correction, Shading correction, Cursor indication, One push white balance, Power auto selection	High speed 500fps, External trigger, ROI, Low power consumption 1.6W

(Baud rate is selectable from 115,200bps and 9,600bps)

SXGA

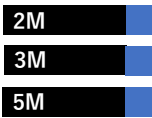


	SXGA 1TAP, 2TAP, 3TAP Pixel clock selectable	SXGA 1TAP, 2TAP, 3TAP Pixel clock selectable
Interface	PoCL・non-PoCL (Auto selection)	PoCL・non-PoCL (Auto selection)
Model name (B/W) (Color)	VCC-SXCL3M VCC-SXCL3R	VCC-SXCL5M VCC-SXCL5R
Sensor	PYTHON 1300	Pregius IMX273
Sensor size	1/2 type CMOS	1/2.9 type CMOS
Unit cell size (μm)	4.8 μm × 4.8 μm	3.45 μm × 3.45 μm
Effective pixels (H) × (V)	1280 × 1024	1440 × 1080
Resolution	SXGA	SXGA
Frame rate	Base: 152fps(3tap) 84fps(2tap) 42fps(1tap)	Base: 136fps(3tap) 91fps(2tap) 46fps(1tap)
Pixel clock	72MHz・36MHz (Selectable with 2TAP output)	74.25MHz・64.969MHz・37.125MHz (Selectable)
Shutter	OFF~1/10,000s	OFF~1/50,000s
Lens mount	C mount	C mount
Dimensions (W) × (H) × (D)mm	29 × 29 × 29	29 × 29 × 29
Features	External trigger, ROI, Sub-sampling, Defective pixel correction, Manual gain control, Power auto selection, ※ Baud rate needs to be specified when ordering	External trigger, ROI, H&V flip, 2 × 2 binning (B/W model only), Defective pixel correction, Shading correction, Cursor indication, One push white balance, Power auto selection

(Baud rate is selectable from 115,200bps and 9,600bps)

Camera Link

※ The camera chassis for cameras in 29mm cubic size (29 × 29 × 29mm) is solid color design.



	2M High speed	3M 1TAP, 2TAP, 3TAP	5M 1TAP, 2TAP, 3TAP
Interface	PoCL・non-PoCL	PoCL・non-PoCL (Auto selection)	PoCL・non-PoCL (Auto selection)
Model name (B/W) (Color)	VCC-GC20U11CL / PCL VCC-FC20U19CL / PCL	VCC-3CL5M VCC-3CL5R	VCC-5CL5M VCC-5CL5R
Sensor	CMV2000	Pregius IMX265	Pregius IMX264
Sensor size	2/3 type CMOS	1/1.8 type CMOS	2/3 type CMOS
Unit cell size (μm)	5.5 μm × 5.5 μm	3.45 μm × 3.45 μm	3.45 μm × 3.45 μm
Effective pixels (H) × (V)	2048 × 1088	2064 × 1544	2448 × 2048
Resolution	2M	3M	5M
Frame rate	Base: 70fps(2tap)	Base: 56fps(3tap) 45fps(2tap) 23fps(1tap)	Base: 36fps(3tap) 29fps(2tap) 15fps(1tap)
Pixel clock	79.99MHz	74.25MHz	74.25MHz
Shutter	OFF~1/50,000s	OFF~1/50,000s	OFF~1/50,000s
Lens mount	C mount	C mount	C mount
Dimensions (W) × (H) × (D)mm	29 × 29 × 29	29 × 29 × 29	29 × 29 × 29
Features	External trigger, ROI, Gain: 0~12dB, 8bit/10bit output, Manual gain control	External trigger, ROI, Sub-sampling, Defective pixel correction, Gain: 0~42dB, Manual gain control, Power auto selection	External trigger, ROI, Sub-sampling, Defective pixel correction, Gain: 0~42dB, Manual gain control, Power auto selection, Pixel clock selectable model VCC-5CL5M63 / R63 are also available



