国泰君安国际 GUOTAI JUNAN INTERNATIONAL

Company Report: Black Sesame (02533 HK)

公司报告：黑芝麻智能 (02533 HK)

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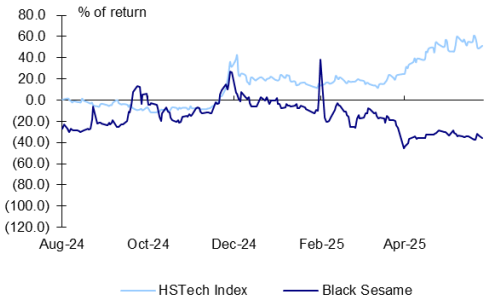
3 June 2025

Black Sesame to Break Into Qualcomm's Monopoly on CDC Chips

- **Initiate coverage of Black Sesame Technology ("Black Sesame" or the "Company") with "Buy" and a TP of HK$23.61.** Black Sesame, as one of the leading domestic assisted driving SoC chipset designers in China, is in the process of entrenching itself within the OEM ecosystem through attaining vehicle designations for its C1200 series chipsets, and beginning the production process for its next generation A2000 chipsets. As a result, we believe that the Company's revenue prospects are excellent. We forecast 2025-2027 revenue at RMB736.4 mn/ RMB1,611.2 mn/ RMB2,035.5 mn respectively, representing YoY growth of 55.3%/ 118.8%/ 26.3%. We base our target price on a 2026 EV/Sales ratio of 8.0x, with reference to comparable peers.
- **Currently, the Company is facing high costs related to the research of semiconductors, but also has excellent operating leverage. Revenue growth is contingent on three business developments:** 1) the success of the C1200 series in expanding into the integrated cockpit and ADAS market in the short term; 2) the ability to quickly mass produce and obtain design wins for the 125-1000 TOPS A2000 series, allowing for revenue growth in the medium term; and 3) the ability for the Company to continue to improve its process to 5-3 nm for its next generation SoCs expected to be mass produced in 2028, allowing for sustained revenue. **We believe that business developments 1) and 2) are very likely given its high product quality and the strong relationships with customers.**
- **Near term, we project the C1200 series to gain significant market share in the sizable cockpit domain controller ("CDC") market due to it being one of the only domestic alternatives to Qualcomm's SA8775p. We project the market to expand to between RMB5.4 bn-RMB11.0 bn by 2026, with sales volume growing by 80% in 2025.** Black Sesame offers itself as a geopolitically safe alternative to Qualcomm, and is likely to significantly gain in market share if it price its C1200 series chip correctly with regards to the relative performance difference. **For the medium term, if the Company is able to gain significant numbers of vehicle model designations for its A2000 series over the course of 2025, it would allow for a significant gain in volume, ASP, and GM for the year of 2026.** We believe that this is likely because: 1) the Company currently is in contact with various OEMs to achieve vehicle designations; 2) the Company's A2000 series has high raw INT8 TOPS compared to its domestic competitors; and 3) most OEMs prefer to use the self-driving algorithm of their choice, with this option being preferable to Horizon's SoC + algorithm solution, which locks the assisted driving algorithm provider as Horizon.
- **Catalysts for investment:** 1) announcement of design wins for the A2000 chipset; 2) figures proving the success of the C1200 series as released by the Company.
- **Risks:** 1) OEM consolidation allowing for in house ADAS SoCs; 2) trade friction preventing the Company from accessing the services of offshore EDA and fabrication companies; 3) delays in the production of latest chipsets.

Rating:	**Buy** Initial
评级：	**买入** (首次覆盖)
6-18m TP 目标价:	**HK$23.61**
Revised from 原目标价：	
Share price 股价：	HK$18.080

Stock performance
股价表现



Change in Share Price 股价变动	1 M 1 个月	3 M 3 个月	1 Y 1 年
Abs. % 绝对变动 %	(9.6)	(13.5)	n.a.
Rel. % to HS Index 相对恒指变动 %	(12.5)	(14.4)	n.a.
Avg. share price（HK$）平均股价（港元）	18.6	20.3	23.8

Source: Bloomberg, Guotai Junan International.

Year End 年结 12/31	Turnover 收入 (RMB m)	Net Profit 股东净利 (RMB m)	EPS 每股净利 (RMB)	EPS 每股净利变动 (Δ%)	PER 市盈率 (x)	BPS 每股净资产 (RMB)	PBR 市净率 (x)	DPS 每股股息 (RMB)	Yield 股息率 (%)	ROE 净资产收益率 (%)
2023A	312	(4,855)	(68.382)	n.a.	(0.2)	0.000	n.a.	0.000	0.0	(55.2)
2024A	474	313	1.189	n.a.	14.3	1.921	8.8	0.000	0.0	(6.3)
2025F	736	(1,844)	(2.966)	(349.5)	(5.6)	1.278	13.0	0.000	0.0	(188.6)
2026F	1,611	(1,572)	(2.528)	n.a.	(6.6)	1.363	12.2	0.000	0.0	(170.4)
2027F	2,036	(1,430)	(2.300)	n.a.	(7.2)	0.460	36.1	0.000	0.0	(217.4)

Shares in issue (m) 总股数 (m)	630.4	Major shareholder 大股东	Pan Dan 26.0%
Market cap. (HK$ m) 市值 (HK$ m)	11,397.6	Free float (%) 自由流通比率 (%)	74.2
3 month average vol. 3 个月平均成交股数 ('000)	13,982.1	FY25 Net gearing (%) FY25 净负债/股东资金 (%)	Net Cash
52 Weeks high/low (HK$) 52 周高/低 (HK$)	43.850 / 14.500	FY25 Est. NAV (HK$) FY25 每股估值（港元）	30.5

Source: the Company, Guotai Junan International.

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Investment Thesis

Black Sesame is a provider of automotive-grade computing SoCs and intelligent vehicle solutions, with SoCs integrating key components like CPUs, memories, and I/O interfaces to deliver critical capabilities for intelligent vehicles. The Company's SoC-based solutions combine in-house developed IP cores, algorithms, middleware, and toolchain software to meet diverse customer needs. Black Sesame offers two SoC series: the Huashan Series for high-computing power applications like autonomous driving and the Wudang Series for cross-domain functions such as smart cockpit and gateway integration. Initially commercializing the Huashan Series, the Company recently expanded into cross-domain solutions with the Wudang Series to address broader vehicle functionalities. As a Tier 2 supplier in the autonomous driving value chain, Black Sesame provides bundled SoC-based and algorithm-based solutions. In 2023, the Company ranked as the third-largest global provider of automotive-grade high-computing power SoCs by shipment volume, according to Frost & Sullivan. Black Sesame's technology supports advanced autonomous driving and intelligent vehicle applications. This positions the Company as a key player in the evolving automotive computing market.

Currently, the Company faces high research costs related to designing semiconductors, but also has high operating leverage, making revenue growth the most important factor for this business. Revenue growth is contingent on three business developments: 1) the success of the C1200 series in expanding into the integrated cockpit and ADAS market in the short term; 2) the ability to quickly mass produce and obtain design wins for the 125-1000 TOPS A2000 series, allowing for revenue growth in the medium term; and 3) the ability for the Company to continue to improve its process to 5-3 nm for its next generation SoCs expected to be mass produced in 2028, allowing for sustained revenue. The Company is able to successfully execute all three steps, it will be well positioned as one of the leading SoC chipset designers in China, allowing for a valuation far higher than what it currently has. **We believe that business developments 1) and 2) are very likely given its high product quality and the strong relationships with customers.**

Catalysts for investment:

1) Announcement of design wins for the A2000 chipset.
2) Increase of market share of C1200 series integrated chips.

Risks:

1) OEM consolidation allowing for independent research and development of ADAS SoCs.
2) Trade friction preventing the Company from accessing the services of offshore EDA and fabrication companies.
3) Delays in the production of the Company's latest chipsets.

1. Company Operational Analysis

1.1 Corporate History

Black Sesame was founded in 2016 as a China-based automotive computing chip designer, initially focusing on autonomous driving solutions. The Company quickly gained recognition by launching its first-generation Huashan Series SoC in 2019, targeting high-performance computing for ADAS and autonomous vehicles. In 2021, Black Sesame expanded its product line with the Wudang Series, introducing cross-domain SoCs capable of integrating multiple vehicle functions. The Company secured strategic partnerships with major automakers like SAIC and BYD, while also attracting investments from industry leaders such as Bosch and CATL. Black Sesame went public on the Hong Kong Stock Exchange in October 2023, marking a significant milestone in its growth trajectory. By 2024, the Company had established itself as the third-largest global supplier of automotive-grade high-computing power SoCs, according to Frost & Sullivan. This rapid ascent demonstrates Black Sesame's technological competitiveness in China's fast-growing intelligent vehicle market. The corporate history reflects the Company's ability to execute on product development while capitalizing on China's push for semiconductor self-sufficiency and smart vehicle innovation.

