Automotive Industry Weekly Digest

06May– 10May 2024

S&P Global
Mobility

Contents

[Forecast & Analysis Highlights] BYD’s net profit increases by 10.6% YOY in Q1, Seres reports first quarterly profit in Q1

S&P Global Mobility perspective	
Implications	BYD has announced its first-quarter financial results, positing a revenue of 124.94 billion yuan (US$17.2 billion) in the quarter, up 3.97% year over year. Separately, Seres Group posted its first quarterly profit in the first quarter thanks to increased sales of new-energy vehicles (NEVs).
Outlook	BYD’s light-vehicle sales are expected to further pick up the pace in the second quarter, helped by rising exports and price cuts on 2024 model year vehicles in China. Regarding Seres Auto, based on strong order intake for the new M7 and M9, S&P Global Mobility’s latest forecast sees the AITO brand selling 405,000 vehicles in 2024, compared with fewer than 110,000 units in 2023.

Seres

BYD has announced its first-quarter financial results, positing a revenue of 124.94 billion yuan (US$17.2 billion) in the quarter, up 3.97% year over year. Net profit attributable to shareholders of the listed company reached 4.57 billion yuan in the first quarter, up 10.6% year over year. Its total operating cost rose by 4.8% year over year in the quarter to 120.73 billion yuan. Research and development (R&D) expenses in the first quarter reached 10.61 billion yuan, up 70% year over year. In the first quarter, BYD’s new-energy vehicle (NEV) sales increased by 13.4% year over year to 626,263 units. Sales of battery-electric vehicles (BEVs) were 300,114 units, up 13.4% year over year, while sales of plug-in hybrid electric vehicles (PHEVs) rose by 14.5% year over year to 324,284 units.

Separately, Seres Group posted its first quarterly profit in the first quarter thanks to increased sales of NEVs. The company’s revenue rose by 421.8% year over year in the quarter to 26.56 billion yuan. Net profit attributable to shareholders of the listed company was 220 million yuan, compared with a net loss of 155.64 billion yuan in the fourth quarter of 2023. Gross margin for the first quarter was 21.5%, improved from 13.4% in the prior quarter. The company attributed its improved profitability to its effort to cut operating cost and sales ramp of the new

AITO M7 sport utility vehicle (SUV). In the first quarter, sales of the company's NEVs rose by 375% year over year to 94,825 units. Vehicle sales of its subsidiary Seres Auto, which produces AITO-branded models in a partnership with Huawei, totaled 84,065 units, up 620% year over year.

Outlook and implications

BYD's vehicle sales are expected to further pick up the pace in the second quarter, helped by rising exports and its "Electricity cheaper than oil" campaign aimed at promoting its competitively priced BEVs and PHEVs. The company dropped prices of its Qin Plus and Destroyer 05 sedans in February. The pricing campaign targeted at rivaling models from Japanese and German carmakers expanded in February and March to include the Dolphin, and Seal from its Ocean series. Both models have a reduced sales price for the 2024 model year to appeal to car buyers. BYD also made progress in expanding its presence in the premium vehicle market in the first quarter. Cumulative deliveries of the Yangwang U8 luxury off-road SUV topped 5,000 units by the end of April in just 132 days since its delivery began. Yangwang's model range will be further expanded in 2024 to include a large electric sedan featuring BYD's quad-motor powertrain.

In the Chinese NEV market, Seres' presence is mainly represented by Seres Auto, which is primarily focused on BEV and range-extended-electric vehicle (REEV) manufacturing and sales. The Chinese automaker backed by China's state-run carmaker Dongfeng posted its first quarterly profit in the first quarter of 2024 thanks to strong sales of its AITO brand, managed by Seres Auto. Models of the AITO are developed with Huawei and features the tech company's intelligent vehicle technologies. Huawei has played a critical role in Seres' business turnaround, enabling the loss-making company to gain a footing in China's highly competitive SUV market. The AITO M5, M7 and M9 have adopted Huawei's full suite of automotive solutions ranging from electric powertrain, lighting and smart cabin system to automated driving technologies. By wholesales volumes, the 2024 M7 ranked as the third-highest-selling model in China's midsize SUV market, trailing only behind the Tesla Model Y and BYD Song Plus. According to Huawei, AITO has received 174,000 orders for the 2024 M7, which is a midsize REEV, since its sales launch in October 2023. Sales of the AITO are expected to further increase in the second quarter with the 2024 M5 and the all-new M9 flagship SUV gaining traction.

