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CMB International Global Markets | Equity Research | Sector Update

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Semiconductors

CIS sector – Sustained growth fueled by automotive and emerging applications

OUTPERFORM (Maintain)

China Semiconductors Sector

Lily YANG, Ph.D
(852) 3916 3716
lilyyang@cmbi.com.hk

Kevin ZHANG
(852) 3761 8727
kevinzhang@cmbi.com.hk

Jiahao Jiang
(852) 39163739
JiangJiahao@cmbi.com.hk

The global CMOS Image Sensor (CIS) market has emerged from its cyclical downturn, posting a robust 6.4% year-on-year rebound to US$23bn in 2024 (Yole). This recovery sets the stage for a new phase of sustained, structurally-differentiated growth. While the mobile segment accounts for over 60% of revenue, the future expansion of the industry should be increasingly powered by the accelerating adoption of automotive ADAS and the proliferation of novel applications in smart glasses and machine vision.

The competitive landscape is consolidating with strategic divergence: technology leaders like Sony (6758 JT, NR) are pushing the boundaries of performance with large pixels and advanced stacking, while scale players like Samsung (005930 KS, NR) and agile Chinese contenders are driving the high-resolution revolution and capturing share with compelling value propositions. **Future leadership will be defined by the ability to navigate rising memory costs and supply chain pressure, while excelling in technology innovation, strategic focus on high-growth verticals, and relentless cost optimization.**

Maintain BUY on OmniVision (603501 CH), given its solid positioning across mobile, auto, and emerging segments. We expect further share gains in 2025 driven by the introduction of new products.

- **Segment dynamics: mobile stabilizes, automotive accelerates, and emerging applications rise.** The mobile CIS segment, which accounts for over 60% of industry revenue, has stabilized. Future growth will be primarily driven by rising ASPs, fueled by a consumer shift towards premium and GenAI smartphones, despite only modest unit growth and a projection of flattish average number of cameras per device. In contrast, the automotive CIS segment is poised for double-digit growth through 2025-27E. This expansion is not reliant on vehicle production volumes but is driven by the increasing penetration of cameras per vehicle, supported by ADAS, in-cabin monitoring, and ongoing resolution upgrades. Beyond these established markets, emerging applications like smart glasses and machine vision are unlocking new frontiers. These segments demand specialized sensors with features like ultra-low power consumption, miniaturization, and global shutter technology, presenting a high-value growth vector for technology leaders.

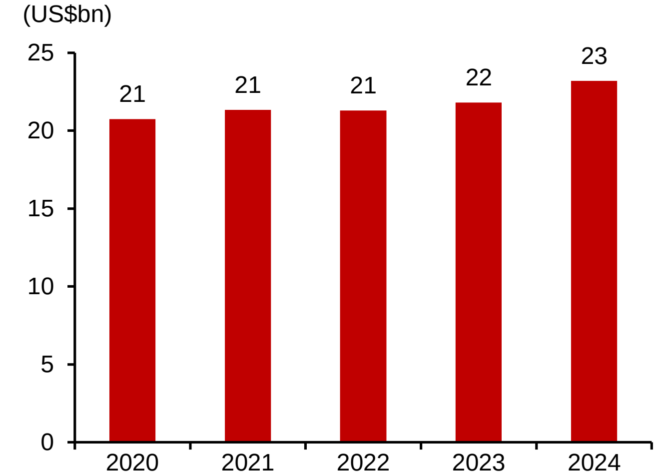
- **Competitive landscape: consolidation and strategic divergence.** The CIS market is consolidating around a handful of leaders who are pulling ahead through technological differentiation and strategic focus. Sony maintains its dominant share, leveraging its technology edge and significant R&D investments to pioneer high-density, three-layer stacked architectures for the high-end market. Samsung solidifies its number two position via its IDM model and a focus on the high-resolution, small-pixel roadmap, though its strategic prioritization of HBM may cap CIS share growth. Chinese players are the primary disruptors: OmniVision has demonstrated remarkable execution, surpassing Onsemi (ON US, NR) to become the automotive CIS market leader in 2024, while SmartSens (688213 CH, NR) and GalaxyCore are growing aggressively, rapidly gaining share in the mobile and security markets with compelling price-performance offerings. We expect this intense competition to continue, with winners determined by their ability to balance continuous innovation, strategic market focus, and rigorous cost control.