Table-1: Corporate History and Milestones

Year	Milestones
2016	• Inception • Northern Light Venture Capital invested in the Company.
2018	• Entered into global strategic cooperation agreement with Bosch
2019	• Received investments by SAIC Motor and China Merchants Group • Entered into strategic cooperation agreement with FAW Group
2020	• Launched Huashan A1000 and Huashan A1000L. • Oceanpine Capital invested in the Company. • Started selling autonomous driving solutions.
2021	• Received investments by Tencent, Bosch Group and Dongfeng Motor. • Launched Huashan A1000 Pro. • Entered into strategic cooperation agreement with JAC Motors to develop vehicle-level autonomous driving chips and visual perception algorithms. • Received investments by Xiaomi.
2022	• Received investments by NIO Capital and Geely. • Entered into cooperation agreement with JICA (吉咖), an affiliate of ECARX, to install its A1000 SoC on Geely vehicles. • Flagship Huashan A1000 Series SoCs for autonomous driving reached a total shipment of over 25,000. • Announced joint collaboration with Dongfeng Motor (东风集团) to deploy its Huashan A1000 SoCs on its first all-electric sedan and SUV models.
2023	• Designated as Baidu's preferred domestic intelligent vehicle SoC partner and started to jointly develop autonomous driving products based on Huashan A1000 Series SoCs. • Announced its Wudang Series cross-domain SoCs, the first in the industry to integrate autonomous driving, smart cockpit, body control and other computational domains, according to Frost & Sullivan. • Announced joint collaboration with FAW Group to deploy its Huashan-2 A1000L on the Hongqi models.
2024	• Listed on the Hong Kong Stock Exchange with a Ticker of 02533.HK

Source: the Company.

1.2 Management

Each member of Black Sesame's core management team has over 20 years of experience in either the automotive or semiconductor industries, which represent the demand and supply side of the business respectively. The combination of experience between key management, as well as their excellent alumni matters, place them well in further business development, product strategies, fund raising, customer acquisition and keeping up with core technological trends. The Company's core R&D members also each have more than 15 years of industry experience working in leading technology companies that are highly integrated into the automotive SoC industry, including companies such as Bosch, OmniVision, Qualcomm and ZTE. The Company also has a sales team capable of developing and maintain long-standing and mutually beneficial relationships with customers in the automotive and robotics industries.

Table-2: Black Sesame's Executive Directors

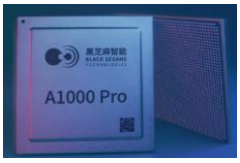
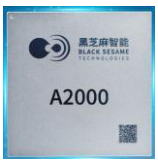
Name	Position	Responsibilities	Key Background
Mr. SHAN Jizhang	Founder Chairman CEO	Overseeing the overall business development and formulating objectives and strategies	Bachelor's and master's degree in electronic engineering from Tsinghua University. 20 Years of experience at OmniVision Technologies, with his last position as a vice president of the software engineering department, in which Mr. Shan lead OmniVision's core research and development. Inventor of more than 100 patents in the field of visual perception.
Mr. LIU Weihong	Founder President	Overseeing the sales and marketing and business development of our Group	Bachelor's degree in applied chemistry from Shanghai Jiao Tong University, a Master's degree in Chemical Engineering from Tsinghua University, MBA from University of Toronto. Over 20 years of exposure to the automotive industry and gained substantial automotive industry expertise and insights from his experiences at Hitachi Astemo Braking Systems, Bosch Automotive Products, General Motors China.
Mr. ZENG Daibing	Chief system officer	Overseeing the research and development of chip architecture, chip implementation and underlying software	Bachelor's degree in materials science and engineering and a master's degree in signal and information processing from Northwestern Polytechnical University. Over 23 years of experience in research and development and software management of chips and is familiar with the process of mass production of chips, with experience in management positions at ZTE corporation.

Source: the Company.

1.3 Product Offerings

The Company's product offerings can be classified into two groups. The first is a pure ADAS/AD play chipset in the form of the Huashan A1000/A2000 series chipsets. The second is a combined ADAS L2+ and cockpit use case in the form of the C1200 series. The Company's current offerings are in the range of a 7nm process node technology, with research being conducted to improve both the efficiency in terms of power and the total amount of compute. The Company currently is collaborating with OEMs including Dongfeng, Geely, HYCAN, FAW Group, Baolong and BYD and numerous tier 1 suppliers and has obtained design wins from multiple series. Notably, the Company is continuing to collaborate with BYD for their next generation vehicles. In the field of robotics, Black Sesame has provided processing power to human robotics manufacturer Fourier's dexterous hands module. The year of 2025 will be a critical year to see if 1) integrated ADAS + Cockpit SoCs will become mainstream in the Chinese market; 2) to obtain design wins for the upcoming A2000 series, set for mass production in 2026.

Table-3: Black Sesame's Main Product Lines and Release Timelines

Series	A1000	C1200	A2000
Product image			
Compute	16 -106+ (INT8 TOPS)	32KDMIPS	250 -1000+ (INT8 TOPS)
Primary Use Cases	Highway NOA, Driving and Parking functions	Integrated NOA and Cockpit Solution Robotics	Urban NOA and Robotaxi Robotics
Release Date	April 2021	November 2023	Jan 2025
Mass Production Date	2024	2025H2	2026
OEMs with Vehicle Designations	n.a.	Dongfeng	TBD
OEMs with Mass Production	Dongfeng, Geely, HYCAN, FAW Group, Baolong, BYD	Two Mainstream OEMs	TBD
Robotics Companies Supplier	n.a.	Fourier	TBD

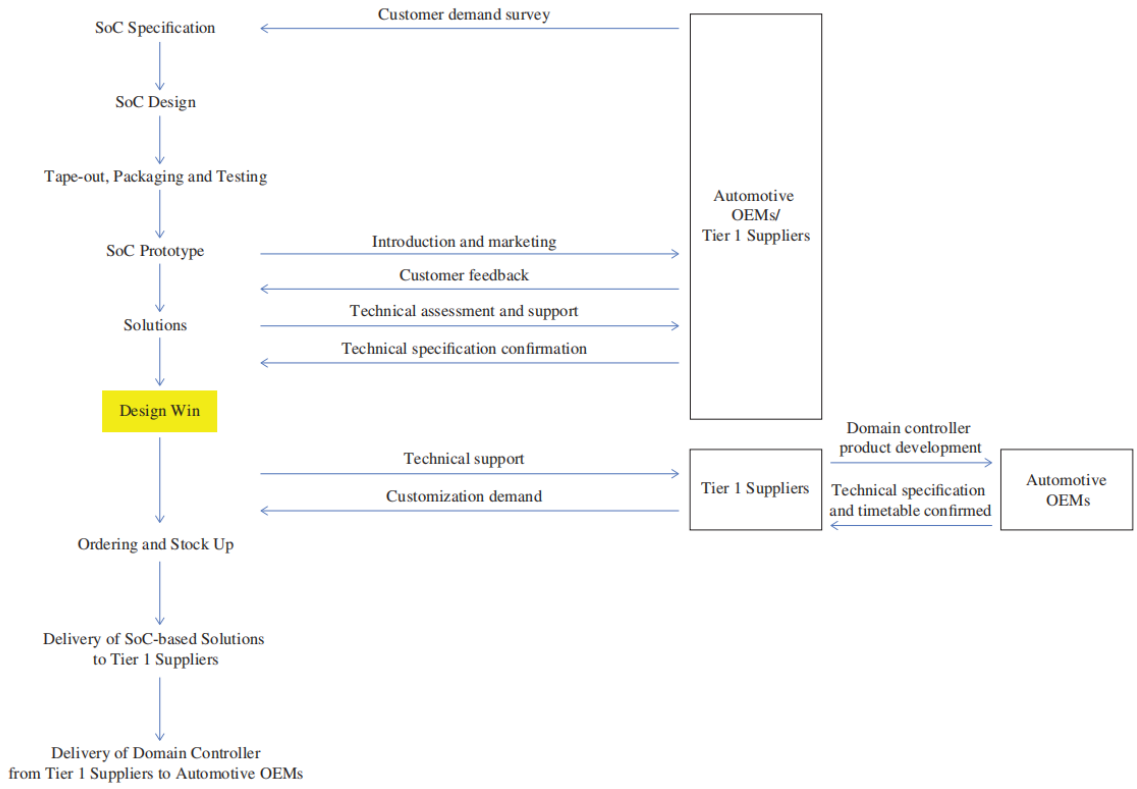
Source: the Company.

1.4 Continued Collaboration With Customers Suppliers and Partners Provides a Moat

The industry in which Black Sesame is in prioritizes strong collaboration with downstream Tier 1 and OEMs to develop customized software applications which best suit their needs. To enhance collaboration, Black Sesame provides customers with technical support and software, including but not limited to MCUs, basic software, middleware, algorithms and toolkits. Unlike some competitors like Mobileye, the Company has opened their platform to allow for software and hardware decoupling, providing automakers the freedom to select from a diverse range of offerings and enabling swift local adaptation and implementation of customized applications. The Company also allows for flexible implementation and selection of camera, radar, LiDAR, mapping and deep learning technologies to best suit the autonomous driving solution that the customer deems fit. This continued maintenance of an open-source system requires the Company to maintain cooperation with OEMs, tier 1 suppliers and partners. Black Sesame partners with OEM FAW Group to develop Hongqi's autonomous driving platform using A1000 SoCs in mass-produced vehicles. Together with Bosch, a leading tier 1 supplier, the Company deploys its SoCs and V2X solutions for vehicle and roadside applications. It collaborated with Soterea, a designer of a cloud based avoidance system, to accelerate autonomous driving solutions and expand adoption of Black Sesame's self-developed SoCs.