[Forecast & Analysis Highlights] Lear reports record revenue in Q1, acquires automation company

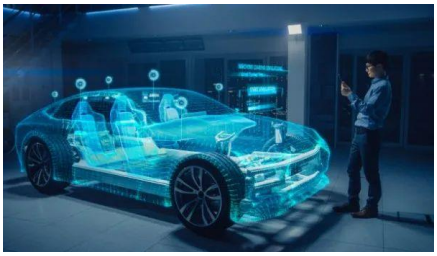
When it reported first-quarter 2024 financial results, automotive industry supplier Lear noted a first-quarter record revenue of US$6.0 billion, up 3% from the first quarter of 2023. In the first quarter, Lear’s net income and adjusted net income of US$110 million and US$183 million, respectively, were mixed. Net income was down from US$144 million in the first quarter of 2023, but adjusted net income was lower than US$166 million a year ago. up from US$118 million and US$168 million in the corresponding period of 2022. Core operating earnings reached US$280 million, 4.7% of sales, a bit higher than 4.5% in the first quarter of 2023. The company’s improved sales were the result of new business in both the seating and the E-Systems segments, partially offset by lower production on key Lear platforms, the supplier said. In the seating segment, Lear’s net sales reached US$4.48 billion, similar to US$4.45 billion in the first quarter of 2023, and adjusted earnings were US$294.9 million, compared with US$300.4 million a year ago. The seating segment’s margins were 5.4% in the first quarter of 2024, down from 6.4% the year before. In the E-Systems segment, Lear’s net sales were US$1.52 billion in the last quarter, up from US$1.39 billion in the first quarter of 2023. Lear’s E-Systems margins improved to 3.6% in the quarter, from 3.0% in the same period last year. Adjusted segment margins were 5.1% in the first quarter of 2024, versus 3.5% in the same period of 2023. Lear reported net cash used by operating activities of US$34.6 million in the first quarter, with free cash used of US$148.2 million, versus free cash used of US$147.4 million the year before. In a statement, Lear president and CEO Ray Scott said, “Lear started 2024 strong, delivering record first quarter total company revenue and improved year-over-year margins in E-Systems for the seventh consecutive quarter. We have made substantial progress on our thermal comfort strategy, and during the quarter, initiated the validation of our first complete seat module scheduled to launch in 2026 with a global automotive manufacturer. In E-Systems, we continue to leverage our strong relationships to diversify our customer base, leading to our second wire award with BMW. Today, we are introducing IDEA by Lear, an evolution of our commitment to develop innovative products and utilize automation to grow revenue, improve margins and extend our leadership position in operational excellence.” IDEA (Innovation, Digital, Engineered, Automated) strategy aims to fully embrace automation to protect the supplier from wage inflation, but also to streamline manufacturing and improve throughput and safety, Scott reportedly said on the quarterly earnings call. Supporting this agenda, Lear noted that it purchased an automation and intelligence company in Spain called WIP Industrial Automation. Financial terms were not disclosed; WIP was a supplier to Lear prior to the acquisition. That deal is expected to close in the fourth quarter of 2024.

Outlook and implications

Lear reported a US$2.8 billion core sales backlog for 2024 through 2026, with sales in both business segments, although Lear also noted that this figure was impacted by launch delays on key EV programs. Lear guidance for 2024 is unchanged. The supplier said it expects net sales to increase to US$24.0–24.6 billion in 2024, which would be another record. Lear’ s expectations on core operating earnings are between US$1.16 billion and US$1.31 billion this year, and guidance on adjusted EBITDA is between US$1.79 billion and US$1.96 billion. Lear plans capital spending of about US$675 million in 2024, compared with about US$635 million in 2023. The company indicated that its key concerns for 2024 are wage inflation and EV uncertainty. The wage inflation concern is a global one for Lear, as it sources 85% of its work force from low-cost countries. With first-quarter earnings, Scott says that Lear closed plants in Europe and moved labor to North Africa to reduce wage costs, and the purchase of automation company WIP Industrial Automation was part of an effort to use automation and artificial intelligence to improve margins and position the company for the future.