Global CIS market: growth led automotive CIS, while emerging applications gaining traction

The global CIS market rebounded by 6.4% YoY to US$23bn in 2024, driven primarily by growth in the mobile and security segments. The recovery in mobile CIS was fueled by: 1) a 4% YoY increase in global handset shipments, reaching 1.4bn units, and 2) rising ASP increase as consumer demand continued to shift toward premium devices. The security CIS market showed continued recovery from its 2022 trough, due to a sharp contraction in demand, although it remained below the 2021 peak. Meanwhile, the automotive CIS segment sustained its role as a key growth driver, supported by increasing adoption of ADAS. We expect this growth trajectory to continue, underpinned by the broader industry trends toward vehicle electrification and intelligence.

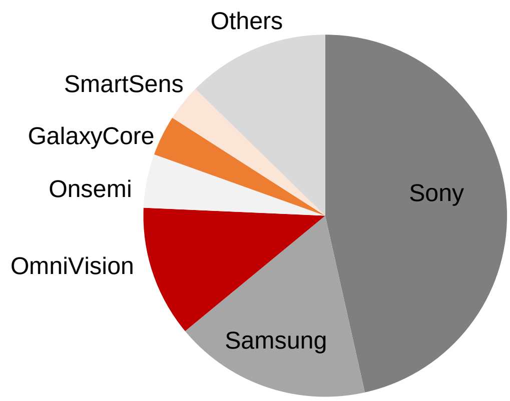
For 2025, we project the mobile CIS segment will maintain mid-single-digit percentage growth, largely driven by value growth as leading suppliers focus on product iterations and performance upgrades. The automotive CIS segment is expected to deliver double-digit percentage growth, supported by accelerating "smart driving equality" initiatives launched earlier this year. We also anticipate a continued recovery in the security CIS market, reflecting a slowly improving end-demand environment for traditional surveillance applications.

Figure 1: CIS TAM (2020-24)



Source: Yole, public info, CMBIGM estimates

Figure 2: CIS market share (2024)



Source: Yole, Counterpoint, public info, CMBIGM estimates

We maintain our view that CIS market share will continue to consolidate around current industry leaders, including Sony, OmniVision, GalaxyCore and SmartSens. We believe that the competition within the CIS industry will remain intense, with true leaders benefited from continued technological innovation, strategic market expansion (premium segments and fast-growing markets), and effective cost controls.

Leveraging competitive pricing and progressively improving technological capabilities, the Chinese suppliers have solidified their presence in the mid- to low-end segments and are now making tangible inroads into the high-end market. However, Chinese manufacturers also face hurdles, including price wars in the low-end markets, and ongoing breakthroughs in high-end technologies.

- **Sony continues to lead the market with close to 50% market share per Yole.** In 2024, it strengthened its leadership by gaining another 1% share, reflecting its technological edge in mobile CIS and share gains in automotive. Although the company has postponed its earlier target of reaching a 60% market share by FY25 (compared to 51% in FY22 per mgmt.), due to lower-than-expected customers' sales and rising competition from Chinese players, **Sony has maintained its FY24-26 capex plan of 1.7trn Yen (equivalent to US$11.2bn), with a primary focus on image sensors R&D.** Half of this investment will be allocated to advanced process technologies for higher density solutions (partnership with TSMC at Kumamoto plant). While this should help preserve Sony's technology leadership, **it may weigh on segment profitability**: mgmt. described in 2024 as "*halfway to a full recovery of profitability*", with -5.7%/+4.5% FCF/sales ratio in 2023/24 (FCF: approx. -US$600mn/+US$530mn, respectively).

- **Samsung maintains its position as the second largest CIS supplier globally,** by leveraging its integrated IDM model and a clear focus on the high-resolution, small-pixel technology roadmap. The company released the industry's first 200MP mobile image sensors (0.5μm). This strategy is reinforced by its massive internal smartphone and XR business, which provides a captive market for its sensors and drives fast iterations. Meanwhile, the company's re-entry into the Apply supply chain shows significant strategic breakthrough, challenging Sony in the premium mobile segment.
- **OmniVision ranked the third, with approx. 11% market share.** Its CIS revenue grew 23.5% YoY in 2024, driven by strong performance across mobile (+26% YoY), automotive (+30% YoY), emerging (+42%), and medical applications (+59%). We estimate the company gained 1.5% market share last year. We remain positive on OmniVision's outlook given its solid positioning across mobile, auto, and emerging segments. We expect further share gains in 2025 driven by the introduction of new products.
- **SmartSens and GalaxyCore ranked fourth and fifth, with roughly 4% and 3% share, respectively.** SmartSens reported 109% YoY revenue growth in 2024, with notable gains across security (+29% YoY), mobile (269%), and automotive CIS (+79%). GalaxyCore's revenue grew 46% YoY, led by a 72% increase in mobile CIS and 18% growth in non-mobile segments. We estimate the two companies gained approx. 1.7% and 0.8% market share, respectively, in 2024.