The Company follows a long standing and detailed process in obtaining design wins. Before bidding for a design win, the Company promotes SoC-based solutions to automotive OEMs and Tier 1 suppliers through marketing and technical collaborations, ensuring compatibility with market-ready hardware/software. During bidding, OEMs share system architecture requirements, and the Company work with Tier 1 partners to validate SoC functionality. If selected, OEMs coordinate mass production plans with Tier 1 suppliers, who then notify the Company of the design win. Post-win, the Company receives demand forecasts, procure materials, manage contract manufacturing (packaging/testing), and provides SoC development support to Tier 1 suppliers. Finally, Tier 1s integrate the Company's solutions into domain controllers for delivery to OEMs.

Figure-1: Detailed and Continuous Collaboration Allows the Company to Keep Up With Market Trends



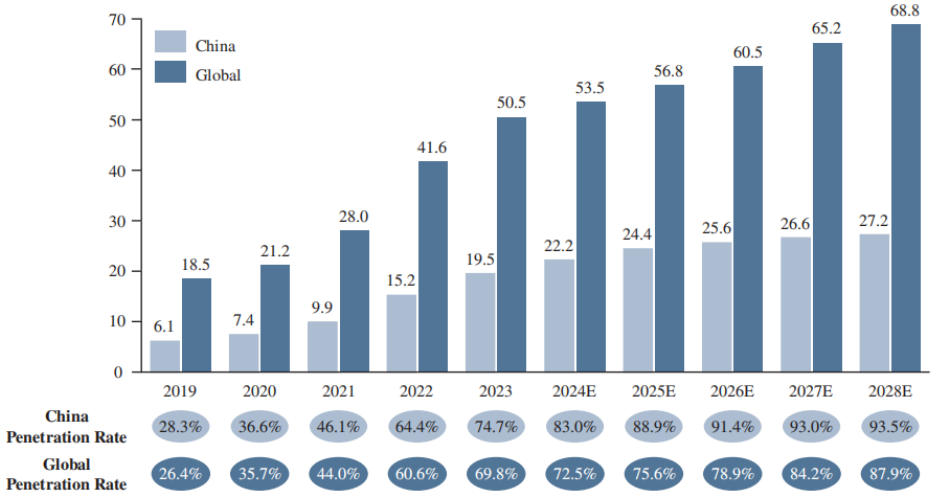
Source: the Company, Guotai Junan International.

2. Automobile SoC Chipset Industry: Fast Growing Market with Untapped Domestic Firm Expansion Opportunities

2.1 Growth Drivers

Expansion of the Autonomous Driving Sales Volume

Figure-2: Global and China Autonomous Driving Passenger Vehicle Sales Volume, Million Units, 2019-2028E



Source: Frost and Sullivan, Guotai Junan International.

Autonomous driving technology significantly enhances commercial vehicle safety and is seeing growing adoption. Globally, autonomous passenger vehicle sales volume (L1-L5) reached 50.5 million units in 2023 (69.8% penetration), projected to grow to 68.8 million by 2028 (87.9% penetration). In China, 2023 sales hit 19.5 million units (74.7% penetration), with expectations to reach 27.2 million by 2028 (68.9% penetration), according to Frost & Sullivan. These figures highlight China's faster adoption rate compared to global trends. The primary growth drivers are as follows:

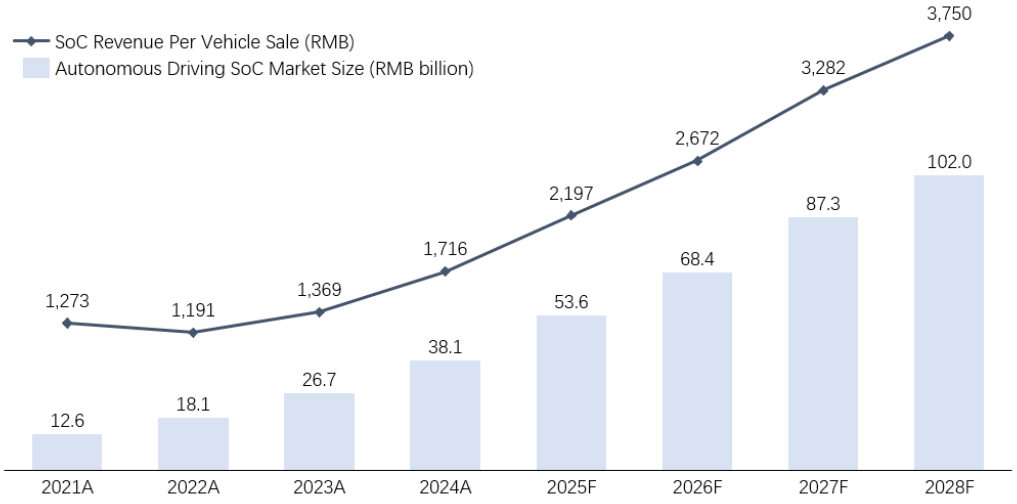
1) **Automotive Electrification:** Electric vehicles are ideal platforms for autonomous driving due to their precision, low latency, and robust systems. Globally, the sales volume is expected to grow at a 13.7% CAGR, driven by policy support, tech advancements, and consumer demand.
2) **Growing Demand for Autonomous Driving:** Autonomous technology reduces human error, enhances safety, and improves traffic efficiency, making ADAS-equipped vehicles increasingly attractive. Both consumer demand and OEM investments are accelerating market growth.
3) **Declining Sensor Costs:** Falling prices of cameras, LiDARs, and other sensors—driven by tech advancements and economies of scale—are making ADAS more affordable and accelerating the commercialization of higher-level autonomous systems.
4) **Government Policy Support:** Governments worldwide, are actively promoting autonomous driving through supportive regulations and industrial policies, recognizing it as a critical future automotive technology. Specific policies supporting the domestic industry are: *Intelligent Vehicle Innovation and Development Strategy; Guidelines for the Construction of the National Standard System for the Connected Vehicle Industry; Pilot Implementation of Intelligent Connected Vehicle Access and On-road Testing.*

Implementations of Higher Order Advanced Driving Technologies Requiring Stronger Chips

Autonomous driving technology is broadly classified into two categories: Advanced Driving Assistance Systems (ADAS) for L1-L2+ automation and Automated Driving Systems (ADS) for L3-L5 capabilities. Currently, the industry is making significant strides in L2+ automation, which incorporates advanced features like Navigate on Autopilot (NOA). This technology enables vehicles to autonomously follow preset navigation routes on both highways and urban roads, delivering functionality that closely resembles Level 3 autonomous driving while still requiring driver supervision. While ADAS systems currently dominate the market with their safety alerts and driver assistance features, the development of L2+ represents a crucial transitional phase toward higher levels of automation. This progression demonstrates how the industry is gradually bridging the gap between today's driver-assisted technologies and tomorrow's fully autonomous systems, with each advancement bringing us closer to redefining personal transportation and urban mobility.

Autonomous driving SoC providers fall into two strategic categories, with both paths ultimately leading to higher chip costs as autonomy advances. The first group begins with lower-compute SoCs for basic functions (L0-L2), achieving commercialization before tackling the exponentially more complex and expensive high-power chips required for higher autonomy levels. The second category targets advanced autonomy (L2+ and beyond) from the outset, specializing in high-performance SoCs that inherently demand greater investment due to three key cost drivers: (1) exponentially rising compute requirements for L4/L5's real-time sensor fusion and decision-making, (2) stringent functional safety certifications (ASIL-D) that increase design complexity, and (3) specialized architectures integrating AI accelerators, high-bandwidth memory, and redundancy. Both approaches converge on the same economic reality – while L2+ chips may cost US$50-US$100, L4+ SoCs may exceed US$500 per unit due to their advanced node processes (5nm/3nm), larger die sizes, and low-volume production. This cost progression mirrors the automotive industry's broader transition from driver assistance features to truly autonomous systems, where performance and safety requirements scale far beyond traditional automotive electronics.

Figure-3: China Autonomous Driving SoC Market Size and Revenue Per Vehicle, RMB Billion, 2021A-2028F



Source: Frost and Sullivan, Guotai Junan International.

Trend of Domestic Production of Core Technologies

Governments worldwide are prioritizing domestic semiconductor manufacturing to reduce reliance on global supply chains and enhance technological sovereignty. In the U.S., the CHIPS Act allocates US$52 billion to bolster local chip production, aiming to reverse the decline from producing 37% of chips in 1990 to just 12% today. Similarly, China's "Made in China 2025" plan targets 70% self-sufficiency in semiconductors by 2030, investing heavily in fabs and SMIC to bypass export controls. The EU's Chips Act seeks to double its global production share to 20% by 2030, focusing on advanced nodes. Domestic manufacturing mitigates risks like geopolitical disruptions and pandemics. It also fosters innovation, as seen with Intel's Ohio fab and TSMC's Arizona plant bringing 3nm production to the U.S. by 2026. However, challenges persist, including high costs (a fab costs US$10B+) and talent gaps, with the U.S. needing 70,000 more workers by 2030. Despite this, reshoring is critical for national security, as chips underpin AI, defense, and critical infrastructure.