	5M High speed/Thin type	12M High speed/Thin type	25M High speed/Various features
Interface	PoCL・non-PoCL (Selectable)	PoCL・non-PoCL (Selectable)	PoCL・non-PoCL (Selectable)
Model name (B/W) (Color)	VCC-5CL4M / VCC-5CL4MHS VCC-5CL4R / VCC-5CL4RHS	VCC-12CL4M VCC-12CL4R	VCC-25CL1M VCC-25CL1R
Sensor	Pregius IMX250	Pregius IMX253	PYTHON 25K
Sensor size	2/3 type CMOS	1.1 type CMOS	APS-H CMOS
Unit cell size (μm)	3.45 μm × 3.45 μm	3.45 μm × 3.45 μm	4.5 μm × 4.5 μm
Effective pixels (H) × (V)	2448 × 2048	4096 × 3000	5120 × 5120
Resolution	5M	12M	25M
Frame rate	Deca: 163fps(10tap)8bit HS model Deca: 114fps(8tap)10bit Full: 114fps(8tap)8bit Med: 57fps(4tap)8bit/10bit Base: 42fps(3tap)8bit Base: 28fps(2tap)8bit/10bit	Deca: 63fps(10tap)8bit 53fps(8tap)10bit Full: 53fps(8tap) Med: 27fps(4tap) Base: 13fps(2tap)	Deca: 32fps(10tap)8bit Full: 22/25fps(8tap)8bit Med: 11fps(4tap)8bit/10bit(B/W model only) Base: 5fps(2tap)8bit/10bit(B/W model only)
Pixel clock	74.25MHz / 84.86MHz (HS model)	84.86MHz	72MHz(8tap) / 85MHz(8・10tap)
Shutter	OFF~1/55,000s / OFF~1/60,000s (HS model)	OFF~1/51,000s	OFF~1/30,000s
Lens mount	M42 mount	M42 mount	M48 mount
Dimensions (W) × (H) × (D)mm	55 × 55 × 25	55 × 55 × 25	65 × 65 × 40.5
Features	External trigger, ROI, Defective pixel correction, Gain: 0~36dB	External trigger, Camera Link, Base, Medium, Full, 8tap 10bit, 10tap 8bit complied, Gain: 0~36dB	External trigger, ROI, 2 × 2 binning(B/W model only), Defective pixel correction, Sequence control, Shading correction

Board Cameras



Board type



Cased type

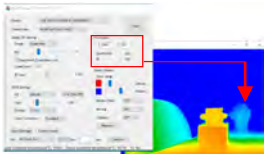


Resolution	5M	WVGA	ToF(VGA) + RGB(Quad-VGA)
Interface	GigE (PoE)	GigE (PoE)	USB3.0
Model name	(Color) DCC-5CP1GEC (Board type) VCC-5CP1GEC (Cased type)	(B/W) DCC-VCP1GEM (Board type) VCC-VCP1GEM (Cased type)	(B/W) (Color) DCC-RGBD1
Sensor	MT9P006	EV76C541	MN34906(ToF), AR-0135(RGB)
Sensor size	1/2.5 type CMOS	1/4 type CMOS	1/4 type CCD(ToF), 1/3 type CMOS(RGB)
Unit cell size (μm)	2.2 μm × 2.2 μm	4.5 μm × 4.5 μm	5.6 μm × 5.6 μm(ToF), 3.75 μm × 3.75 μm(RGB)
Effective pixels (H) × (V)	2592 × 1944	752 × 480	640 × 480(ToF), 1280 × 960(RGB)
Frame rate	6fps~112fps (Depends on the image size)	30fps~120fps	30fps
Lens mount	Board type: M14 mount Cased type: C mount	Board type: M14 mount Cased type: C mount	ToF/RGB: M12 mount(S mount), Dedicated lens installed
Dimensions (W) × (H) × (D)mm	Board type: 42 × 42 × 11.6 Cased type: 47 × 47 × 34	Board type: 42 × 42 × 11.6 Cased type: 47 × 47 × 34	50 × 55 × 35(Excluding projection)
Features	Common features of DCC/VCC model: Rolling shutter, ROI, AE/AWB, One push WB, Gain control Features of DCC model only: Adaptor for M12 lens (Optional item)	Common features of DCC/VCC model: Global shutter, AE, Shutter control, Gain control Features of DCC model only: Adaptor for M12 lens (Optional item)	[RGB sensor] Global shutter, Simplified AE(Gain control/Exposure control), One push WB, YUV422 [ToF sensor] Depth, IR data 16bit output [ToF light source] LD(Laser Diode) wavelength 850nm 2 lights installed

RGB ToF Camera (DCC-RGBD1)

This is a twin-lens board camera which integrates ToF camera and RGB camera.
With ToF camera, distance can be measured by using near-infrared light emitted from the camera.