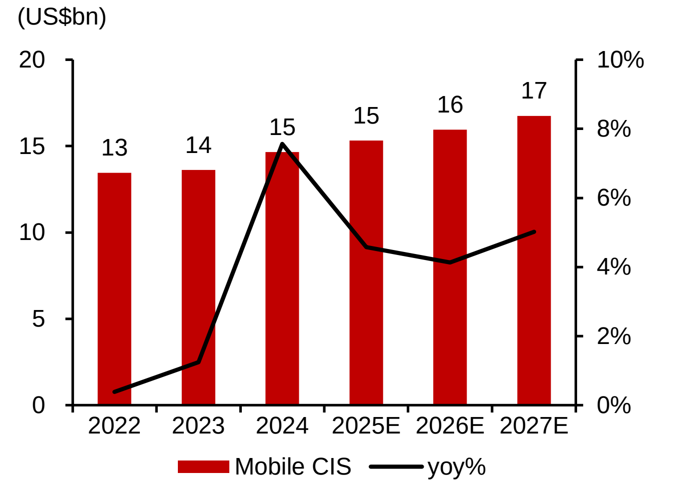
Figure 3: CIS market competitive landscape: Japan, South Korea and China lead the market

Source: Yole and CMBIGM

Mobile CIS

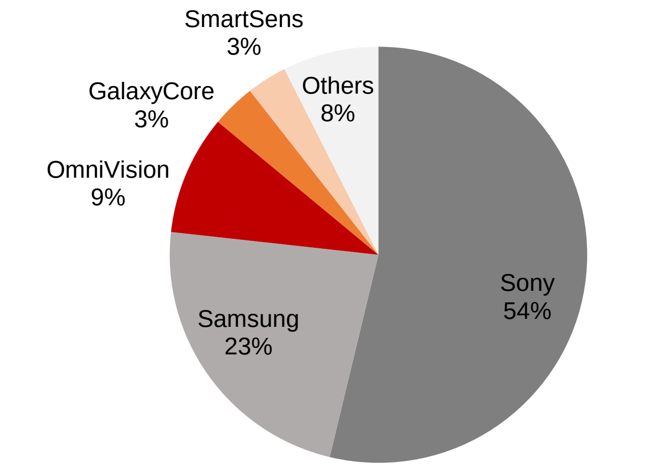
The mobile segment remains the dominant CIS end-market, accounting for over 60% of total industry revenue. Per Yole, **global smartphone CIS rebounded in 2024**, due to a recovery in smartphone shipment (+6% YoY per IDC) and ongoing technology upgrades toward higher-performance solutions. However, per Counterpoint, the average number of cameras per smartphone declined to 3.7 in 2024, down from 3.8 in the previous year.

Figure 4: Global smartphone shipment (2022-27E): volume recovery in 2024 per IDC



Source: IDC, Bloomberg, public info, CMBIGM estimates

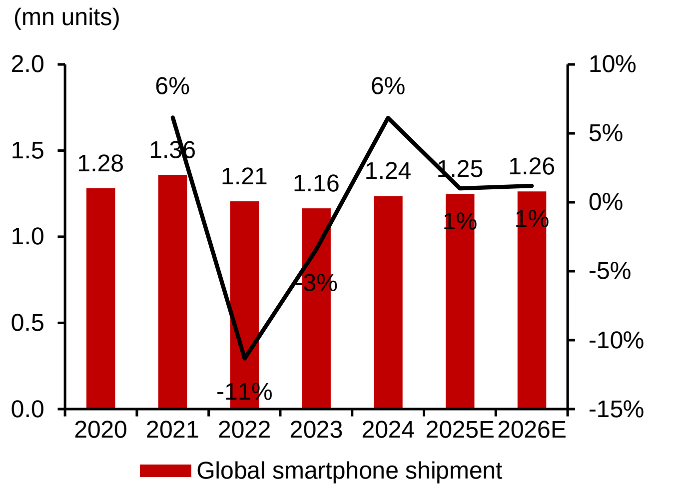
Figure 5: Global smartphone shipment forecasts for 2025/26E: stabilization with LSD%



