Automotive Industry Weekly Digest

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S&P Global
Mobility

Contents

[OEM Highlights] UK hopes to attract Chinese automakers

The UK government is working on measures to attract Chinese automakers to build vehicles in the country. Minister for Investment and Regulatory Reform Dominic Johnson was quoted by Reuters at a foreign direct investment summit as saying, “Chinese investment is crucial if we're to achieve our net zero goals... I welcome strong business collaboration between the UK and China when it comes to investing in each other's countries.” He said that he would rather see Chinese vehicles that were made in the UK than imported, adding, “Absolutely, I have an ambition to try and attract a Chinese car manufacturer.”

Outlook and implications

While the UK has had some success recently in attracting battery electric vehicle (BEV) related investment, light-vehicle production volumes are set to remain far below where they were during the previous decade. Johnson’s comments suggest that he is keen to open the door to Chinese automakers, which might be attracted by the possibility of the country providing a bridgehead into the EU if it can meet the local component content numbers to achieve tariff-free trade. However, it may struggle to achieve this unless the UK changes how the National Security and Investment (NSI) Act is applied; this currently makes it especially difficult for Chinese-backed deals. In his comments, Johnson said he was concerned that the act created an "impression of friction", but that it had only been used to intervene in a small number of deals overall, adding it was right to have a safeguard. Some Chinese automakers have previously assembled products in the UK, most notably SAIC which built MG brand products in Birmingham until 2016. This was in very limited numbers though, and any investment that the UK government would be hoping for would have to be far more substantial.

[OEM Highlights] Huawei-Changan JV indicates tech company's growing influence

S&P Global Mobility perspective	
Implications	Huawei's decision to move core technologies and resources in its smart car unit to a new joint venture (JV) with Changan Auto is an indication of the tech giant's growing influence in the automotive sector as a key supplier of intelligent vehicle technologies.
Outlook	Huawei also has partnerships or collaborations with Seres, Chery, JAC and BAIC, but it is too soon to tell whether the Huawei technology-powered models will be able to reach significant sales volume levels as they will be targeted at different vehicle segments and some of them are not being developed for the mass market. Collaborating with different automotive companies also presents challenges to Huawei, although apparently, the tech giant is already playing a leading role in its partnership with Seres.

Luxeed

Huawei's decision to move core technologies and resources in its smart car unit to a new joint venture (JV) with Changan Auto is an indication of the tech giant's growing influence in the automotive sector as a key supplier of intelligent vehicle technologies.

According to Huawei, up to 40% of the shares in the new JV company are to be held by Changan Auto, and the new company will open up its equity gradually to other key strategic partners of Huawei. With Huawei moving its smart car unit to the JV, the new company will be able to provide Huawei's full suite of intelligent vehicle technology, including intelligent driving solutions, smart cockpits, digital platforms, intelligent car clouds, artificial reality-head-up display (AR-HUD) and car lights, to Changan as well as other interested automotive OEMs. In addition, Yu Chengdong, the head of Huawei's smart vehicle business unit, has said that China needs a smart electric vehicle (EV) platform that is headed by "a locomotive" and co-built by automotive companies, according to a report by the China Daily.

Huawei also has partnerships with Chinese automakers Seres Group and Chery, and the tech giant is working closely with JAC and BAIC on new vehicle projects. New models from its partnerships with JAC and BAIC will expand Huawei's offerings under the Harmony Intelligent Mobility Alliance (HIMA), a brand that the tech company announced during the 2023 Guangzhou Motor Show earlier this month. According to Chinese business media source the Paper, Yu said that Huawei will play a leading role in technology development by the new JV company. He also said that current business partners in the HIMA will join the new company gradually.

Responding to media and investors' inquiries regarding the status of its partnership with Huawei, Seres said in a post on the Weibo social media platform that changes to Huawei's smart car unit will not affect its long-term

partnership with the tech company. Huawei will continue to supply components and parts to Seres under contracts already signed. The Chinese automaker said it is weighing up a proposal from Huawei regarding investing in the new company. Huawei's partner JAC said in a company statement that it is closely following Huawei's move to set up a standalone company for its smart car business and it will actively engage in talks with Huawei on further cooperation.