◆ ToF camera development kit



Operation example of Operation check exe
(Indicate the simplified information on 1 pixel.)

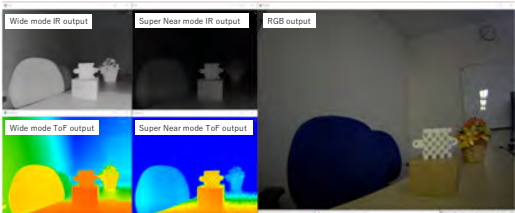
- Suitable for a simplified evaluation of ToF.
- Provides SDK for controlling and other purposes of camera.
- Provides support for dedicated ROS driver and various libraries for controlling and other purposes of camera.
- For Windows: DLL, C++ · C# sample code project, Operation check exe, PointCloud, and the calibration tools (Camera calibration · Depth calibration) are provided.
- For Linux: ROS driver package from TORK is provided.
- Enables to build into various applications by the support of ROS driver.

◆Acquires information on RGB and Depth by one camera

- Synchronizes and outputs YUV+Depth information by using on-board FPGA.
- Corresponds to a seamless measurement in the range of 15cm~5m.
(With Super Near mode: 15cm~70cm, With Wide mode: 30cm~5m)
- High accuracy mode (Average deviation rate: 1.5% or less at 15cm and 2.0% or less at 5m)
※ Since the measurement is performed under CIS's conditions, the value may not be fulfilled depends on the environment.)

◆Small footprint · USB3.0 interface utilized

- 50(W) × 55(H) × 35(D)mm
- USB3.0 UVC
(Power feeding is not supported.)
- A cable for power supply is supplied as an accessory.



4K



VCC-4K2



DCC-4K2



Clairvu™

	BT.2100 complied 4K UHD 60fps	Lens mount Built-in ×18 zoom lens
Interface	Quad 3G-SDI / HD-SDI	Quad 3G-SDI / HD-SDI / 3G-SDI
Model name (Color)	VCC-4K2 (with chassis) DCC-4K2 (without chassis)	DCC-4KZM (×18)
Sensor	Pregius IMX255	STARVIS IMX334
Sensor size	1 type CMOS	1/1.8 type CMOS
Unit cell size(μm)	3.45 μm × 3.45 μm	2.0 μm × 2.0 μm
Effective pixels(H) × (V)	3840 × 2160	3840 × 2160
Video output	2160p, 1080p, 1080i	2160p, 1080p, 1080i
Signal I/F	3G-SDI × 4ch, 3G-SDI × 1ch, HD-SDI × 1ch	3G-SDI × 4ch, 3G-SDI × 1ch, HD-SDI × 1ch
Sync system	Internal sync / External sync	Internal sync / External sync
Shutter	OFF~1/13,600s	OFF~1/13,600s
Lens mount	M42 mount	With ×18 zoom lens fw=6.6mm, ft=120mm
Dimensions(W) × (H) × (D)mm	With chassis: 65 × 65 × 110 Without chassis: Lens mount block 65 × 65 × 12, Main block 65 × 29 × 89 (Excluding projection)	66 × 65 × 98
Features	Image with no distortion with global shutter, ISP Clairvu™, Max. 4K60fps high speed processing output, SQD · 2SI system complied, Conform to Gamma curve BT.2100(HLG), Conform to BT.709 and BT.2020, Color correction, HDR, Knee selectable, NR, LTC, GenLock, OSD	Rolling shutter, Connector: H.FL-R-SMT, ISP Clairvu™, Max. 4K60fps high speed processing output, SQD · 2SI system complied, Conform to Gamma curve BT.2100(HLG), Conform to BT.709 and BT.2020, Color correction, Knee selectable, NR, LTC, GenLock, OSD