Source: Counterpoint, Canalys Techinsights, Bloomberg, public info, CMBIGM estimates

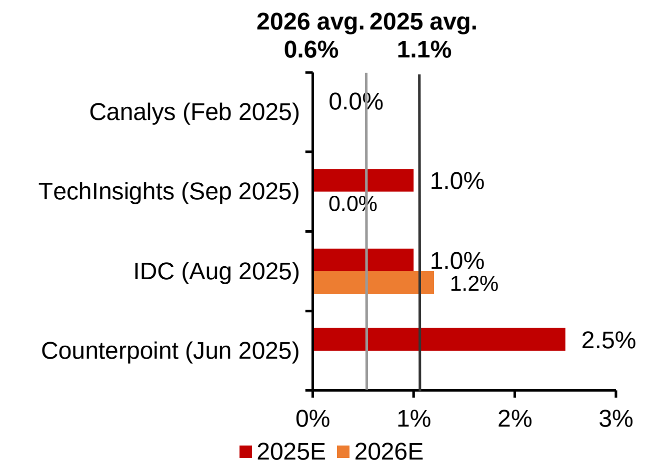
We project the mobile CIS segment will deliver single-digit percentage growth in the coming years, primarily driven by higher ASPs. Overall mobile CIS revenue is expected to remain in the range of 2.5%-3.0% of total smartphone BOM cost.

Figure 6: Global smartphone shipment (2020-26E): volume recovery in 2024 per IDC



Source: IDC, Bloomberg, public info, CMBIGM estimates

Figure 7: Global smartphone shipment forecasts for 2025/26E: stabilization with LSD%



Source: Counterpoint, Canalys Techinsights, Bloomberg, public info, CMBIGM estimates

- **We maintain a flat projection for the number of CIS units per handset**, with overall CIS shipment growth tracking global smartphone volume trends. After a 6% YoY increase in 2024, which ended the decline in two consecutive years (-11%/-3% in 2022/23), the market stabilized further in 9M25, with shipments up 1.5% YoY. **IDC**

forecasts steady volume growth of ~1% YoY for both 2025 and 2026.

- Although smartphone volume growth remains modest, **IDC projects a 5% increase in smartphones ASP this year**, driven by a marked consumer shift towards the premium devices and a refocus of value growth instead of volume share gains by OEMs. **The penetration of GenAI smartphones is expected to reach 30% in 2025 and exceed 70% by 2029. Despite a muted CIS shipment, we expect the CIS ASP will continue rising,** supported by demand for premium-tier phones and ongoing technology advancements.

The mobile CIS market is consolidating: Sony maintains its leading position, with Samsung in second, while Chinese CIS players are catching up in high-end market.

- **Sony (#1)** continues to lead the market with 50%+ market share, though Counterpoint estimates its smartphone CIS shipment growth in 2024 was modest compared to peers. In the mid to long term, Sony has identified mobile CIS as a key growth driver. While large pixel sizes remain part of its roadmap, Sony acknowledges that merely increasing pixel dimensions has limitations in meeting future video performance demands. The company is currently pivoting toward a "high-density" development path, which involves advancing process node technology laterally and transitioning from two-layer to three-layer stacked architecture vertically. This approach enhances sensor performance by enabling higher component integration density, leading to tangible improvements in sensitivity, noise reduction, and dynamic range, which ultimately broadens the scope of application for its sensors. We believe Sony will maintain its competitiveness in the mobile CIS market, given its technology leadership and continuous investments in this field.
- **Samsung (#2)** is set to re-enter the Apply supply chain after a decade, marking a significant strategic breakthrough per Dealsite. This initial order (likely to be 50MP CIS) has been increased to 4k wafers per month. However, the mass production timeline has been pushed back from Mar 2026 to late 2026 or early 2027, reflecting a cautious approach to meet Apple's stringent specifications.
- **Chinese suppliers such as OmniVision (#3)** and **GalacyCore (#4)** saw volume shipments grow 14% and 34% YoY, respectively, in 2024, per Counterpoint. Volume growth coupled with ASP increases drove overall mobile CIS revenue up 24% for OmniVision and 58% for GalaxyCore. **SmartSens (#5)** also gained share, with mobile CIS revenue surging 264% YoY last year.