China's domestic SoC industry is experiencing rapid growth due to: (1) U.S. sanctions (e.g., Huawei's 2019 entity listing and 2022 CHIPS Act restrictions), which cut off access to advanced foreign chips and EDA tools, forcing self-reliance; (2) exploding demand from EVs and AI, with domestic automakers like BYD and NIO requiring localized ADAS/autonomous driving SoCs (e.g., Horizon Robotics' Journey series and Black Sesame's A1000); (3) government funding, including the Phase II National IC Fund targeting SoC design firms and "14th Five-Year Plan" tech investments; (4) RISC-V adoption, with China leading 50% of global RISC-V projects to bypass ARM/x86 dependence; (5) chiplet technology, enabling 7nm-tier performance using mature nodes (e.g., Huawei's chiplet-based patents); (6) local procurement mandates, requiring state firms to replace foreign GPUs/CPUs with domestic chips (e.g., Loongson, Biren); and (7) talent pipelines, with 12 new "IC Colleges" established since 2020 to address the 300,000-engineer shortage.

Table-4: Policies Supporting the Domestic Production of Semiconductors

Policy Name	Release Date	Main Content
Made in China 2025	2015	Targets 70% self-sufficiency in key chips (including SoCs) by 2030; prioritizes automotive/AI chips.
National IC Industry Investment Fund (Big Fund)	2014 (Phase I), 2019 (Phase II) 2024(Phase III)	Phase I: US$22B; Phase II: US$40B+ for fabless design, equipment, and advanced packaging. Phase III (2024) added RMB688 bn (US$95B) for mature-node dominance and RISC-V ecosystem development 311.
14th Five-Year Plan for Semiconductors	2021	US$1.4T allocation for tech sovereignty, focusing on EDA tools, IP cores, and automotive SoCs. 2024 update mandates local procurement of domestic SoCs for government/state enterprises.
China Standards 2035	2021	Promotes RISC-V and domestic SoC architectures to set global benchmarks.
GPU/SoC Procurement Directive	2023	Requires state firms to replace foreign GPUs/CPUs with domestic alternatives (e.g., Biren, Loongson).
Tax Incentives for IC Design	2020	0% VAT and 10-year tax holidays for SoC R&D.
Core Hardware Subsidy Program	2018	Covers 30–50% of SoC tape-out costs at domestic fabs (SMIC, Hua Hong).
Next-Gen AI Development Plan	2017	US$150B funding for AI chips (e.g., Cambricon, Horizon) through 2030.
Chiplet Technology Initiative	2023	Promotes chiplets to bypass advanced-node bans; funds Huawei/TongFu Microelectronics.
"China for China" Production Mandate	2024	Requires foreign firms (e.g., Qualcomm) to manufacture SoCs in China to avoid tariffs.
China Standards 2035	2021	Promotes RISC-V and domestic SoC architectures to set global benchmarks.

Source: Federal Reserve, SpecialEurasia, Reuters, Guotain Junan International.

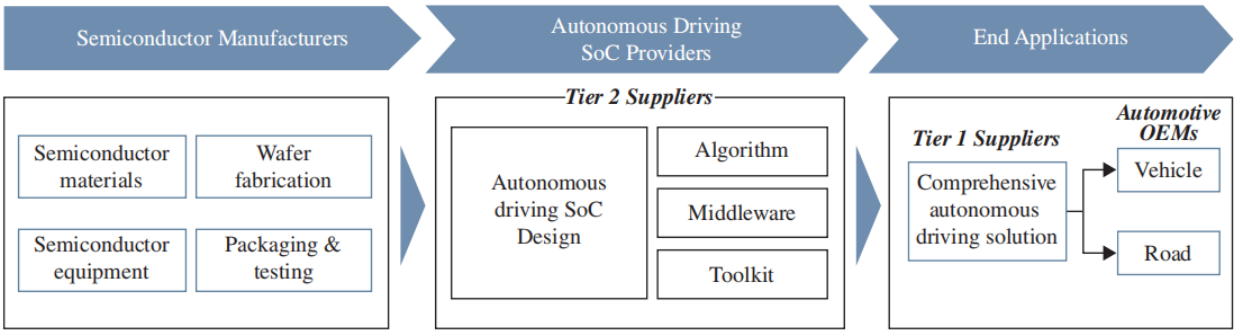
2.2 Supply Chain

The automotive SoC supply chain is a complex ecosystem that spans from semiconductor manufacturing to end-user applications. Upstream, the chain begins with semiconductor materials (e.g., silicon wafers), equipment (e.g., lithography machines), and fabrication processes (e.g., wafer production and packaging). Advanced manufacturing technologies, such as 7nm or 5nm nodes, are critical for enhancing chip performance, as noted in the Frost & Sullivan analysis. This segment is dominated by global players like TSMC and SMIC, but China is aggressively investing in domestic capabilities to reduce reliance on foreign suppliers.

Midstream, the supply chain shifts to autonomous driving SoC providers, who design and integrate chips with algorithms, middleware, and toolkits. These Tier 2 suppliers, such as Black Sesame and Horizon Robotics, develop SoCs that serve as the "central brain" for autonomous vehicles, processing sensor data and enabling decision-making. The Frost & Sullivan report highlights that a complete SoC-based solution includes not only hardware but also software layers (e.g., perception algorithms) to support advanced functionalities like L2+ autonomy. This tier is increasingly competitive, with Chinese firms leveraging government support to challenge established players like NVIDIA and Mobileye.

Downstream, the chain culminates in end applications, where Tier 1 suppliers (e.g., Bosch, Continental) integrate SoCs into domain controllers or camera modules for automotive OEMs. The document notes that SoCs are pivotal in addressing challenges like data processing and electrical architecture complexity in modern vehicles. With the global automotive SoC market projected to grow at a 28.8% CAGR (2023–2028), demand from EVs and autonomous driving is accelerating collaboration across the supply chain, from chip designers to automakers like BYD and Tesla. This interconnected network underscores the strategic importance of SoCs in the future of intelligent vehicles.

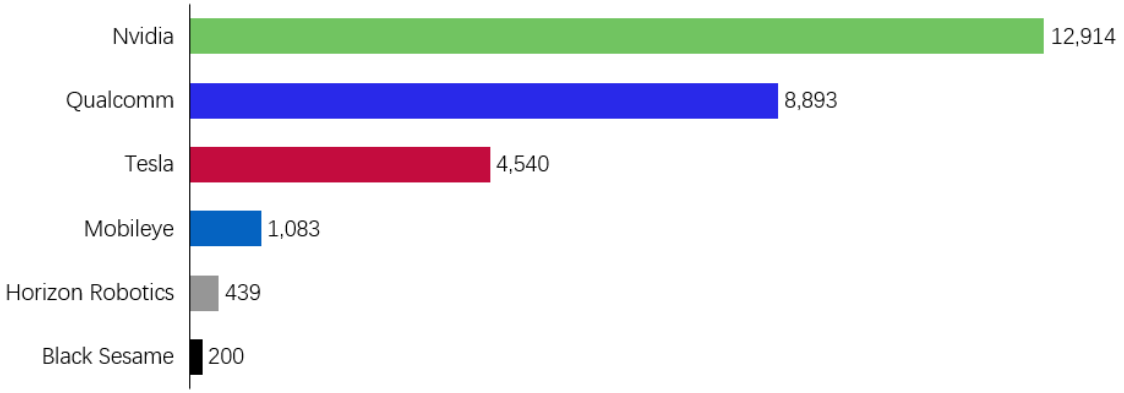
Figure-4: The Value Chain of Autonomous Driving SoC and Solutions



Source: Frost & Sullivan.

2.3 Research and Development

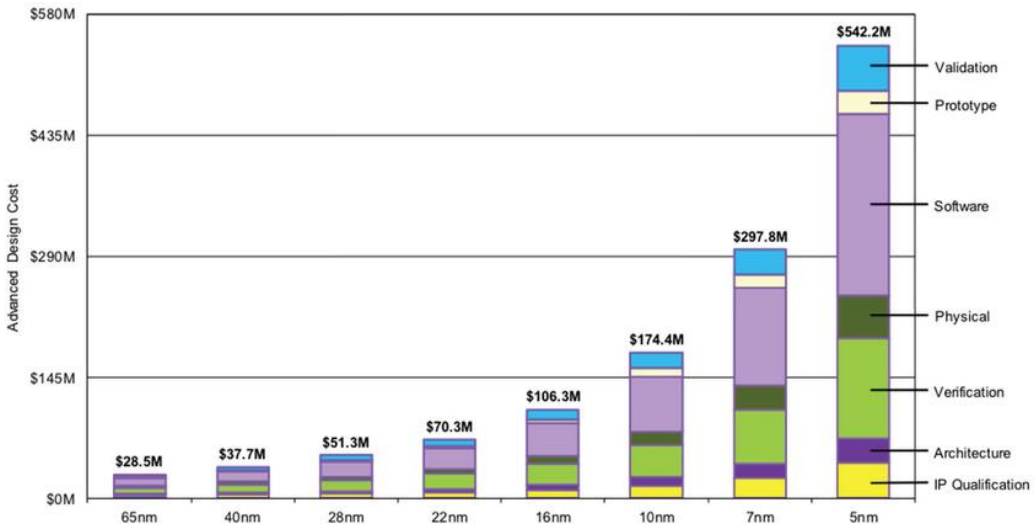
Figure-5: 2024 Annual Research Expenditure of Main Designers of Chipsets used in AD/ADAS applications, USD Millions



Source: Company Annual Reports, Guotai Junan International.