FULL HD



Clairvu™



Clairvu™

	Ultra-high sensitivity Full HD 0.0005lux	Lens mount Built-in ×30 zoom lens
Interface	3G-SDI / HD-SDI	3G-SDI / HD-SDI
Model name (Color)	VCC-HD1000A	VCC-HD30ZME1 (×30)
Sensor	35mm FHDXSCA	MN34220
Sensor size	35mm Full size	1/3 type CMOS
Unit cell size(μm)	19 μm × 19 μm	2.75 μm × 2.75 μm
Effective pixels(H) × (V)	1920 × 1080	1920 × 1080
Video output	1080p, 1080i, 720p	1080p, 1080i, 720p
Signal I/F	3G-SDI, HD-SDI, BNC75Ω	3G-SDI, HD-SDI, BNC75Ω
Sync system	Internal sync / External sync	Internal sync / External sync
Shutter	OFF~1/11,200s	OFF~1/8,000s
Lens mount	EF/F mount	With ×30 zoom lens fw=4.3mm, ft=129.0mm
Dimensions(W) × (H) × (D)mm	75 × 75 × 85	52 × 55.4 × 99.6
Features	Rolling shutter, ISP Clairvu™, Max. 1080/60p(with 3G-SDI output) high speed processing output, Color correction, HDR, Knee selectable, NR, LTC, GenLock, OSD, Ultra-high sensitivity 0.0005lux equivalent to ISO 4,000,000	Rolling shutter, ISP Clairvu™, Max. 1080/60p(with 3G-SDI output) high speed processing output, Color correction, WDR, 3DNR, LTC, GenLock, OSD

FULL HD



	Compact size 1080p 60fps	Compact size 1080p 60fps
Interface	3G-SDI / HD-SDI	3G-SDI / HD-SDI
Model name (Color)	VCC-HD3N (with chassis) DCC-HD3N (without chassis)	VCC-HD4 (with chassis) DCC-HD4 (without chassis)
Sensor	Pregius IMX265	STARVIS IMX327
Sensor size	1/1.8 type CMOS	1/2.8 type CMOS
Unit cell size(μm)	3.45 μm × 3.45 μm	2.9 μm × 2.9 μm
Effective pixels(H) × (V)	1920 × 1080	1945 × 1097
Video output	1080p, 1080i, 720p	1080p, 1080i, 720p
Signal I/F	3G-SDI, HD-SDI, BNC75Ω	3G-SDI, HD-SDI, BNC75Ω
Sync system	Internal sync / External sync	Internal sync / External sync
Shutter	OFF~1/13,600s	OFF~1/13,600s
Lens mount	With chassis: C/CS mount (C mount conversion ring attached) Without chassis: None	With chassis: C/CS mount Without chassis: None
Dimensions(W) × (H) × (D)mm	With chassis: 29 × 29 × 77 Without chassis: Sensor board 25.4 × 25.4, Main board 25.4 × 38, Driver board 25.4 × 43	With chassis: 29 × 29 × 77 Without chassis: Sensor board 25.4 × 25.4, Main board 25.4 × 38, Driver board 25.4 × 43
Features	Image with no distortion with global shutter, ISP Clairvu™, Max. 1080/60p(with 3G-SDI output) high speed processing output, BT.709 Gamma curve, Color correction, NR, LTC, GenLock, GenLock offset, OSD	Rolling shutter, ISP Clairvu™, Max. 1080/60p(with 3G-SDI output) high speed processing output, Conform to Gamma curve BT.709 and BT.2100, Conform to BT.2020, Color correction, NR, LTC, GenLock, GenLock offset, OSD