  Looking forward, we expect the growth momentum to continue. In 1H25, **GalaxyCore** and **SmartSens** delivered mobile CIS sales growth of 41.5% and 40.5% YoY, respectively, on track for another year of strong performance. GalaxyCore's 50MP product reached mass production in 2024 and entered in mid- to high-end mobile markets. SmartSens has recently released its 0.61μm 200MP smartphone image sensor, the SCC80XS, bridging the gap from its previous 50MP offerings (first product released in Jan 2025) to the new frontier of 200MP resolution. This sensor is designed for flagship models and is estimated to reach mass production in 2026. **OmniVision's** mobile CIS revenue declined 19.5% YoY, mainly due to product cycle transitions (e.g., from OV50H to OV50X). We expect a temporary decline in its mobile CIS sales in 2025, with a return to growth from 2026 onwards as new products help regain share.

Figure 8: CIS offering comparison of leading CIS suppliers (max resolution product for mobile use)

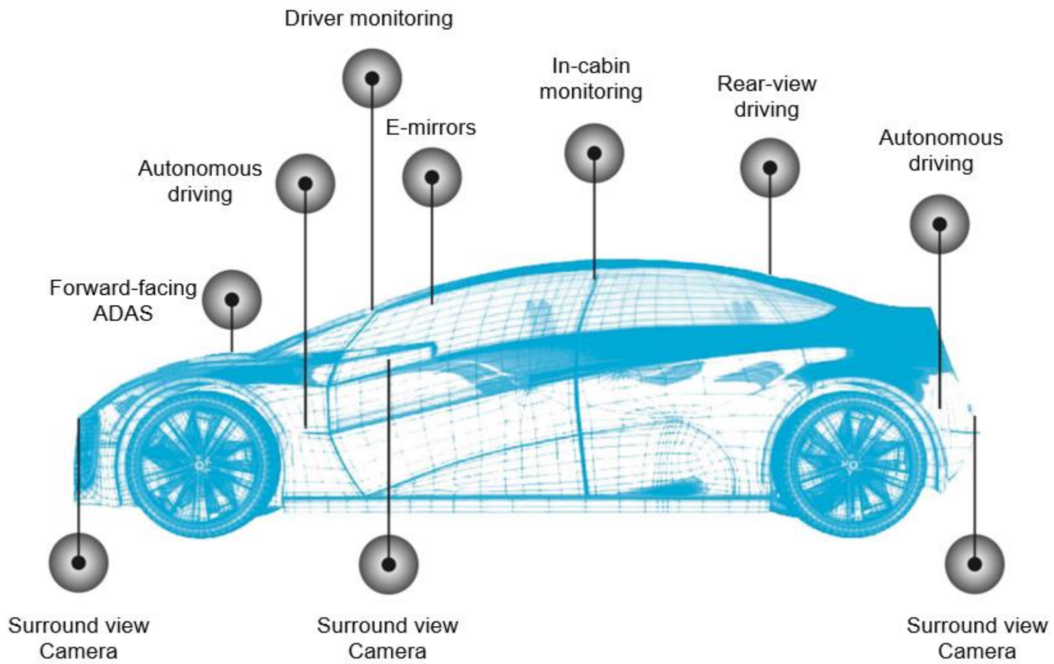
Company	Max resolution	Pixel size	Note
Sony	50MP	0.6μm - 1.6μm	Sony will release its first 200MP solution soon
Samsung	200MP	0.5μm	Launched the industry's first 200MP mobile CIS
OmniVision	200MP	0.56μm - 0.612μm	
GalaxyCore	50MP	0.61μm - 1μm	
SmartSens	200MP	0.61μm	

Source: Company websites, public info, CMBIGM

Automotive CIS

The automotive CIS market exceeded US$2bn revenue in 2024 per Yole, largely driven by the increasing adoption per vehicle. We expect **this segment to remain a key growth driver of the overall CIS market, with double-digit percentage growth through 2025-27E.**