Outlook and implications

The new joint venture company led by Huawei and Changan will be joined by other automotive OEMs in the Harmony Intelligent Mobility Alliance, according to Yu. Although talks between Huawei and its partners on investing in the new JV company are still at the early stage, the results of such talks and the timelines will not affect Huawei's role in its partnerships with its "strategic partners." The appeal of the Huawei brand and its technology capabilities have already been proven by rising sales of AITO's models, especially the new M7. According to AITO, a brand introduced by Huawei and Seres, cumulative order volumes of the new M7, which is a large sport utility vehicle, have topped 100,000 units as of Nov. 27. However, for Huawei to scale its automotive sales, it will need to sell its technology solutions to high-volume carmakers such as Changan. In the first half of 2023, Huawei's total revenues reached 310.9 billion yuan (US$43.6 billion), while its smart car business unit only posted revenue of 1 billion yuan. Changan's strong manufacturing capacities and its diversified model ranges covering mass-market and premium offerings make it an ideal partner for Huawei to expand its presence in the automotive sector, as a tier-one technology supplier and a business partner that strengthens OEMs' capacities. Under a partnership with Chery, Huawei is due to launch soon the Luxeed S7, a large electric sedan, in China. JAC is also working with Huawei to develop a full range of premium vehicles powered by Huawei's latest electrification and smart cabin technologies.

It is still too soon to tell whether these Huawei technology-powered models will be able to reach significant sales volume levels as they will be targeted at different vehicle segments and some of them are not to be developed for the mass market. Collaborating with different automotive companies also presents challenges to Huawei, although apparently, the tech giant is already playing a leading role in its partnership with Seres.

[OEM Highlights] BYD introduces Han EV in UAE

BYD opened its new flagship showroom in Dubai, United Arab Emirates, on Nov. 22 and officially launched the Han electric vehicle (EV) for the UAE market. The new showroom is located in Dubai Festival City Shopping Center, covering an area of approximately 800 square meters. It is unclear at this stage when deliveries of the Han EV will begin in the country.

Outlook and implications

BYD has already introduced the Atto 3 electric crossover in the UAE; this is the automaker's best-selling compact model in the global market. As a flagship BYD sedan, the Han EV will target premium EV buyers in the UAE. The Han EV available for reservation in the UAE market comes as standard with a dual-motor powertrain and an 85.4-kWh battery. The model's estimated Worldwide harmonized Light-duty vehicles Test Cycle (WLTC) range is 521 km. BYD is currently working with Al-Futtaim Electric Mobility Co. to expand its model range in the UAE. By March 2024, BYD plans to introduce three more models to the market, including two plug-in hybrid options.

[Technology & Mobility Highlights] Suzuki participates in autonomous vehicle project to commercialize smart mobility services

The Hamamatsu Autonomous Driving Yaramaika Project, established in September 2016, has launched its fourth demonstration experiment to commercialize smart mobility services. Suzuki Motor Corporation, Boldly Corporation (formerly SB Drive), and Enshu Railway Co. are participating in the project that aims to enhance regional transportation convenience, address regional public transportation issues, and promote regional industry, according to a company statement. The fourth demonstration experiment, which will run for three months, will provide residents of Shonai and Yamazaki regions in Nishi-ku, as well as Hamamatsu City in Japan, access to a free autonomous mobility service along a predetermined route. The focus of the experiment is to verify how customers use the service over a long period of time and identify issues with the service operation system.

Outlook and implications

This development is in line with the Japanese government's efforts to create smart cities with reimagined transportation. Japan enforced a revised road traffic law in April, allowing Level 4 autonomous vehicles (AVs) to operate on public roads under certain conditions. Japan's government aims to have mobility services featuring Level 4 AVs in 40 areas by 2025 and more than 100 by 2030. The government is also planning to build a section of the Shin-Tōmei Expressway for autonomous truck operations by 2024 to cope with a severe shortage of drivers in the country.

[Technology & Mobility Highlights] Holo signs agreement with largest new-energy vehicle company in China, expected to revolutionize industry

Holo to provide holographic vision tech for NEVs, expanding AI capabilities

Source: Getty image/ gorodenkoff

MicroCloud Hologram Inc. (Holo), a provider of Hologram Digital Twins Technology, announced that its subsidiary has signed an agreement to provide a common streaming media control system for China's largest new-energy vehicle (NEV) company.

The agreement is expected to bring a breakthrough in the NEV business. The NEV company, which is the largest in China and worldwide in terms of sales volume, has sold over 2.3 million cars in 2023, and has a presence in over 70 countries and regions globally. Under the agreement, Holo will provide design and development solutions for a common streaming media control system, including hardware and software design, data analysis, optical analysis, platform-based analysis, system analysis and imaging analysis, a PRNewswire release dated Nov. 28 stated.

Additionally, Holo will conduct relevant electromagnetic compatibility (EMC), performance, environmental and other tests, and deliver the system to the NEV company. The agreement also reserves expandable AI functions.