4K



Accessories

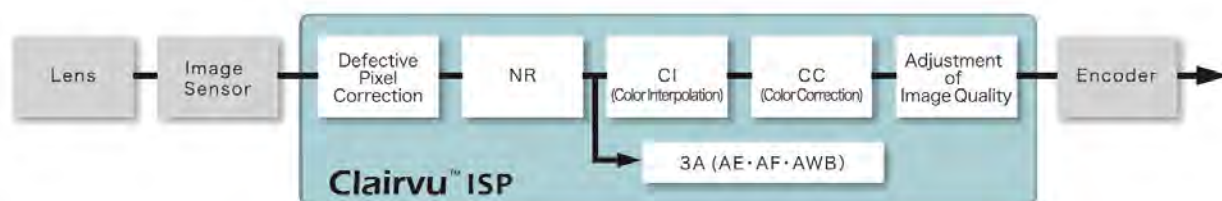
	4K Lens mount Built-in ×18 zoom lens
Interface	NDI® (Network Device Interface)
Model name (Color)	VCC-4KNDI (with chassis) DCC-4KNDI (without chassis)
Sensor	STARVIS IMX334
Sensor size	1/1.8 type CMOS
Unit cell size(μm)	2.0 μm × 2.0 μm
Effective pixels(H) × (V)	3840 × 2160
Video output	2160p, 1080p
Signal I/F	NDI®
Frame rate	60fps, 59.94fps, 50fps, 30fps, 29.97fps, 25fps, 24fps, 23.98fps
Shutter	OFF~1/13,600s
Lens mount	With ×18 AF zoom fw=6.6mm, ft=120mm
Dimensions(W) × (H) × (D)mm	68.5 × 68 × 120.6 (Excluding projection)
Features	ISP Clairvu™, Max. 4K60fps high speed processing output, Conform to Gamma curve BT.2100 (HLG), Conform to BT.709 and BT.2020, Color correction, 2D/3D NR, OSD, Stereo line input, PoE+ complied

	Remote Control Unit
Model name	RU-100
Features	With RU-100 connected to CIS cameras, camera settings can be done with OSD (On Screen Display). RU-100 also can be used as a converter from USB to RS-232C so that you can use it to set camera settings via PC.
Connectable cameras	VCC/DCC-4K2 VCC/DCC-HD3N VCC/DCC-HD4 VCC-HD1000A VCC/DCC-4KNDI (Needs to be converted to 2.5mm plug)

※NDI® is a registered trademark of Vizrt Group.

ISP Algorithm Clairvu™

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



■ 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) 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 3840×2160 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.

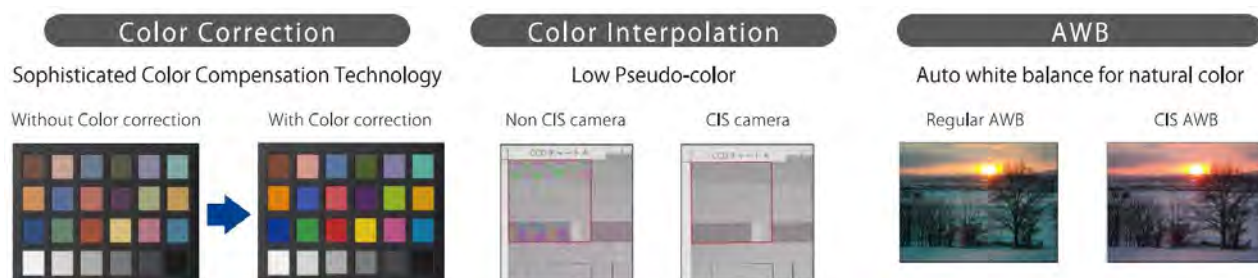
■ (AF) Auto Focus

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 by close to gray, CIS developed auto white balance algorithm to control its balance more precisely, estimating the color of the lighting source.

<Signal Processing Technologies - Examples>



Accessories



	Camera lens mount conversion ring					
Model name	M58-F mount conversion ring	M48-F mount conversion ring (Turn-style)	M48-F mount conversion ring	M48-C mount conversion ring	M42-F mount conversion ring	M42-C mount conversion ring
Features	Conversion ring from M58 to F lens mount.	Conversion ring from M48 to F lens mount. (Turn-style)	Conversion ring from M48 to F lens mount.	Conversion ring from M48 to C lens mount.	Conversion ring from M42 to F lens mount.	Conversion ring from M42 to C lens mount.