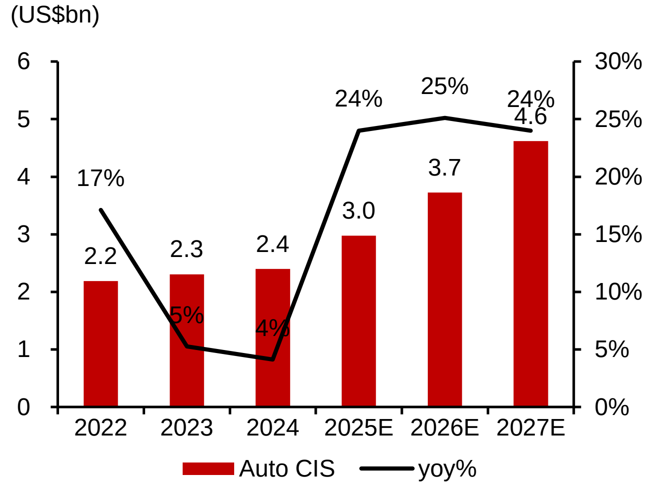
Figure 9: Usage of CIS solutions in smart vehicles



Source: Company filings, CMBIGM

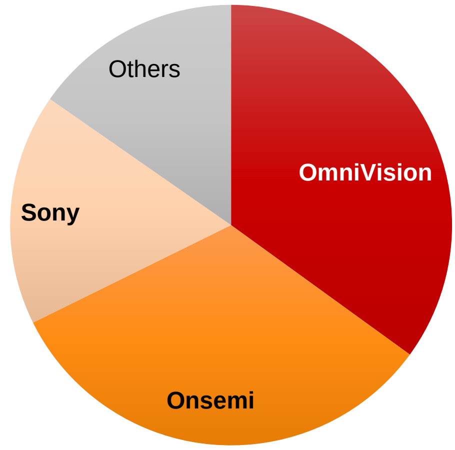
Despite a relatively flat global light vehicle production forecast (-1% to +3% YoY per S&P), we expect the number of CIS per vehicle to grow low- to mid-teens percentage in 2025-27E, due to: 1) electrified intelligent vehicles transition, and 2) rising adoptions of ADAS and in-cabin monitoring for driving assistance and safety requirements. Meanwhile, blended ASP is projected to rise single-digit percentage given resolution upgrade (toward 8MP).

Figure 10: Automotive CIS TAM and growth (2022-27E)



Source: Yole, S&P, CMBIGM estimates

Figure 11: Automotive CIS market are consolidated, as top 3 accounted for 85% share (2022-27E)



Source: Company filings, Yole, S&P, CMBIGM estimates

The competitive landscape of automotive CIS market was relatively stable in the past, largely due to the lengthy certification and testing processes required for automotive suppliers. This has resulted in **the top three players accounting for 85% of the market (2024). However,** in the wake of the chip shortage, both OEMs and tier 1 suppliers are now **shifting toward multi-sourcing strategies for CIS to enhance supply chain resilience.** This shift is now introducing opportunities for changes in the competitive landscape. Notably, **OmniVision surpassed Onsemi in 2024, overtaking the former market leader in terms of share.**

- **OmniVision leads with an estimated 35% market share (approx. US$820mn) in 2024**. Over the past three years, **the company's automotive CIS sales grew at a 37% 2021-24 CAGR**, supported by a broad portfolio of cost-effective and high-performance sensors (1MP to 12MP). OmniVision **gained a significant 16% share** during the period, particularly in cost-sensitive surround-view and ADAS camera applications. **In 1H25, OmniVision's automotive CIS revenue increased another 30% YoY, demonstrating resilient momentum.**
- **Onsemi followed with 33% market share but lost 5% share last year**, due to intensified competition, a market preference for cost-effective solutions and supply chain localization trend in China. Onsemi's Intelligent Sensing Group (ISG), including automotive and industrial CIS, declined 14% YoY in 2024 and another 17% in 1H25, affected by capacity bottleneck and intensified competition. However, Onsemi remains a strong presence in the mid- to high-end segment.
- **Sony is catching up, particularly in the high-resolution market, ranking third with 17% share.** Leveraging its technology expertise and automotive portfolio (ranging from 1MP to 8MP), Sony aims to gain another 6% market share in automotive CIS market (based on 2MP and above market and excluding in-cabin sensors) by FY26.