[OEM Highlights] Renault Group in talks with Li Auto, Xiaomi regarding technology collaboration

Renault Group has held talks with a broad array of Chinese companies on potential technology collaboration, reports Reuters. François Provost, Renault's Chief Procurement, Partnerships & Public Affairs Officer, said in a post on social media site Linkedin, "Our CEO Luca de Meo engaged in pivotal conversations with industry leaders, including our partners Geely and Dongfeng, key suppliers but also the new players like the founders of Li Auto and Xiaomi Technology." The senior executive added in the post that "together, they explored the groundbreaking advancements in electric and intelligent vehicle technologies shaping the #automotive landscape in China."

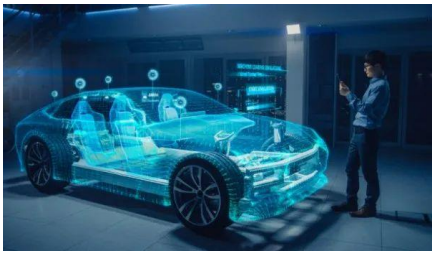


Outlook and implications

De Meo's discussions with executives at these various companies coincided with Beijing (China) hosting the Auto China 2024 motor show that began last week. Despite Renault Group's presence in the Chinese market being relatively minimal, mainly now focused on the production of the Dacia Spring battery electric vehicle (BEV) for export, this would have been an opportunity for De Meo to meet with various players in the automotive industry there over a short time period. This included existing partners such as Dongfeng (which supports the assembly of the Dacia Spring) and Geely, which has become an increasingly broad relationship, that includes a joint venture (JV) in the area of internal combustion engine (ICE)-based powertrain development and manufacture, alongside collaborations on vehicle development and assembly. However, by far the most interesting name drops that took place in Provost's Linkedin post were those of Li Auto and Xiaomi Technology, two relatively new players in the automotive space that are putting technology at the forefront of the development of their businesses. It could be that Renault Group sees such companies as an opportunity for its Ampere business unit alongside the likes of Google and Qualcomm, especially now that it has cancelled its initial public offering (IPO) of this unit.

[OEM Highlights] Toyota partners with Tencent on AI, cloud computing, and big data for EVs

Toyota Motor has revealed its strategic partnership with Tencent Holdings, a major Chinese internet company, to collaborate on artificial intelligence (AI), cloud computing, and big data for the Japanese automaker's electric vehicles (EVs) sold in China. Hiroki Nakajima, Toyota's vice-president and chief technology officer, made the announcement at a press conference during the Beijing Auto Show, as reported by Nikkei Asia.



Outlook and implications

Tencent, a globally renowned internet and technology firm, was established in 1998 and is headquartered in Shenzhen, China. The company provides a wide array of services, including cloud computing, advertising, and fintech, all aimed at facilitating digital transformation. Toyota's collaboration with Tencent is primarily aimed at enhancing in-car software, a critical component of future vehicles. In the area of software technology, Toyota is stepping up efforts in all markets to update its vehicles with advanced safety technologies, multimedia, and other functions. The automaker is working on incorporating Arene OS, a state-of-the-art software platform that operates more than 200 vehicle functions, into its future models to help accelerate the intelligence of cars. The company is also working toward the development of autonomous vehicle (AV) technology.

[Technology & Mobility Highlights] Hyundai Motor, Kia collaborate with Baidu on connected car technology

Hyundai Motor Company and Kia Corp. have signed a memorandum of understanding (MOU) with Baidu to expand their presence in the Chinese connected car market, reports Business Korea. Their collaboration will focus on areas such as connectivity, autonomous vehicles (AVs), intelligent transportation systems, and cloud computing. They will also develop compliance solutions using Baidu's smart cloud to comply with China's data regulations. Additionally, Hyundai and Kia will enhance their existing businesses and explore new products, businesses, and business models leveraging Baidu’ s artificial intelligence (AI) technology.

Outlook and implications

The collaboration between Hyundai and Baidu dates back to 2014 as they have jointly implemented various connectivity systems in cars, including communicative navigation, voice recognition services, and smart content services. The partnership with Baidu aligns with Hyundai Motor Group's strategy of transitioning to software-defined everything (SDx) and creating a user-centered mobility ecosystem driven by software and AI. Hyundai Motor Group plans to transform all of Hyundai’ s and Kia's cars into software-defined vehicles (SDVs) by 2025 under an 18 trillion South Korean won investment plan.