	AC adaptor
Model name / Part number	6pins AC adaptor / DTPS-1215-06
	12pins AC adaptor / 12V-1.5A-S12-A-A
Features	In warranty only when connected to the corresponding CIS cameras and accessories. 6pins AC adaptor: RoHS2 compliant 12pins AC adaptor: RoHS2 non-compliant

Semi-custom Lens

CIS offers versatile semi-custom lenses as well as general lenses that meet customer’s requirements.

◆ High Image Quality

- Fixed lens placement resulting in accurate optical axis and less aberration.
- Provision of fixed iris throttle plate according to usage conditions resulting in less image deterioration compared to standard mount lenses.

◆ Compact and Light Weight

- Improves vibration and shock resistance.

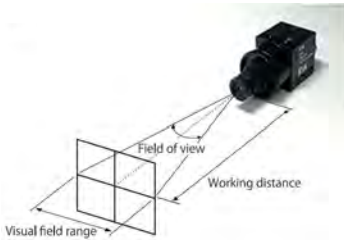
◆ Lens Variation

- Resolution: EIA, VGA, SXGA, UXGA, 5M, 12M, Full HD, etc.
- Focal range: 16mm, 25mm, 35mm, 50mm, etc.

◆ Less prone to dust problems

- Lens cleansing and assembly all done in the CIS’s clean room.

Comparison of lens size Comparison of lens iris (f2.8)