The immense R&D expenditures seen in ADAS/AD chipset development create powerful operating leverage that fundamentally reshapes industry economics. The autonomous driving sector exhibits extreme fixed-cost intensity, where initial investments in advanced node tape-outs (exceeding US$500 million for 5nm designs), safety certification (ASIL-D), and software stack development create nearly insurmountable barriers to entry but deliver exponential returns at scale. This operating leverage manifests in three critical ways: First, the marginal cost of producing additional chips becomes negligible once the architecture is perfected and IP is secured - NVIDIA's 2024 automotive revenue demonstrates this, where each incremental Orin chip sold carries minimal variable cost against billions in sunk R&D. Second, the same core SoC platform can be adapted across multiple vehicle models and OEMs (Qualcomm's Snapdragon Ride scales from luxury sedans to commercial trucks), spreading development costs over exponentially larger unit volumes. Third, software-defined vehicle architectures allow continuous monetization of initial R&D through over-the-air updates and feature unlocks, creating annuity-like revenue streams. However, this leverage cuts both ways - while market leaders like NVIDIA and Qualcomm achieve 60%+ gross margins at scale, smaller players like Black Sesame must carefully target niche applications (China's EV market) where their constrained R&D budgets can still achieve meaningful market penetration before the industry consolidates around a few standardized platforms. The result is an accelerating winner-takes-most dynamic where operating leverage rewards scale players disproportionately while making catch-up strategies prohibitively expensive.

Figure-6: Estimated Costs to Develop a Semiconductor Chipset, USD Millions

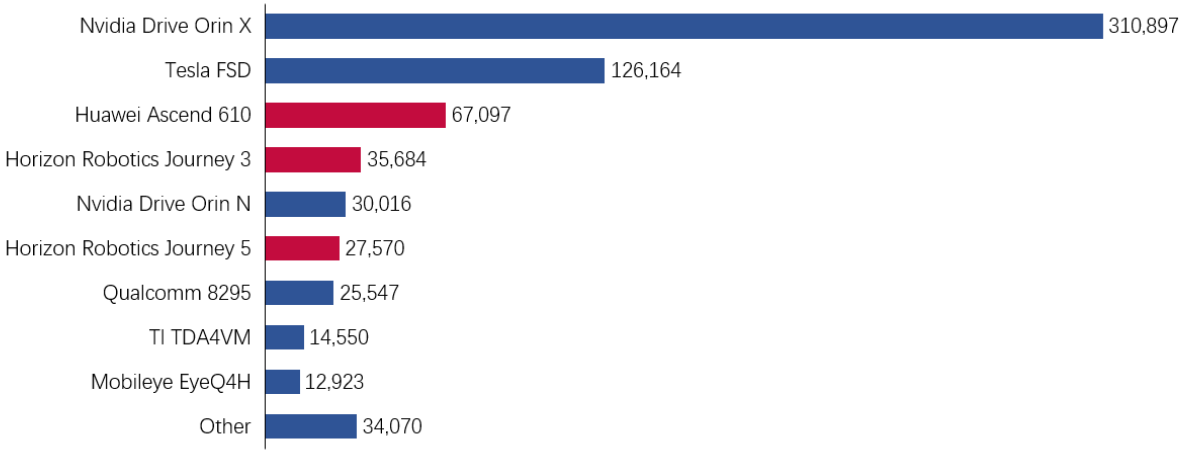


Source: International Business Strategies, Guotai Junan International.

2.4 Competitive Landscape: Pure Play ADAS/AD

The competitive landscape of ADAS/AD control chips in China during early 2025 shows NVIDIA's Drive Orin X dominating with 310,897 installations, over double Tesla's FSD (126,164) and significantly ahead of Huawei's Ascend 610 (67,097). Domestic players like Horizon Robotics hold notable shares with Journey 3 (35,684) and Journey 5 (27,570), reflecting China's push for semiconductor self-sufficiency, while Qualcomm's 8295 (25,547) and TI's TDAWM (14,550) trail behind. NVIDIA's strong performance, including its Orin N variant (30,016), underscores its technological lead in autonomous driving compute, though Huawei and Horizon demonstrate growing competitiveness in the local market. Mobileye's EyeQ4H (12,923) and other minor players collectively account for a meaningful portion, highlighting the market's fragmentation beyond the top contenders. This distribution reveals a bifurcated market where global leaders (NVIDIA, Tesla) coexist with rising Chinese challengers (Huawei, Horizon), with geopolitical factors and local OEM partnerships increasingly shaping adoption trends.

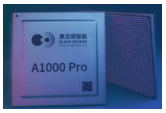
Figure-7: ADAS/AD Control Chip Installation Volume in China, Jan-Feb 2025



Source: Gasgoo, Guotai Junan International.

The market share distribution of ADAS/AD control chips in China reflects a clear hierarchy shaped by technical capabilities and strategic positioning. NVIDIA's dominance (310K+ installations) stems from its industry-leading 275 TOPS performance and versatile power range (15W-60W), making it ideal for high-end autonomous systems across multiple OEMs. Tesla's strong position (126K+) benefits from its vertical integration with FSD Hardware 4.0, despite its modest 50 TOPS, as its tight software-hardware coupling optimizes efficiency (0.8W power draw). Huawei's Ascend 610 (67K+) gains traction through its competitive 160 TOPS output and domestic appeal, though its 60W power consumption limits broader adoption. Horizon Robotics' Journey 5 (27K+) strikes a balance with 128 TOPS at 30W, appealing to cost-conscious Chinese automakers, while its older Journey 3 (35K+) thrives in budget L2+ applications. Qualcomm's SA8285P (25K+) lags in raw performance (40-50 TOPS) but wins design-ins through its 5nm process advantage (power efficiency) and cockpit-integration potential. Mobileye's EyeQ4H (12K+) persists in legacy systems due to its proven safety record, despite being technologically outdated (2.5 TOPS, 28nm). Black Sesame's A1000P struggles to break out (grouped in "Other") due to its mid-tier specs (106 TOPS, 16nm) and lack of ecosystem scale versus rivals. This landscape shows performance-tiering, where NVIDIA leads premium segments, Chinese firms compete in mid-range, and legacy players retain niche footholds—all while power efficiency and local partnerships increasingly dictate share shifts.

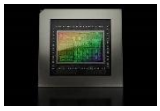
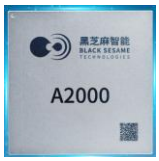
Table-5: Current Generation ADAS Chipset Providers and Specifications

Company	Nvidia	Tesla	Huawei	Horizon Robotics	Qualcomm	Mobileye	Black Sesame
Product image							
Model	Jetson Orin-NX	Hardware 4.0	Ascend 610	Journey 5	SA8295P	EyeQ4H	A1000P
Performance INT8 (TOPS)	275	50	160	128*	40-50	2.5	106+
Power (W)	15w-60w	n.a.	60w	30w	n.a.	5	25w
Memory	64GB LPDDR5	16GB	n.a.	64GB LPDDR4	16GB LPDDR4	n.a.	n.a.
Process (nm)	7nm	7nm	7nm	16nm	5nm	28nm	16nm
CPU	Arm Cortex A78	Arm Cortex A72	Kunpeng 920	Arm Cortex A55	Arm Cortex	n.a.	Arm Cortex A55

Source: Nvidia Official Website, Autoevolution, Zuosi Auto Research, Horizon Robotics Prospectus, Company Prospectus, Qualcomm Official Website, Mobileye Official website, Guotai Junan International.

The next-generation ADAS/AD chipset market will likely undergo significant shifts in market share distribution, driven by diverging technological strategies and OEM adoption patterns. NVIDIA's Thor X Super (2000 TOPS) will likely maintain dominance in the premium segment due to its unmatched raw performance and broad OEM backing (BYD, XPeng, Volvo), though its high power draw (140-220W) may limit it to flagship vehicles. Tesla's Hardware 5.0 (500-2500 TOPS) could see constrained growth despite its performance potential, as its 800W power requirement and Tesla-exclusive use case prevent broader market penetration, by our estimates an 800w power draw would increase power consumption by over 10% for a standard EV traveling at 50km/h. Horizon Robotics' Journey SPC (560 effective TOPS) may gain ground in cost-sensitive Chinese EVs (e.g., BYD) by optimizing performance-per-watt through its proprietary software stack, but its reliance on "effective TOPS" (a non-standard metric) could hinder adoption by OEMs which would prefer to use their own software solutions. **Black Sesame's A2000 (250-1000 TOPS) still faces an uphill battle due to its unconfirmed OEM interest, though its raw power compared to Horizon Robotics' Journey 6 would likely allow it to gain significant market share if priced aggressively.**

Table-6: Next Generation AD Chipset Providers and Specifications

Company	Nvidia	Tesla	Horizon Robotics	Black Sesame
Product image				
Model	Thor X Super	Hardware 5.0/ AI 5.0	Journey 6P	A2000
Performance INT8 (TOPS)	2000	500-2500	560 (Effective TOPS)	250-1000
Power (W)	140-280	800	n.a.	n.a.
Memory	LPDDR5X	n.a.	LPDDR5	LPDDR5
CPU	Arm Neoverse V2	n.a.	Arm Cortex A78	Arm Cortex A78
Process (nm)	4nm	n.a.	7nm	7nm
Mass Production Date	Late 2025	December 2025	Late 2025	2026
OEMs with Interest	BYD, XPeng, NIO, Li Auto, Jaguar Land Rover, Volvo, and others	Tesla	BYD	TBD

Source: Nvidia Official Website, Autoevolution, Zuosi Auto Research, Horizon Robotics Prospectus, Company Prospectus, Qualcomm Official Website, Mobileye Official website, Guotai Junan International.