Emerging market CIS

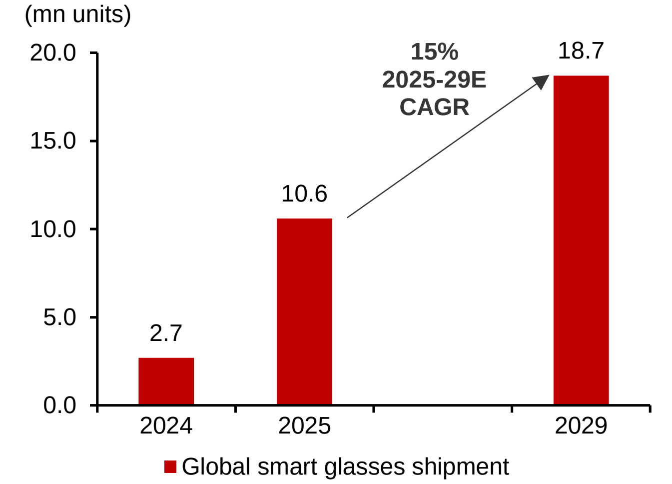
Beyond the established smartphone and automotive sectors, emerging applications such as smart glasses and machine vision are unlocking new growth vectors for the CIS market, underscoring its long-term potential.

The leading CIS suppliers all developed sensors that target this fast-growing market. Samsung is re-entering into the high-end XR market with the Galaxy XR, strengthening its position in emerging CIS by leveraging vertical integration. OmniVision, for example, is among the frontrunners, with RMB1.2bn emerging CIS revenue in 1H25 (~2.5x YoY). The segment also includes sport camera, machine vision and related applications. GalaxyCore and SmartSens have introduced 5MP and 12MP CIS product designed for AI glasses.

- **Smart glasses**

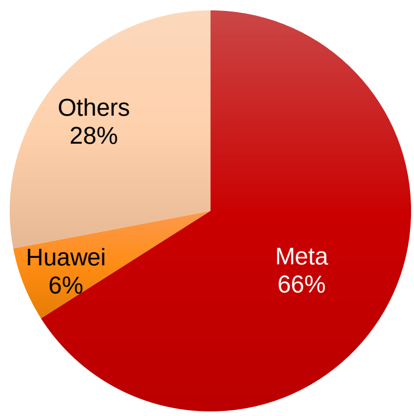
The segment is experiencing explosive growth. **IDC projects global smart glasses shipment will nearly triple to 10.6mn units in 2025 and reach 18.7mn by 2029, representing a 15% 2025-29E CAGR.** Despite this rapid expansion, **smart glasses volumes remain well below the 1.4bn annual handset shipments, indicating substantial room for growth.** Leading products like Meta's Ray-Ban smart glasses are driving **specialized CIS demand for miniaturization, ultra-low power consumption, and advanced functionalities** such as integrated NPUs for on-sensor AI processing.

Figure 12: Global smart glasses shipment



Source: IDC, CMBIGM estimates

Figure 13: Global smart glasses market share (2024)

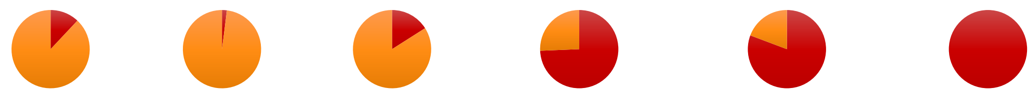
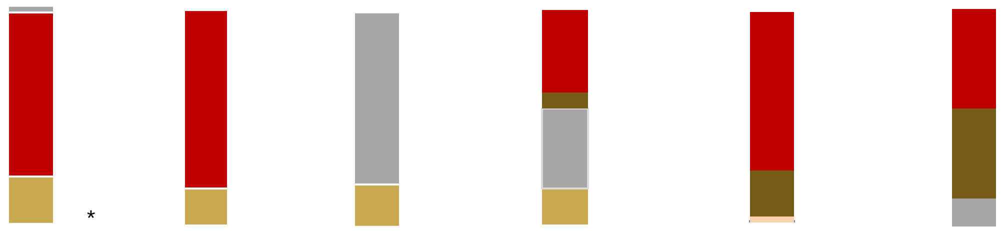


Source: IDC, CMBIGM estimates

- **Machine vision**

Machine vision sector is becoming a critical driver for high-performance CIS. As the "eyes of industry", machine vision systems are essential for automation in manufacturing, logistics, and intelligent inspection. This creates robust demand for CIS used in industrial cameras. These applications require sensors with superior capabilities like global shutter technology to eliminate motion blur, high dynamic range (HDR) for challenging lighting conditions, and enhanced near-infrared (NIR) sensitivity for low-light operation. Companies are strategically organizing to capture this opportunity. The demand for intelligent perception in robotics, smart logistics, and barcode scanning ensures that machine vision will remain a high-growth, high-value market for CIS technologies.