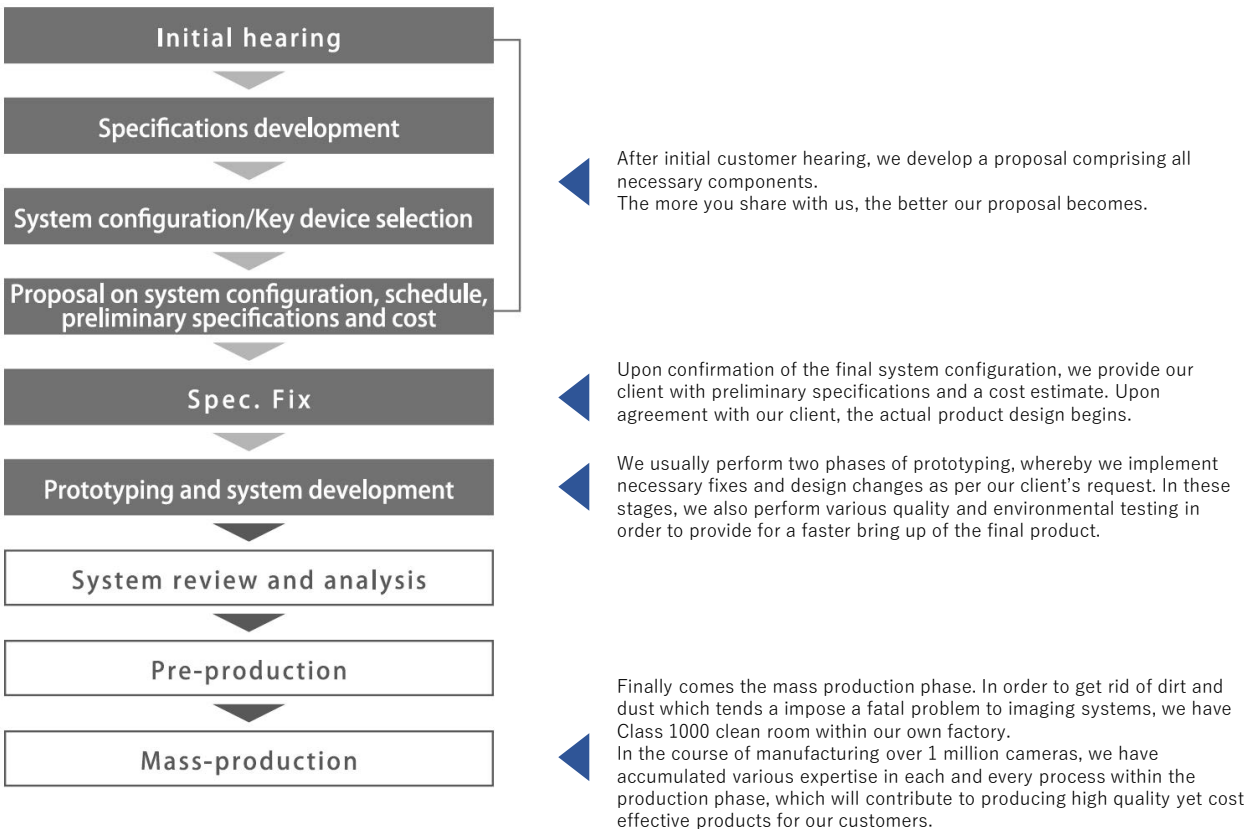
Development of Image Processing Systems

On top of cameras, CIS offers total imaging solution to meet wide variety of customers’ needs as a one-stop-shop, proposing system architecture and the most appropriate interface, designing and manufacturing, development of system software, and optimizing customer’s image processing application and implementation.

1. CIS has in-house professional teams of each field

Mechanical design	Optical design knowledge, Heat dissipation design, Water & dust proof housing design, Miniaturization, Micro-motion control using piezo-actuator, Cost reduction know-how
Circuit design	Evaluation and design experience for various CCD and CMOS image sensors, Analog and digital circuit design, Miniaturization & low power dissipation design, High-speed interface circuit design (in the order of GHz)
System software development	System specification development, Real time image processing, System software development using RTOS, Embedded imaging application software development, PC application software development. We have deep experiences in design and development around TI's DSP.
Algorithm development	In order to draw maximum performance from the device, we provide optimization at an algorithmic level. Custom development of image processing application, Licensing of original image processing IPs.
Quality assurance	Product design verification (Electrical performance, functionality, anti-vibration, impact, dust and heat dissipation testing, conformance with various safety regulations including RoHS.) Reliability testing including product safety.
Production engineering	Design review at pre-production stage: Review done on both product quality and ease of production for higher field. Promotion of automated production by use of software.
Production	Fully controlled production environment.

2. From Proposal to Mass Production

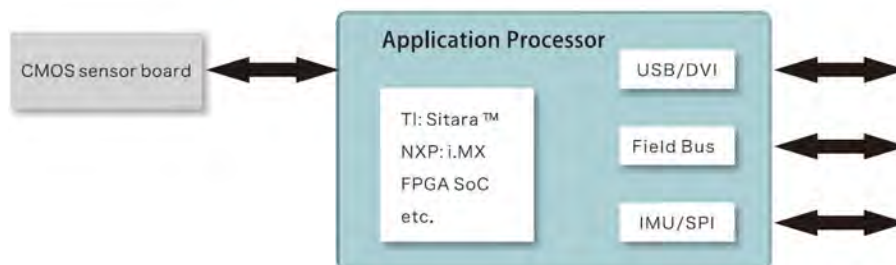


Development of Image Processing Systems (Case example)

Here are some actual examples CIS developed.

◆ Customized Smart Camera (Deep learning edge device)

A smart camera with CMOS sensor board which can be used as deep learning edge device. Smooth migration from common deep learning framework can be done. Compatible with IMU and Field Bus Interface.



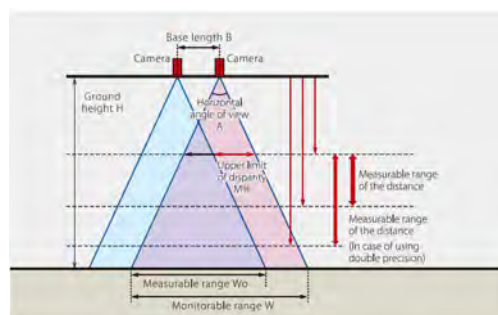
◆ Defog

The objects can be captured clearly under bad conditions such as fog and rain with CIS's proprietary image processing system.



◆ Stereo Camera Measurement

When captured the object by several cameras, the position of the object can be measured by using the disparity of the object captured by each camera.



Also, we have developed **Intelligent surveillance camera system** which image processing system unit is integrated with the camera and resulting in significant downsizing and cost efficiency, **High-speed real time image processing system** which supports hundreds to thousands fps by hardware (FPGA), **Multiple camera 3D image processing equipment** which generates accurate 3D data from two sets of stereo camera inputs, etc.

We will strive to develop higher performance systems using deep learning, GPGPU, or Edge Processor for deep learning.



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