2.5 Competitive Landscape (City NOA + Cockpit SoC Chipsets)

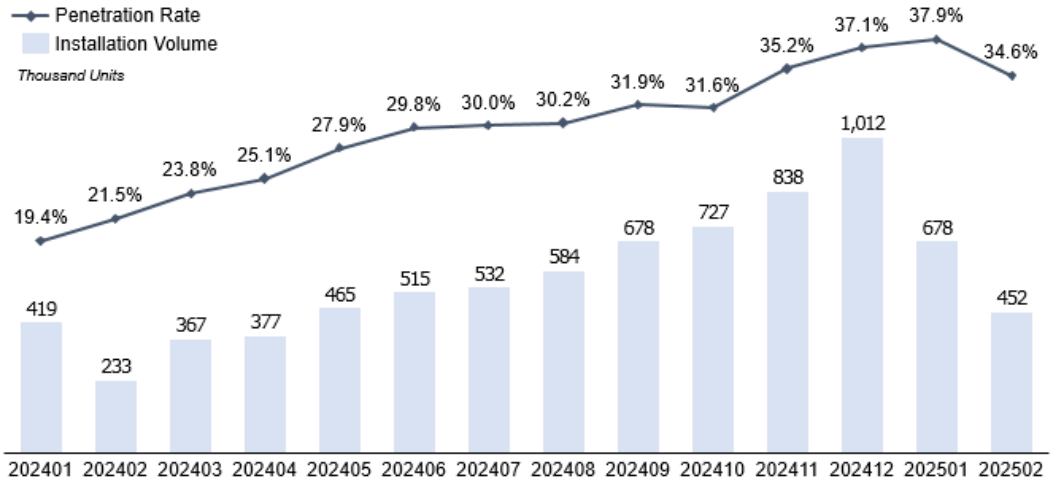
The smart cockpit domain controller market in China during 1Q2025 shows high market share by Qualcomm with 1,394,027 installations, reflecting its unparalleled adoption across both premium and mass-market vehicles through its mature SA8155P and next-generation SA8295P platforms. AMD makes a strong showing with 137,334 installations, benefiting from its automotive solutions and partnerships with Chinese EV manufacturers, while Huawei follows closely with 79,341 units installed through its HarmonyOS-powered cockpit systems. Domestic players Siengine (78,443) and Semidrive (35,032) demonstrate China's growing semiconductor capabilities, though they remain far behind Qualcomm's overwhelming market presence. Renesas maintains relevance with 69,283 installations serving legacy vehicle platforms, while Samsung (21,769), Nvidia (5,156) and Intel (3,971) occupy niche positions in this cost-driven market segment. The staggering 10:1 ratio between Qualcomm and its nearest competitor underscores how its first-mover advantage, comprehensive software ecosystem, and broad OEM adoption have effectively defined industry standards for cockpit domain controllers in China.

Figure-8: Smart Cockpit Domain Controller Installation Volume in China, Jan-March 2025

Source: Gasgoo, Guotai Junan International.

The installation volume of cockpit domain controller(Smart Cockpit SoCs) is rapidly increasing. Installation volume for the months of Jan 2025 and Feb 2025 increased to 678k and 452k, representing a YoY increase of 62% and 94%, respectively. The penetration rate likewise nearly doubled in 2024, increasing from 19.4% in January 2024 to 37.9% in 2025. Historically, February sales volume has been low due to Chinese New Year. Although the pace of the volume increase is fast, the penetration rate is still relatively low representing significant room for increase in the next 2-3 years.

Figure-9: Cockpit Domain Controller Installation Volume and Penetration Rate, Jan 2024 – Feb 2025



Source: Gasgoo, Guotai Junan International.

Recent collaboration between Desay SV and Qualcomm on their integrated cabin-drive solution (ICPS01E) signifies a pivotal shift toward converged vehicle architectures, where a single Snapdragon Ride Flex SoC simultaneously handles both infotainment (IVI) and ADAS workloads (L1-L2+). This integration reduces hardware complexity and cost by eliminating redundant ECUs, while Qualcomm's heterogeneous computing ensures mixed-criticality operation—critical for safety-certified ADAS functions alongside high-performance cockpit features. The "same hardware, dual algorithms" model (localized for China, generalized globally) addresses regional regulatory divergences (e.g., E-NCAP, GSR 2.0) while maintaining scalability, giving automakers flexibility to deploy standardized platforms across markets. If successful, this integration could accelerate industry-wide adoption of unified compute platforms, marginalizing standalone cockpit chip suppliers.

Figure-10: Desay SV & Qualcomm Collaborate on Providing a Cabin-Drive Integration Solution

Source: Gasgoo, Guotai Junan International.

Of the independent domestic SoC chipset companies, Black Sesame is the only major company that is capable of mass producing competitive ADAS + Smart Cockpit chips in 2025. The Wudang C1296 is a direct competitor to Qualcomm's newest integrated chipset, the SA8775, which is likely to become the industry standard given Qualcomm's dominance in the smart cockpit market. Although current specifications on the C1296 are not clear, they are likely an upgrade over their last generation chips in the Huashan A1000 series, especially with regard to NPU performance. Black Sesame offers itself as a geopolitically safe alternative to Qualcomm, and is likely to significantly gain in market share if they price their C1200 series chip correctly with regards to the relative performance difference.

Table-7: China's Main Players in Cabin Solutions – Only Black Sesame Provides a Domestic Alternative

Company	Qualcomm	Siengine	SemiDrive	Black Sesame
Product image				
Model	SA8775P	Longying One	Semidrive X9SP	C1296
CPU	Arm v8.2 Cortex-R52	8 Core Arm Cortex A76	12 Core Arm Cortex A55	10 Core Arm Cortex A78AE
GPU	Qualcomm Adreno GPU	Arm Mali G76	PowerVR GPU3D	Arm Mali G78AE
NPU Performance (INT8 TOPS)	Qualcomm Hexagon NPU 72 TOPS	8	8	+20% Performance over A1000
Memory	LPDDR5x	64bit LPDDR5	32bit LPDDR4/4x	512KB L2 Cache 2MB L3 Cache/Cluster 12MB SRAM 64bit LPDDR5/LPDDR4X
Process (nm)	4nm	7nm	16nm	7 nm
Mass Production Date	2025Q2	2023	2023	2025H2
Certifications	n.a.	IS026262ASIL-D	ISO26262 ASIL B	IS026262ASIL-D

Source: Siengine Official Website, Semidrive Official Website, Guotai Junan International.

We project the cockpit domain controller market in China to experience robust growth, with installation volume expected to surge from 6.75 million units in 2024 to 17.0 million by 2026, representing a compound annual growth rate (CAGR) of 58%. This expansion is driven by a rapid increase in sales volume. Penetration rates, are forecasted to jump from 29% in 2024 to 70% in 2026, as smart cockpit features become standard across vehicle segments. Market size projections vary significantly by scenario: the bear case anticipates RMB5.37 billion by 2026 (33% YoY growth), while the base case reaches RMB7.50 billion (47% YoY) and the bull case soars to RMB11.02 billion (68% YoY). The main diverging factor is price assumptions: The bear case reflects lackluster adoption of cabin-drive integration solution, while the bull case assumes strong adoption of it. Price increases are expected to rise based on adoption rates of a cabin-drive integrated solution due to the need for more powerful and expensive chips.

Table-8: Key Assumptions for Cockpit Domain Controller Market Size Projection (Red Indicates Assumptions)

	2024	2025	2026
Installation Volume (Thousand Units)	6,747	12,145	17,002
YoY		*80.00%*	*40.00%*
Penetration Rate	*29%*	*51%*	*70%*
Domestic Sales of Passenger Vehicles (Thousand Units)	22,924	23,612	24,320
YoY		*3%*	*3%*
Average Cockpit Chipset Sales Price (RMB)			
Bear Case	350	333	316
YoY		*-5%*	*-5%*
Base Case	400	420	441
YoY		*5%*	*5%*
Bull Case	450	540	648
YoY		*20%*	*20%*
Market Size for Cockpit Domain Controllers (RMB mn)			
Bear Case	2,361	4,038	5,371
YoY		*71%*	*33%*
Base Case	2,699	5,101	7,498
YoY		*89%*	*47%*
Bull Case	3,036	6,558	11,018
YoY		*116%*	*68%*

Note: Gasgoo, CAAC, Guotai Junan International.