Figure 14: CIS player comparison

Company name	Sony*	Samsung	Onsemi	OmniVision	Galaxycore	Smartsens
Ticker	6758 JT	005930 KS	ON US	603501 CH	688728 CH	688213 CH
Mkt Cap (US$mn)	174,640	432,024	20,796	22,453	5,917	6,123
Price (LC)	4232	104300	50.8	132.3	16.1	108.3
YTD performance %	30.7	99.3	(18.5)	27.0	20.6	39.6
1H25 Revenue breakdown by CIS and non-CIS businesses						
CIS						
Others						
1H25 CIS revenue breakdown by applications						
Mobile						
Security						
Automotive						
Others	*					
FY24						
Revenue (US$mn)	85,061	220,655	7,082	3,574	887	829
YoY%	*-0.5%*	*16.2%*	*-14.2%*	*22.4%*	*35.9%*	*108.9%*
GPM%	28.3%	38.0%	45.5%	29.4%	22.8%	21.1%
EBITDA margin (%)	19.8%	25.0%	34.8%	16.7%	21.1%	10.7%
Net profit (US$mn)	7,494	25,266	1,573	462	26	55
NPM%	8.8%	11.5%	22.2%	12.9%	2.9%	6.6%
EPS (US$)	1.23	3.63	3.63	0.38	0.01	0.14
FCF/sales ratio	0.12	0.07	0.20	0.13	(0.16)	(0.12)
FY25E						
Revenue (US$mn)	92,374	225,856	5,957	4,305	1,102	1,177
YoY%	*-5.7%*	*2.4%*	*-15.9%*	*20.5%*	*24.3%*	*42.0%*
GPM%	40.4%	36.9%	38.2%	31.0%	22.6%	23.6%
EBITDA margin (%)	19.8%	25.0%	34.8%	16.7%	21.1%	10.7%
Net profit (US$mn)	7,568	23,919	949	628	36	130
NPM%	8.2%	10.6%	15.9%	14.6%	3.3%	11.0%
EPS (US$)	1.24	3.73	2.29	0.52	0.01	0.32
FCF/sales ratio (1H25)	0.10	0.06	0.19	0.05	(0.08)	(0.54)
Valuation (FY24)						
P/E (x)	22.5	20.5	17.1	38.1	166.7	53.0
EV/EBITDA	10.3	7.5	18.2	-	35.9	-
Valuation (FY25E)						
P/E (x)	24.5	19.5	22.2	35.9	161.8	47.3
EV/EBITDA	12.0	6.7	13.0	25.9	33.2	36.3

Source: Company data, Bloomberg consensus data as of 30 Oct 2025
Note: Sony's revenue breakdown by segment data is provided by mgmt.

Figure 15: Peers table

Company	Ticker	Mkt Cap US$(mn)	Price (LC)	P/E FY24	P/E FY25E	FY2025 Revenue (US$ mn)	FY2025 Rev. YoY%	FY2025 GPM	FY2025 NPM
Domestic									
OmniVision	603501 CH	22,453	132.4	47.8	38.4	30,301	17.8	30.6	13.6
Galaxycore	688728 CH	5,917	16.2	166.7	71.3	1,102	24.3	22.6	3.3
Smartsens	688213 CH	6,123	108.4	53.0	33.1	1,177	42.0	23.6	11.0
			Average	***89.2***	***47.6***		***28.0***	***25.6***	***9.3***
Overseas									
Sony	6758 JT	174,640	4232.0	22.5	24.5	92,374	-5.7	40.4	8.2%
Samsung	005930 KS	432,024	104300.0	20.5	19.5	225,856	2.4	37.1	10.6
Onsemi	ON US	20,796	50.9	17.1	22.2	5,957	-15.9	38.2	15.9
			Average	***20.0***	***22.1***		***(6.4)***	***38.6***	***11.6***

Source: Company data, Bloomberg consensus data as of 30 Oct 2025, CMBIGM estimates

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HOLD	: Stock with potential return of +15% to -10% over next 12 months
SELL	: Stock with potential loss of over 10% over next 12 months
NOT RATED	: Stock is not rated by CMBIGM
OUTPERFORM	: Industry expected to outperform the relevant broad market benchmark over next 12 months
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CMB International Global Markets Limited

Address: 45/F, Champion Tower, 3 Garden Road, Hong Kong, Tel: (852) 3900 0888 Fax: (852) 3900 0800

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