[EV & Energy Efficiency Highlights] CATL unveils ultra-fast-charging LFP battery with 1,000-km range

Chinese battery-maker CATL has unveiled its Shenxing Plus battery during the Auto China 2024 expo in Beijing, which runs from April 25 to May 4. CATL claims the new lithium-iron-phosphate (LFP) battery boasts a driving range of 1,000 kilometers (km) under the China Light-duty Vehicle Test Cycle (CLTC). The new LFP battery also has ultra-fast-charging capabilities. It takes just approximately 10 minutes for the battery to add a range of 600 km, according to CATL. The Shenxing Plus battery has an energy density of 205 Wh/kg, comparable to most NCM batteries based on lithium, nickel, manganese and cobalt oxides.

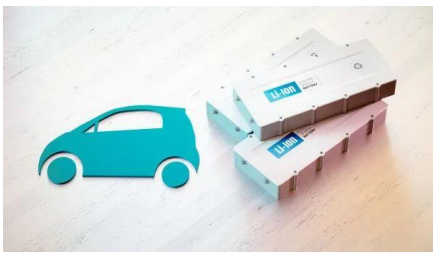
Outlook and implications

CATL's new Shenxing Plus battery is expected to offer an industry-leading performance for LFP batteries. The new battery can accommodate DC fast charging at 700 kilowatts (kW). In comparison, ultra-fast-charging batteries used in Chinese electric vehicle (EV) manufacturer Xpeng's G6 supports DC charging at 280 kW. CATL did not announce its timeline to deploying the new battery in mass-market EVs. The battery maker said it is launching its fast-charging service network in China in collaboration of major charging station operators to improve the charging experience of EV drivers.

[EV & Energy Efficiency Highlights] Rivian to open charging network to all compatible EVs

US electric vehicle (EV) manufacturer Rivian says it will open its Rivian Adventure Network of EV charging stations to all compatible vehicles later this year. Additionally, the automaker has announced a new charger style for its DC fast-charging network. In a company statement, Rivian says the new charger will have a longer

cable to accommodate differences in vehicle charging locations. The new, in-house-developed charger is taller than the previous one and will deliver rapid charging to 400-volt and 800-volt battery packs, the company says. The chargers will have Combined Charging Standard (CCS) connectors, but will also charge EVs equipped with the Tesla North American Charging Standard (NACS) connector with an approved adapter. In the future, Rivian DC fast chargers will be supported with the native hardware and will not need an adapter, the company says. Rivian says the new charger will have a larger screen than the previous one and a tap-to-pay terminal to ensure customers can pay with or without the Rivian app. Rivian says its charging network has an uptime of 98%. Later this year, Rivian says it will use the new charger at new Adventure Network sites, though existing sites will be retrofitted as well. Rivian states that, where possible, the sites will be built with a trailer-friendly charger. According to media reports, Rivian currently has about 400 chargers in its network and plans to expand this to about 3,500 DC fast chargers and more than 10,000 Level 2 chargers.



Outlook and implications

Rivian’s decision to open the Rivian Adventure Network of EV charging stations to other automakers’ vehicles, as well as ensuring that it has CCS connectors and tap-to-pay capability, may make the company eligible for US government incentives through the National Electric Vehicle Infrastructure program. Ultimately, this may help Rivian offset its costs and assist the development of a more-robust EV charging infrastructure in the US. Rivian launched its first chargers in June 2022 and produces its chargers at its factory in Illinois. Rivian’s new charger plans also address the observation that many other charging companies have developed chargers with smaller screens and shorter cords, as well as very few taking into account the potential for an EV needing to charge while towing. EV port placement is far from consistent across the auto industry. Some charging ports are on the right and some are on the left side of an EV, while some are in the front fender, some are placed in the rear, some are place in a similar position to a traditional gasoline port, and others are in the front fascia. The ability to be flexible regarding chargers is becoming increasingly important. While Rivian is continuing to develop its charging network, it is no longer free to Rivian EV owners, and the company is among those which have worked out an agreement with Tesla for access to its Supercharger network.