3. Earnings Estimates

Based on the industry and the Company's situation, we make the following key assumptions about Black Sesame's earnings for the next three years:

Assumption 1: The Company's C1200 series will gain traction among OEMs including BYD as part of an integrated cabin drive solution in 2H2025. Given that BYD sold 4.3 million vehicles in 2024, if Black Sesame gains traction in just 5% of vehicles, it would be able to sell an additional 200,000 units in volume, which would translate to an additional revenue of RMB80-120 million dependent on the final ASP. As the only major competitor to Qualcomm's integrated cabin-drive SoC chips, the Company's position will allow it to gain market share in the 20-40% range for 2025-2026.

Assumption 2: The Company is able to gain significant numbers of vehicle model designations for its A2000 series over the course of 2025, allowing for a significant gain in both volume and ASP for the year of 2026. We believe that this assumption is reasonable because: 1) the Company currently is in contact with various OEMs to achieve vehicle designations; 2) the Company's A2000 series has high raw INT8 TOPS compared to its domestic competitors; 3) most OEMs prefer to use the self-driving algorithm of their choice, with this option being preferable to Horizon's SoC + algorithm solution, which locks the assisted driving algorithm provider as Horizon; and 4) potential for future chips sanctions causing OEMs to choose domestic chip designers for supply chain stability reasons. **If the Company is able to achieve similar results with its A2000 series as its A1000 series, it would be able to introduce a new series of chip with an estimated four times the ASP as its previous generation, and gain considerable market share among OEM customers. This would push up both volume, ASP and gross margin for its autonomous driving segment in 2026, significantly boosting revenue and future company prospects.**

Assumption 3: The Company's research and development expenditure will remain mostly constant over the next two years as it is along the lines of decreasing its headcount. The Company has decreased its headcount from 1,052 in 1Q2024 to 973 in 4Q2024. The Company also has not expressed its desire to expand to additional product lines or significantly expand its research footprint over the last year, thereby making further increases in research expenditure unlikely.

Table-9: Key Assumptions for Earnings Forecasts (RMB mn)

	2023A	2024A	2025F	2026F	2027F
Revenue by segment					
Autonomous Driving Products and Solutions	276.3	438.0	696.0	1564.0	1983.5
YoY	*94.2%*	*58.5%*	*58.9%*	*124.7%*	*26.8%*
Intelligent Imaging Solutions	36.1	36.3	40.4	47.2	52.0
YoY	*55.8%*	*0.6%*	*11.3%*	*16.8%*	*10.3%*
Total revenue	312.4	474.3	736.4	1611.2	2035.5
YoY	*88.8%*	*51.8%*	*55.3%*	*118.8%*	*26.3%*
Gross profit	77.1	194.7	334.5	782.9	997.4
Gross margin	*24.7%*	*41.1%*	*45.4%*	*48.6%*	*49.0%*
S&M expenses	(101.8)	(120.8)	(169.1)	(224.7)	(200.5)
% of revenue	*32.6%*	*25.5%*	*23.0%*	*13.9%*	*9.9%*
G&A expenses	(319.0)	(368.8)	(461.0)	(500.7)	(497.2)
% of revenue	*102.1%*	*77.8%*	*62.6%*	*31.1%*	*24.4%*
R&D	(1,362.5)	(1,435.2)	(1,506.9)	(1,582.3)	(1,661.4)
% of revenue	*436.2%*	*302.6%*	*204.6%*	*98.2%*	*81.6%*
Operating profit	(1,696.9)	(1,754.0)	(1,865.3)	(1,599.2)	(1,450.1)
Operating Margin	*-543.2%*	*-369.8%*	*-253.3%*	*-99.3%*	*-71.2%*
Finance income/(costs) — net	23.0	23.0	21.0	27.0	20.1
Profit before tax	(4,855.1)	313.3	(1,844.3)	(1,572.1)	(1,430.0)
Income Tax	0.0	0.0	0.0	0.0	0.0
Effective Tax Rate	*0.0%*	*0.0%*	*-15.0%*	*-15.0%*	*-15.0%*
Net profit	(4,855.1)	313.3	(1,844.3)	(1,572.1)	(1,430.0)
Net Margin	*-1554.2%*	*66.1%*	*-250.4%*	*-97.6%*	*-70.3%*

Note: the Company, Guotai Junan International.

4. Valuation

We apply two methods to value Black Sesame: 1) relative valuation using EV/Sales peers comparison, and; 2) absolute valuation using discounted cash flow method (DCF analysis). We adopt relative valuation as our main valuation method as there are sufficient peers with the same business model, and we compare the outcome with DCF analysis (Discounted Cash Flow) for reference.

4.1 Relative Valuation

We forecast that the Company's revenue in 2025-2027 will be RMB736.4 mn/ RMB1,611.2 mn/ RMB2,035.5 mn, respectively, with YoY growth rate of 55%/ 119%/ 26%. AD products and solution revenue in 2025-2027 will be RMB696 mn/ RMB1,564 mn/ RMB1,984 mn, respectively, with YoY growth rate of 59%/ 125%/ 27%. Imaging solutions revenue in 2025-2027 will be RMB40 mn/ RMB47 mn/ RMB52 mn, respectively, with YoY growth rate of 11%/ 17%/ 10%. Adjusted Net Loss in 2025-2027 will be RMB1,319 mn/ RMB990 mn/ RMB850 mn, respectively.

For our peer group for Black Sesame, we select five leading automobile SoC chipset designers with significant revenue streams in the Chinese market. We include the leading foreign chip designers for the assisted driving and cabin controller segments, Nvidia and Qualcomm, respectively. We include the Mobileye as an assisted driving solutions company of similar scale to Black Sesame. We also include domestic listed chip designers Horizon Robotics and All Winner Technology as domestic companies with significant chip revenue from assisted driving and cabin solutions. Overall, we include one Hong Kong Listed company, three US listed companies, and one mainland A-share listed company for our peers.

Table-10: Peers Valuation – Automobile SoC Chipset Designers

Company	Stock Code	Currency	Last price	EV/Sales			Price/Earnings			PB	ROE	Market Cap
				25F	26F	27F	25F	26F	27F	25F	25F	HKD mn
Automobile SoC Chipset Desginers												
Black Sesame	2533 HK	HKD	18.08	34.1	11.3	6.8	4.7	13.9	n.a.	n.a.	n.a.	8.8
Horizon Robotics	9660 HK	HKD	7.05	0.3	19.8	11.9	8.1	12.8	n.a.	n.a.	106.8	8.0
Mobileye	MBLY US	USD	16.25	9.0	6.7	5.9	4.6	n.a.	63.2	43.2	26.8	1.1
Qualcomm	QCOM US	USD	145.20	4.9	3.7	3.6	3.5	16.0	12.3	12.1	11.9	5.7
Nvidia	NVDA US	USD	135.13	24.4	26.5	16.3	13.0	112.1	45.5	31.3	23.5	41.7
All Winner Tech	300458 CH	CNY	37.38	10.6	9.7	8.0	6.3	186.9	89.0	63.4	44.0	9.3
Simple Average				13.9	13.0	8.8	6.7	68.3	52.5	37.5	42.6	12.4
Weighted Average				23.4	25.3	15.6	12.5	107.0	44.1	30.5	23.3	39.7

Source: Bloomberg, Guotai Junan International
Note: Above valuations and ROE are based on Bloomberg consensus forecasts. Market cap and last price are as at 3 June 2025.

We value the Company with a 2026 EV/Sales ratio. We justify this choice in valuation because: 1) companies in the AD SoC chipset design industry have revenue that is rapidly growing and some have not yet reached profitability, especially with the high research costs associated with designing semiconductors; 2) currently, domestic companies in the AD SoC chipset industry have significant but small market share, with most companies just now in 2025 gaining a foothold with major OEMs. In such an environment, market share may fluctuate significantly. We expect revenue in 2026 to be more representative of a stable market state in which revenues are more stable as business relationships become more entrenched.

EV/Sales Valuation: In the case where the Company successfully capitalizes on its advantages and grows revenue, we believe that using a sales multiple justifies its valuation. **We assign an EV/Sales multiple of 8.0x** on its projected 2026 revenue of RMB1,611 mn. This results in a RMB market capitalization of RMB13,565 mn and a HKD market capitalization of HK$14,781 mn, **which represents a target price of HK$23.61.**

4.2 DCF Analysis

Our DCF analysis suggests an EV valuation between HK$15,993 mn and HK$21,197 mn, representing 9.9x-13.2x 2026 EV/Sales. Being the leading player in a fast growing market and gaining market share, we predict steady free cash flow from operations to begin in 2029. We anticipate negative free cash flow generated from operations between 2025 and 2028, mainly due to high research and development expenditures related to design, testing, packaging and fabricating semiconductors. However, starting from 2029, we expect the Company, following fast growth in revenue to generate positive free cash flows. Based on our assumptions, the net present value of the Company's free cash flow to equity from 2025 to 2035 is estimated at RMB1,829 mn, with the net present value of the terminal value, calculated at a 2% long-term growth rate, reaching RMB14,317 mn. Based on our analysis of operating activity and disclosed company financing arrangements, we estimate the Company to have a net cash position of RMB675 mn. Overall, our estimation of Black Sesame current net asset value (NAV) is HK$18,330 mn, translating to HK$30.45 per share, representing 11.4x 2026 EV/Sales.

