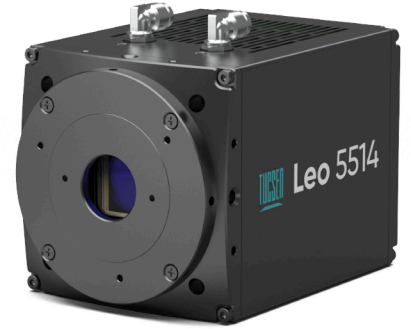


# Libra 5514 Pro

The Libra 5514 Pro is the first high-throughput scientific CMOS camera designed with a back-illuminated global shutter architecture, delivering 83% peak QE and 5.5  $\mu\text{m}$  pixels for exceptional sensitivity. A 100 G CoF interface enables 8 bit image transfer at 670 fps. Compact and low-vibration design, they excel in demanding scientific imaging.



## Key Features

## Benefits

Global Shutter + BSI sCMOS	High speed, large full well, and high sensitivity deliver superior quantitative imaging performance for high-speed & low-light applications.
100 G CoF Interface	Single interface bandwidth up to 100 Gbps, faster and easy integration.
670 fps@14 MP	22X higher than the throughput of conventional BSI sCMOS cameras. <sup>[1]</sup>
30.5 mm Large Format	2.5X wider FOV than typical 6.5 $\mu\text{m}$ CMOS. <sup>[2]</sup>
5.5 $\mu\text{m}$ Pixel Size	Optimized for optical systems above 40X to achieve resolution-sensitivity balance.

## Typical Applications

- High-throughput imaging
- Neuroscience imaging
- Spatial omics analysis
- Super-resolution imaging
- Gene sequencing
- Voltage imaging
- Semiconductor inspection

## Noted Examples

[1] Libra 5514 Pro delivers more than 22X higher throughput by overcoming sensitivity, speed, and full well capacity trade-offs of traditional sCMOS.

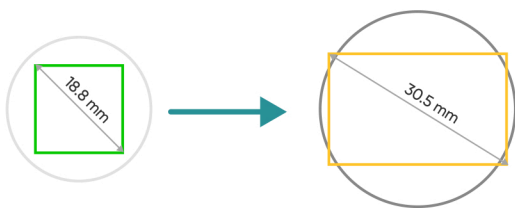
Libra 5514 Pro  
670 fps@14 MP

9380 Mpixel/s

Typical sCMOS  
100 fps@4.2 MP

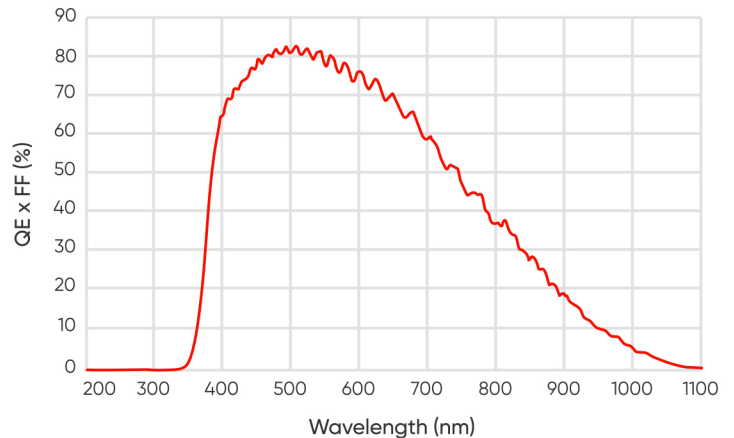
420 Mpixel/s

[2] Traditional sCMOS cameras use an 18.8 mm format, insufficient for high-throughput imaging; The Leo 5514 Pro is better aligned with modern optical design trends.

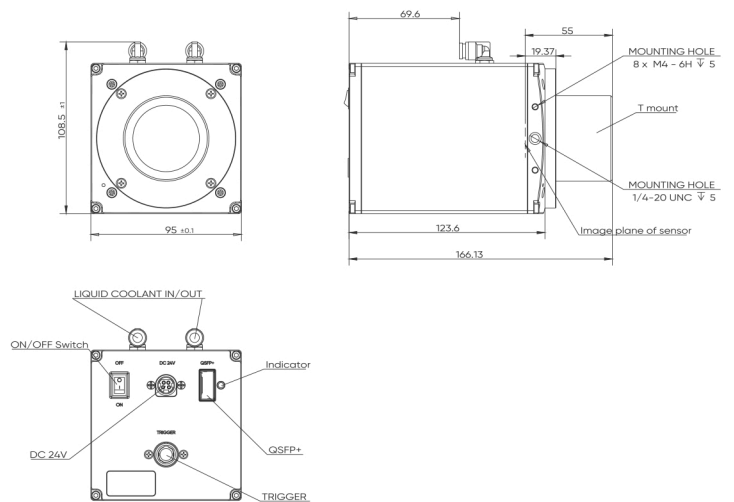


- Traditional sCMOS
- Libra 5514 Pro
- Traditional Microscope (22 mm)
- Modern Optical System (30mm)

## Quantum Efficiency



## Dimensions (Unit: mm)



# Specifications

Model	Libra 5514 Pro			
Sensor Type	BSI sCMOS			
Sensor Model	GSPRINT5514BSI			
Peak QE	83%			
Chrome	Mono			
Array Diagonal	30.5 mm			
Effective Area	25.34 mm x 16.90 mm			
Resolution	4608 (H) x 3072 (V)			
Pixel Size	5.5 $\mu\text{m}$ x 5.5 $\mu\text{m}$			
Readout Mode	Standard 8 bit	Standard 10 bit	Standard 12 bit	HDR
Bit Depth	8 bit	10 bit	12 bit	16 bit
Frame Rate	670 fps	480 fps	350 fps	80 fps
Readout Noise (median)	< 2 e <sup>-</sup> (HDR & Standard 12 bit Gain 4)			
Full Well Capacity	15 Ke <sup>-</sup> @HDR; 30 Ke <sup>-</sup> @After Binned			
Dynamic Range	77.5 dB			
Shutter Mode	Global			
Exposure Time	1 $\mu\text{s}$ -10 s			
Cooling Method	Air Cooling, Liquid Cooling			
Cooling Temp.	Air cooling: 5°C (ambient 25°C), Liquid cooling: -5°C (Water Temp. 20°C)			
Dark Current	< 1 e <sup>-</sup> /pixel/s@-5°C; < 5 e <sup>-</sup> /pixel/s@5°C			
Image Correction	DPC			
Binning	2 x 2, 4 x 4			
ROI	Support			
Timestamp Acc.	1 $\mu\text{s}$			
Trigger Mode	Hardware, Software			
Trigger Output	High, Low, Readout End, Global Exposure, Exposure Start, Readout, Trigger Ready			
Trigger Interface	Hirose-12-pin			
Data Interface	100G QSFP28			
Optical Interface	T / F / C Mount			
Power Supply	24 V / 6.67 A			
Power Cons.	≤ 120 W			
Dimensions	95 mm (H) x 95 mm (W) x 123.6 mm (L)			
Weight	≤ 2 kg			
Software	Mosaic 3.0, Sample Pro, LabVIEW, MATLAB, Micro-Manager 2.0			
SDK	C / C++ / C#			
Operating System	Windows, Linux			
Environment	Working: Temp. 0°C~40°C, HUM 10%~85%; Storage: Temp. 0°C~60°C, HUM 0%~90%			

\*Specifications in this manual are subject to changes without prior notice.