[Supplier Highlights] Evonik showcases single-material PA-12 car seat concept at Chinaplas

Evonik's PA 12 has been widely applied in the manufacture of automotive fuel lines, cooling lines, hydrogen fuel lines and tanks, and high-voltage electrical busbars for new energy vehicle

Source: Getty Images/Akhmad Bayuri

Evonik has unveiled a concept car seat made solely of Vestamid polyamide (PA) 12 at Chinaplas in Shanghai, Plastics Today reported on April 25. The seat not only contributes to less material consumption during production but is also in line with circularity design.

Evonik is one of the world's largest producers of polyamide 12 (PA 12), which it markets as VESTAMID® L. Vestamid PA 12 is used in the seat’ s flexible foam via a supercritical foaming process, structural parts, and textiles.

Evonik's PA 12 has been widely applied in the manufacture of automotive fuel lines, cooling lines, hydrogen fuel lines and tanks, and high-voltage electrical busbars for new energy vehicles, meeting the thermal and power management needs of new energy vehicles.

[Supplier Highlights] Infineon, Etas collaborate to enhance vehicle security with integrated software stack

The new Infineon TC4X series devices offer granular access control with customizable ASIL levels for enhanced security

Source: Getty/Chesky_W

Infineon Technologies has collaborated with Etas, a software provider for the automotive industry, to integrate Escrypt CycurHSM 3.x Automotive Security Software Stack into the AURIX TC4X Cybersecurity Real-time Module (CSRM), as reported in a press release on April 29.

This integration aims to enhance security levels, performance and functionality in software-defined vehicles. The AURIX TC4x family is compliant with the latest ISO SAE 21434 cybersecurity standard and features a CSRM with dedicated memory and a cybersecurity satellite (CSS). The CSS provides accelerators for cryptographic services that can be executed in parallel, improving throughput when combined with Escrypt CycurHSM 3.x. Additionally, virtualization support enables the configuration of multiple virtual instances, allowing for flexible boot-up sequences and independent dynamic updates for each virtual instance.

Access control can be configured granularly, with individual ASIL levels assigned to each virtual instance, enabling different security applications. The first device of the new Infineon TC4X series is already secured with Escrypt CycurHSM 3.x, and the hardware compatibility of CSRM and CSS enables a smooth porting of Escrypt CycurHSM 3.x to other derivatives of the TC4X family.

[VIP ASSET] BriefCASE: Taiwan earthquake puts the spotlight back on chip supply chain diversification

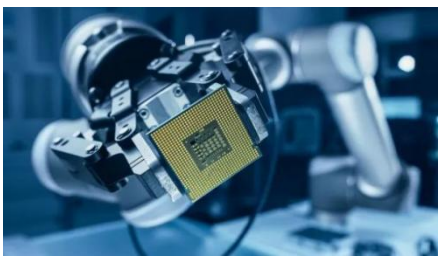
The automotive industry faced one of its worst crises during the years following the Covid-19 pandemic in 2020 when the semiconductor shortage caused disruptions and delays in light vehicle production globally on an unprecedented scale. So, on April 3, 2024, when an earthquake of magnitude 7.4 hit Taiwan, the strongest in 25 years, there was a sense of trepidation in the industry. Taiwan dominates advanced logic chip production, manufacturing over 90% of leading-edge semiconductors globally.

With almost all complex automotive chips relying on Taiwanese foundries like Taiwan Semiconductor Manufacturing Co (TSMC), Taiwan is an irreplaceable player in the automotive electronics supply chain. While the geographic concentration of production in Taiwan allows impressive economies of scale, it also poses supply continuity risks. Natural disasters or geopolitical tensions involving Taiwan could quickly ripple through the automotive industry.

Impact of earthquake on semiconductor production

Semiconductor production is a delicate process, highly susceptible to even the slightest vibrations. A single tremor can potentially ruin entire batches of precision-made chips, posing significant challenges for firms located in quake-prone regions like Taiwan.

The industry highly depends on companies like TSMC, one of the largest contract chipmakers, for 7nm and lower leading-edge process nodes. Any disruption in TSMC's supply of these advanced nodes could ripple across multiple sectors, disrupting production schedules and delaying product launches.