Table-11: DCF valuation table

WACC Calculation		DCF Calculation						
Risk-free rate	4.42%	**PV of FCFE (2025-2035) (RMB mn)**						1,829
Market risk premium	5.00%	**PV of Terminal Value (RMB mn)**						14,317
Beta	1.600	**Net Debt/(Cash) (RMB mn)**						675
Cost of equity	12.42%	**NAV (RMB mn)**						16,821
		NAV (HK$ mn)						18,330
		NAV Per Share						**HK$30.45**
Cost of debt	5.0%	**Sensitivity Analysis for NAV (HK$ million)**		**Perpetual Growth Rate**				
Effective tax rate	15.0%			*1.00%*	*1.50%*	*2.00%*	*2.50%*	*3.00%*
After tax cost of debt	4.25%	**WACC (%)**	*10.9%*	20,104	21,090	22,187	23,413	24,795
E/(E+D)	93.8%		*11.4%*	18,341	**19,197**	**20,144**	**21,197**	22,375
WACC	11.91%		*11.9%*	16,761	**17,508**	**18,330**	**19,239**	20,251
Perpetual growth rate	2.00%		*12.4%*	15,338	**15,993**	**16,710**	**17,500**	18,373
			12.9%	14,052	14,628	15,257	15,947	16,705

Source: Bloomberg, Guotai Junan International

4.3 Conclusion

We initiate with a "Buy" rating and a TP of HK$23.61, corresponding to a 2026 EV/Sales ratio of 8.0x. We mainly adopt relative valuation as the primary valuation method, with reference to an automobile SoC chip design peer group. In addition, we have conducted a DCF analysis with an estimated NAV per share of HK$30.45. Our target price represents a 22.5% discount compared to our DCF valuation.

Figure-11: Black Sesame Valuation

Year End 12/31	Revenue (RMB 000')	AD/ADAS (RMB 000')	Imaging (RMB 000')	Revenue (%)	Net Loss (RMB 000')	Adj Earnings (RMB 000')	Shares Outstanding (000')
2022A	165,442	142,282	23,160		(2,753,936)	(700,330)	
2023A	312,391	276,318	36,073	89%	(4,855,118)	(1,254,247)	71,000
2024A	474,252	437,956	36,296	52%	313,315	(1,304,251)	263,608
2025F	736,391	696,007	40,385	55%	(1,844,268)	(1,319,693)	626,117
2026F	1,611,209	1,564,048	47,161	119%	(1,572,117)	(989,865)	686,322
2027F	2,035,519	1,983,525	51,995	26%	(1,430,021)	(850,159)	721,734
2028F	3,575,912	3,518,588	57,324	76%	(879,381)	(236,018)	721,734
2029F	7,109,077	7,045,877	63,200	99%	538,001	1,250,726	721,734

	EV/S		DCF
Target Price (HKD)	23.61	Target Price (HKD)	30.45
Reference year	2026F		
EV/S Multiple	8.0		
EV Valuation (RMB mn)	12,890	EV Valuation (RMB mn)	16,821
Total Market Cap (RMB mn)	13,565	Total Market Cap (RMB mn)	17,497
Total Market Cap (HKD mn)	14,781	Total Market Cap (HKD mn)	19,066

Source: the Company, Guotai Junan International.

Financial Statements and Ratios

Income Statement					
Year ended 31 Dec (RMB mn)	2023A	2024A	2025F	2026F	2027F
Total Revenue	312	474	736	1,611	2,036
Cost of revenue	(235)	(280)	(402)	(828)	(1,038)
Gross Profit	77	195	334	783	997
R&D expenses	(102)	(121)	(169)	(225)	(201)
S&M expenses	(319)	(369)	(461)	(501)	(497)
G&A Expenses	(1,363)	(1,435)	(1,507)	(1,582)	(1,661)
Other operating expenses	9	(24)	(63)	(74)	(88)
Operating profit	(1,697)	(1,754)	(1,865)	(1,599)	(1,450)
Interest Expense	23	23	21	27	20
Other income and gains	(1)	(2)	0	0	0
Profit before tax	(4,855)	313	(1,844)	(1,572)	(1,430)
Income tax	0	0	0	0	0
Profit After Tax	(4,855)	313	(1,844)	(1,572)	(1,430)
Non-controlling Interest	0	0	0	0	0
Shareholders' Profit / Loss	(4,855)	313	(1,844)	(1,572)	(1,430)
Basic EPS (RMB)	(68.382)	1.189	(2.966)	(2.528)	(2.300)

Cash Flow Statement					
Year ended 31 December (RMB mn)	2023A	2024A	2025F	2026F	2027F
Profit Before Tax	(4,855)	313	(1,844)	(1,572)	(1,430)
Depreciation and amortization	87	112	109	80	104
Share-based payment expenses	421	429	525	582	580
Capital gains and impairment	3,217	(1,966)	(30)	(31)	(32)
Changes in working capital	73	(78)	15	(147)	15
Other	0	0	0	0	0
Cash from operating activities	(1,058)	(1,190)	(1,226)	(1,087)	(763)
CAPEX	(134)	(56)	(143)	(129)	(185)
Net Purchase of Financial Assets	680	(167)	0	0	0
Cash from investing activities	547	(223)	(143)	(129)	(185)
Net proceeds from issuance of shares	854	926	1,088	1,111	199
Net proceeds from bank borrowings	(12)	680	20	21	21
Other	(32)	(54)	1	1	2
Cash from financing activities	809	1,552	1,110	1,134	222
Effect of exchange rate changes	18	10	0	0	0
Net changes in cash	298	139	(258)	(83)	(726)
Cash at beg of year	982	1,298	1,448	1,190	1,107
Cash at end of year	1,298	1,448	1,190	1,107	381

Source: the Company , Guotai Junan International.

Balance Sheet					
Year ended 31 Dec (RMB mn)	2023A	2024A	2025F	2026F	2027F
Property, plant and equipment	99	80	123	184	277
Right-of-use assets	51	48	50	51	53
Intangible assets	75	39	52	62	74
Investments	17	15	15	16	16
Prepayments and other revievables	17	13	14	14	14
Financial assets at FVPL	21	21	22	22	23
Total non-current assets	280	216	275	350	457
Inventories	71	68	85	150	160
Trade and notes receivables	165	258	279	519	557
Prepayments and other	98	151	156	161	165
Financial assets at FVTPL	8	175	180	185	191
Cash & cash equivalents	1,298	1,448	1,190	1,107	381
Total current assets	1,641	2,101	1,890	2,122	1,454
Total Assets	1,920	2,317	2,165	2,472	1,912
Trade payables	68	117	129	258	314
Contract liabilities	7	0	0	0	0
Borrowings	0	473	487	502	517
Lease liabilities	19	15	16	16	17
Other payables and accurals	240	345	389	421	433
Financial instruments	12,589	0	0	0	0
Total Current Liabilities	12,923	951	1,022	1,198	1,281
Borrowings	0	201	207	214	220
Lease liabilities	34	33	34	35	36
Other payables and accruals	57	39	40	42	43
Total Non-current Liabilities	91	273	281	290	299
Total Liabilities	13,014	1,224	1,303	1,488	1,580
Share capital	0	0	0	0	0
Other equity	0	(0)	(0)	(0)	(0)
Reserves	354	12,261	13,874	15,568	16,346
Accumulated loss (retained earnings)	(11,447)	(11,168)	(13,012)	(14,585)	(16,015)
Total Shareholders' Equity	(11,094)	1,093	862	984	332
Minority Interest	0	0	0	0	0
Total Equity	(11,094)	1,093	862	984	332

Financial Ratios					
	2023A	2024A	2025F	2026F	2027F
Gross margin (%)	24.7	41.1	45.4	48.6	49.0
S&M expense to revenue (%)	32.6	25.5	23.0	13.9	9.9
G&A expense to revenue (%)	102.1	77.8	62.6	31.1	24.4
R&D expense to revenue (%)	436.2	302.6	204.6	98.2	81.6
Operating profit margin (%)	(543.2)	(369.8)	(253.3)	(99.3)	(71.2)
Net margin (%)	(1,554.2)	66.1	(250.4)	(97.6)	(70.3)
ROE (%)	55.2	(6.3)	(188.7)	(170.4)	(217.4)
ROA (%)	(238.4)	14.8	(82.3)	(67.8)	(65.2)

Company Rating Definition

The Benchmark: Hong Kong Hang Seng Index

Time Horizon: 6 to 18 months

Rating		Definition
Buy	买入	Relative Performance>15%; or the fundamental outlook of the company or sector is favorable.
Accumulate	收集	Relative Performance is 5% to 15%; or the fundamental outlook of the company or sector is favorable.
Neutral	中性	Relative Performance is -5% to 5%; or the fundamental outlook of the company or sector is neutral.
Reduce	减持	Relative Performance is -5% to -15%; or the fundamental outlook of the company or sector is unfavorable.
Sell	卖出	Relative Performance <-15%; or the fundamental outlook of the company or sector is unfavorable.

Sector Rating Definition

The Benchmark: Hong Kong Hang Seng Index

Time Horizon: 6 to 18 months

Rating		Definition
Outperform	跑赢大市	Relative Performance>5%; or the fundamental outlook of the sector is favorable.
Neutral	中性	Relative Performance is -5% to 5%; or the fundamental outlook of the sector is neutral.
Underperform	跑输大市	Relative Performance<-5%; Or the fundamental outlook of the sector is unfavorable.

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