Holo will provide integrated holographic vision software and hardware solutions for NEVs, including holographic light detection and ranging solutions based on holographic technology; holographic vision, point-cloud algorithm architecture design; technical hologram solutions; holographic light-sensor chip design and holographic vehicle intelligent vision technology. The cooperation between Holo and the NEV company is expected to bring positive financial impact on the overall operating income of both parties.

[EV & Energy Efficiency Highlights] CATL considers listing in Hong Kong

Mainland Chinese battery maker CATL is reportedly seeking a potential listing in Hong Kong to fund its global expansion. According to China Daily, CATL could float its shares in the Hong Kong Stock Exchange as early as next year. CATL is the world's largest electric vehicle (EV) battery manufacturer with more than 35% of market share. The company is currently listed in mainland China's Shenzhen Stock Exchange.

Outlook and implications

CATL is said to intend to raise funds through a listing in Hong Kong to fund its expansion in the overseas market. The company has already opened battery manufacturing plants in Germany and is constructing a new plant in Hungary. Earlier this week, it entered into a non-binding agreement with Stellantis to supply its LFP batteries for Stellantis's EVs made in Europe. The two are also in talks to set up a batter joint venture in Europe. In October 2022, mainland Chinese battery maker CALB launched an initial public offering (IPO) in Hong Kong, becoming the first EV battery maker listed on the Hong Kong Stock Exchange. CALB raised US$1.28 billion in the IPO, the largest in Hong Kong in 2022.

[Supplier Highlights] Panasonic launches virtual cockpit solution on AWS Marketplace, accelerating vehicle development cycles

This new offering allows automotive developers and vehicle-system validation teams to work in parallel

Source: Getty Images/Jackie Niam

Panasonic Automotive Systems Co. of America has launched a virtual replica of its Digital eCockpit Solution, called Virtual SkipGen (vSkipGen), on Amazon Web Services (AWS) Marketplace. This new offering allows automotive developers and vehicle system validation teams to work in parallel, shifting the development life cycle left and reducing time to market, said a PRNewswire release dated Nov. 28.

VSkipGen leverages industry-standard VirtIO-based device virtualization technology, providing multiple guest operating systems, including fully optimized support for Android Automotive and Automotive Grade Linux. The virtual platform also offers cloud-native capabilities, utilizing cloud servers' computing power for hardware acceleration and delivering premium experiences.

According to Masashige Mizuyama, global chief technology officer of Panasonic Automotive Systems Co. Ltd., the vSkipGen on AWS is designed for those seeking the most advanced software-defined vehicle features available today. Andrew Poliak, chief technology officer of Panasonic Automotive Systems Co. of America, added that the partnership with AWS enables development teams to work in parallel, conduct more predictive integration and testing earlier in the process, and support third-party and app development.

Panasonic has invested in advancing the software-defined vehicle to support market growth and its environmental goals, eliminating the need for a development or prototype hardware platform, and saving resources and components.

[Supplier Highlights] TDK releases new ASIL C-ready, stray-field robust 3D HAL sensors for automotive applications

Both sensors empower precise position detection with robust stray-field compensation capabilities

Source: Getty image/ 3dan3

According to a press release announcement on Nov. 28, TDK Corp. further extended its Micronas 3D HAL position sensor family with the new HAL 3930-4100 and HAR 3930-4100 for automotive applications. Both sensors empower precise position detection with robust stray-field compensation capabilities, offering flexible digital output interfaces in the form of pulse width modulation (PWM) or single-edge nibble transmission (SENT).

The single die devices are defined as Safety Element out of Context (SEooC) ASIL C-ready, according to ISO 26262, and can be integrated in automotive safety-related systems up to ASIL D. The sensors are suitable for applications such as steering angle position detection, transmission position detection, shifter position detection, accelerator and brake pedal position detection. The start of production is planned for January 2024; samples are now available on request.

Both sensors offer user-configurable PWM or SENT output interfaces, which enhances adaptability. Additionally, the sensors introduce a switch output with versatile high- and low-side switch configurations. The switch signal originates from calculated position data or other sources along the device's signal path, such as temperature or magnetic-field amplitude. As ASIL C-ready devices, HAL 3930-4100 and HAR 3930-4100 both conduct self-tests when starting up and during regular operation to enhance reliability. These tests are designed to either prevent the sensor from giving incorrect readings or to report errors either via the SENT interface according to the SENT standard or via the PWM interface.