The good news for the supply chain is that most semiconductor firms have reported no significant damage and have begun resuming operations. TSMC was among those affected. The firm immediately halted some

chipmaking machinery and evacuated staff from certain areas. TSMC said in a statement,"Overall tool recovery of our fabs reached more than 70% within 10 hours of the April 3 earthquake, with new fabs such as the Fab 18 facility reaching more than 80%. Apart from certain production lines in areas that experienced a greater seismic impact, equipment in Taiwan fabs have largely been fully recovered as of April 5 thanks to the collaborative efforts of TSMC colleagues and our supplier partners."

Several semiconductor and technology manufacturers, such as UMC; Micron, a company specializing in memory and storage chips; and Foxconn, a key supplier for Apple, stated they were assessing the potential effects of the earthquake on their facilities in Taiwan. However, they expressed optimism, suggesting that any consequences would be minimal.

Specialty memory IC company Windbound said in a press release that the seismic event triggered self-protection mechanisms in certain machinery at Winbond's CTSP Fab and Kaohsiung Fab facilities, but there were no significant disruptions to its operations.

Nvidia, which relies heavily on TSMC for sourcing many of its chips, announced that it anticipated no disruptions to its supply chain. "After consulting with our manufacturing partners, we don't expect any impact on our supply from the Taiwan earthquake," Nvidia said in a statement.

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[VIP ASSET] The shift to software-defined vehicles: Q&A with Nio

Continuing our series of interviews with leading suppliers of SDV solutions, we spoke to Nio.

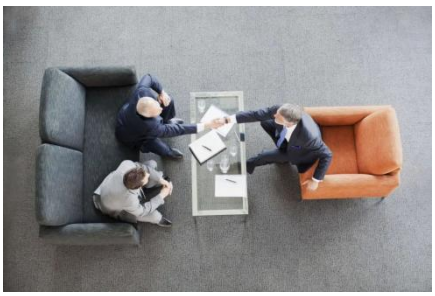
Software-defined vehicles (SDVs) use software to govern operations, incorporate new features and facilitate the integration of novel functionalities. This concept marks an advancement in the automotive industry, laying the foundation for autonomous driving and vehicle connectivity technologies.

The evolution of SDVs entails separating software and hardware development, like smartphones. Original equipment manufacturers are establishing "walled gardens" for applications. This shift encompasses continuous agile software development, heightened computing requirements for data processing, a modular service-oriented architecture and fortified security measures against cyberthreats.

The automotive industry is rapidly advancing toward SDVs, with the promise of improved comfort, safety and customization. As collaborations between OEMs and tech companies flourish, SDVs present additional challenges such as cybersecurity risks and design intricacy.

The transition from domain to centralized architecture is also progressing, converting vehicles into mobile data centers. In this transformative journey, standards, collaborations and digital twin technology stand out as critical components, promising a future where software dictates the driving experience.

To delve deeper into this transformation, S&P Global Mobility initiated discussions with leading players in the SDV market, including Nio. To learn more, we spoke to Lucas Huang, Nio's senior director and senior expert of Digital Program Management. Nio has eight smart electric models in its lineup, including the sport utility vehicle (SUV) ES8, coupe SUV EC7, mid-large SUV ES7, sedan ET7, SUV ES6, coupe SUV EC6, midsize sedan ET5 and midsize tourer ET5 Touring. In December 2023,the ET9 made its global debut, and the delivery is expected to start in 2025.



Key takeaways:

- The automotive industry is undergoing a transition from domain architecture to centralized compute units (CCUs) in SDVs. This shift is accompanied by the increasing software component in vehicles, which requires more powerful chips and a focus on software architecture.

- The transition to CCUs presents opportunities for customization, infotainment and user interaction in SDVs. The vehicle operating system (OS) plays a crucial role in ensuring software stability and reusability, enabling efficient software upgrades and enhancing the user experience.
- Challenges in SDV design include aligning software development with hardware and OS changes, ensuring functional safety and cybersecurity, and effectively managing softwarerelated changes. OEMs are actively engaging in the development process and exploring new collaboration modelswith suppliers to deliver high-quality products and enhance ecosystem integration.

Lucas Huang
Nio Senior Director and Senior expert in Digital Project Management

About NIO：

NIO is a global smart electric vehicle company. Founded in 2014, NIO has been committed to shaping a joyful lifestyle by offering high-performance smart electric vehicles and ultimate experience. Nine years into establishment, NIO is one of the leading companies in the global premium smart electric vehicle market, and also the first car company listed on the NYSE, HKSE and SGX.

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