HAR 3930-4100 is the dual-die version of the HAL 3930-4100, providing full redundancy. It is equipped with two independent dies stacked on top of each other, separated both mechanically and electrically. These two dies, while measuring nearly identical magnetic fields, ensure synchronized output signals. This redundancy design, housed within a single package, accomplishes the dual feat of reducing system costs and elevating overall reliability. Smaller printed circuit boards (PCBs) and fewer solder joints further bolster system dependability. The HAR 3930-4100 is conveniently available in a compact SSOP16 package, while the single-die variant is housed in a SOIC8 package.

HAL 3930-4100 and HAR 3930-4100 offer an extensive range of measurement capabilities, encompassing 360° angular measurements, linear movement tracking and the provision of 3D position data for magnets. This 3D position information can be transmitted through SENT or two PWM outputs. Moreover, the sensors feature a

modulo function, primarily tailored for chassis position sensor applications. This function facilitates the partitioning of the 360° measurement range into smaller, more precise segments such as 90°, 120° and 180°.

[VIP ASSET] Forecast Flash Report - November 2023 | Based on October 2023

Passenger vehicle sales in mainland China rose by 6.9% year over year in October to 2.11 million units.

October highlights

Mainland China's passenger vehicle sales continued to improve in October helped by strong government incentives and automakers' pricing campaigns to promote year-end sales.

October overview

Light vehicle (LV) sales in mainland China rose by 8.1% year over year to 2.39 million units in October. Of the total volumes, sales of passenger vehicles (PV) increased by 6.9% year over year to 2.11 million units while sales of light commercial vehicles (LCVs) grew by 18.2% year over year to 0.28 million units.

China PV Sales			% Change
October 2022		1,970,071	
October 2023		2,150,661	6.9%
YTD 2022		17,547,858	
YTD 2023		17,675,871	0.7%
Total Industry	2020	19,807,068	
	2021	20,187,090	2.0%
	2022	21,354,717	5.7%
Total Industry Forecast	2023	22,170,053	3.8%
	2024	23,273, 923	5.0%

Source: S&P Global Mobility © 2023

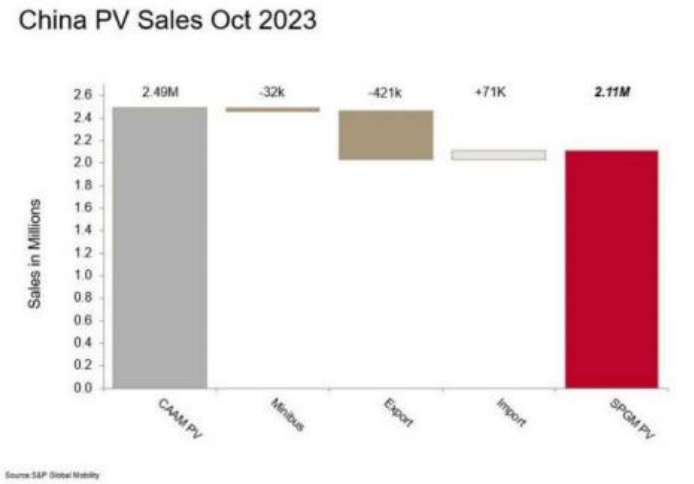
In the year to date(YTD, January to October), light vehicle sales in mainland China increased by 1.9% year over year to 20.21 million units. Of this total, passenger vehicle sales edged up by 0.7% year over year to 17.66 million units, while sales of LCV increased by 10.4% year over year to 2.55 million units (S&P Mobility PV sales data include import car volumes but do not include exports).

Segment-wise, sales of sedan in the YTD decreased 5.1% year over year to 8.48 million units, and sales of sport utility vehicle (SUV) in the same period increased by 4.7% year over year to 8.38 million units. Sale volume of multi-purpose vehicles (MPVs) increased by 30.7% year over year to 0.81 million units.

Note

Due to different definitions, the data from China Association of Automobile Manufacturers (CAAM) and S&P Global Mobility do not generally tally exactly in any given month. CAAM PV definition includes only locally produced sedans, SUVs, MPVs and minibuses, sold on a wholesale basis. S&P Global Mobility PV definition does not include minibuses, which is categorised as a type of LCV.

Demand for new-energy vehicles (NEVs) remained strong in mainland China in October, with wholesales volume at 956,000 units, up 35.5% year over year, according to data from CAAM.



Battery electric vehicles (BEVs) remained the biggest-selling type of NEV last month with sales of646,000 units, up 18.8% year over year. Sales of plug-in hybrid electric vehicles (PHEVs) rose by 80.2% year over year to 310,000 units in the same period. In the year to date, BEV sales increased by 25% year over year to 5.16 million units, while PHEV sales rose by 82.6% year over year to 2.116 million units. NEV sales as a share of the overall new vehicle market reached 33.5% in October. In the first 10 months of the year, NEVs accounted for 30.4% of the new vehicle market.

In our October forecast release, we expect the production volume of new-energy light vehicles in mainland China, which includes BEVs, PHEVs, range-extended electric vehicles (REEVs), to grow by 31% year over year to 9.18 million units in 2023. With solid domestic demand and strong exports, the production volume of new-energy light vehicles in mainland is forecast to rise by 28.5% year over year in 2024 to 11.8 million units.

During 2023, mainland China's NEV market began to grow at a moderated pace due to the high base of 2022. The sector is still in expansion with automakers both global and domestic rolling out new models. Chinese carmakers, including BYD and Li Auto, are dominate players in the mainland China's PHEV market, while Geely Auto and Changan Auto are catching up with their new plugin hybrid vehicles. Global carmakers are predominately focusing on BEVs.

The central-government subsidies for NEV purchases were terminated at the end of 2022.However, NEV purchases are still fully exempt from the new vehicle purchase tax this year, which equals to approximately 10% of the vehicle's purchase price.

The favourable tax policy will be effective through 2027, though with the amount of the exemption not to exceed 30,000 yuan in 2024 and 2025 for newenergy passenger vehicles; in 2026 and 2027, the vehicle purchase tax levied on NEVs will be halved, with the amount of exemption not to exceed 15,000 yuan for passenger vehicles.

Development by Brand

In October, the market share of domestic automakers reached 55.4%. In S&P Global Mobility defined A- and B-segments, domestic brands have collectively seized 90% of the market. Their dominance in the two segments is underpinned by affordable mini-size EVs(priced below US$8,500) with driving range less than 300km; and small-size EVs(US$10,000-18,000), with driving range between 300-420km. Mainland China's domestic brands also extended their lead over Japanese OEMs thanks to the incremental volumes brought by NEVs. In addition to a wider NEV portfolios, Chinese brands also placed more focus on latest incar connectivity technologies, and advanced driver assistance system, which have played an important role in their effort to win over consumers from rivals.

China's vehicle exports reached record levels in October.

Total exports of automakers in mainland China reached 488,000 units during the month, up 44.2% year over year. NEV exports totaled 124,000 units in October, up 12.8% year over year. During January–October, total exports of automakers in mainland China jumped by 59.7% year over year to 3.922 million units. NEV exports totaled 995,000 units in this period, up 99% year over year. The country's top-five vehicle exporters in October were SAIC Motor Group, Chery Auto, Geely Auto, Tesla and Great Wall Motor with shipments of 100,000 units, 94,000 units, 47,000 units, 43,000 units and 35,0000 units, respectively.

Brand highlights
brands continued to have the largest share of the Chinese PV market, followed by German and Japanese brands.

General conditions

Mainland China's official composite output PMI, covering both manufacturing and nonmanufacturing sectors declined by 1.3 points to 50.7 in October 2023, after two months of improvement in August and September. The deterioration in production came with slower growth across the manufacturing, construction and service sectors as October has less working days compared with September because of the week-long National Day holiday. However, the reading was weaker and decline was larger this year than the historical average.

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[VIP ASSET] FCEVs: Gearing up for a new phase in thermal management

FCEVs are being considered as alternatives for medium and heavy commercial vehicles, and government initiatives are further driving the growth of FCEV adoption.

Source: Getty Images/ gchutka

While battery-electric vehicles (BEVs) are set to rule the light-vehicle scene, fuel cell electric vehicles (FCEVs) are starting to carve a decent niche. While absolute volumes will be dwarfed in comparison with BEVs, S&P Global Mobility predicts substantial 33% annual growth in FCEV demand from 2023 to 2029.

BEVs are favored for light vehicles due to strict emission regulations and fuel efficiency targets in major automotive markets, but they are not universal replacements for internal combustion engine (ICE). Automakers are exploring alternatives such as FCEVs, especially for medium and heavy commercial vehicles. Additionally, initiatives such as the US Inflation Reduction Act and China's long-term hydrogen strategy are also shaking up the FCEV industry.

Navigating the niche

S&P Global Mobility estimates that the total demand for FCEVs in 2023, including both light vehicles and medium-heavy commercial vehicles (MHCVs), will amount to just 0.02 million units, with a projected annual growth rate of 33% over the next seven years.

Japan and Korea lead the charge in FCEVs in the light-vehicle market, thanks to government backing and industry interest. Meanwhile, North America is revving up FCEV production, with big players such as Ford and Daimler Truck leading the way and Hyundai’s truck division dipping a toe in the US waters.

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