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Company Analysis: Jingwei Hirain's Automotive and Intelligent Driving Business, 2022-2023

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Founded in 2003, Jingwei Hirain Technologies is headquartered in Beijing, with modern production facilities in Tianjin and Nantong. In 2022, Jingwei Hirain Technologies recorded revenue of RMB4,021 million, a year-on-year spike of 23.27%; its net income soared by 60.96% to RMB235 million.

Jingwei Hirain Technologies ranks ninth in the "TOP10 Tier 1 Suppliers in China's Intelligent Driving Industry, 2023", a report released by ResearchInChina. Jingwei Hirain Technologies went public in 2022, raising a total of RMB3.63 billion. Jingwei Hirain Technologies invested heavily in R&D after its IPO. In 2022, its R&D investment surged by 49.88% on the previous year to RMB683 million, or 17% of the annual revenue.

The automotive business of Jingwei Hirain Technologies is composed of four sectors: Automotive Electronics (sensors, etc.), Domain Controllers and Platforms, Intelligent Driving Solutions, and R&D Services and Solutions.

1. Automotive Electronics

Jingwei Hirain Technologies' automotive electronics offerings include cameras, radars, AR-HUD, T-BOX, and high-precision positioning modules.

In May 2023, Jingwei Hirain Technologies released two self-developed 4D imaging radars: LRR610 and LRR620. LRR610 is a front radar with 48 transmitting channels and 48 receiving channels; as a corner radar, LRR620 has 24 transmitting channels and 12 receiving channels. Both of them feature high resolution in azimuth and elevation, and can distinguish, track and recognize hundreds of objects. They can detect sedans more than 350 meters away, offer a wide field of view while detecting at a long distance, and recognize a wide range of image details in high definition. Both of the 48T48R radar with 2,304 virtual channels and the 24T12R radar with 288 virtual channels can provide a wealth of point cloud information and even enable point cloud imaging of the contour of targets, so they are imaging radars in a real sense.

Moreover, the company has upgraded its convectional radars to meet ENCAP2023 and export requirements, and has completed the research on ultra-short-range radars for such applications as door open warning (DOW), OSD and kick sensing.

4D Front View Imaging Radar - LRR610



Source: Jingwei Hirain Technologies

2. Domain Controllers and Platforms

Jingwei Hirain Technologies has introduced ADCU II (distributed, 2-Boxes), the second-generation driving-parking integrated domain controller for L2.5 and above. It supports 11 cameras, 5 radars, and 12 ultrasonic radars. This product packs the QNX operating system, Jingwei Hirain's self-developed full-stack underlying software and middleware, high-precision positioning function and HD maps, enabling L2+ functions on freeways and urban expressways. In 2022, the product was mass-produced for a new energy vehicle model.

In addition to distributed intelligent driving domain controllers, Jingwei Hirain Technologies has developed the upgrade version of the driving-parking integrated solution. This product adopts a One-Box solution to support 8-megapixel cameras, and features advanced functions like NOA, complying with the ENCAP2023 and export requirements. The company has fulfilled the research and development of the next-generation intelligent driving domain controller prototype based on a Chinese high-compute chip solution.

Jingwei Hirain Technologies announced a central computing platform (CCP) in May 2023, and will spawn and deliver it in late 2023. Based on the previous generation of body domain controllers, the platform uses NXP's latest heterogeneous SoC and AUTOSAR CP&AP as the software and hardware foundation platform respectively, and integrates a range of functions, including central gateway, body and comfort control, new energy vehicle power control, air conditioning and thermal management, vehicle management, total data acquisition, OTA updates, and SOA services. It satisfies ISO21434 cyber security requirements and the ASIL D functional safety standards. So far Jingwei Hirain Technologies has developed and tested this product and produced it in small volume. Meanwhile, the company has established mass-production and supply relationships with quite a few mainstream automakers in China, and will start large volume delivery soon.

Central Computing Platform (CCP)



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3. Intelligent Driving Solutions

Intelligent driving solutions include ADAS solutions, high-level autonomous driving solutions and chassis control units.

Jingwei Hirain Technologies designs and develops a multifunctional and highly-integrated front view ADAS product by integrating the resources of Mobileye, Infineon and Elektrobit among others. This product is available to following models: SAIC Roewe RX5, FAW Hongqi H5/H7/H9/HS5/HS7/E-HS3/E-HS9, Geely Boyue Pro/new Binyue/Emgrand, FAW Jiefang J6/J7, Sinotruk Howo T7, etc.

In 2022, the front view ADAS product was iterated to the fifth generation, with an upgraded 8-megapixel 120° FOV camera and 40% better performance. The single intelligent camera meets the E-NCAP 2023, GSR and export requirements.

In September 2022, Jingwei Hirain Technologies won the bidding for the Longgong Port Autonomous Horizontal Transportation System Project. It will deliver its self-developed autonomous heavy-duty skateboard chassis (HAV) and grouped full stack product solutions of vehicle, road, network, cloud and map, including autonomous driving system, V2X, cloud fleet scheduling management system, simulation system, digital twin, cyber security, and automotive controllers.

4. R&D Services and Solutions

The R&D services of Jingwei Hirain Technologies cover development of electronic and electrical products, simulation testing of vehicle electronic and electrical products, and independent development of embedded software and tool software.

ModelBase, the comprehensive driving simulation test software self-developed by Jingwei Hirain Technologies, is used to design, test and verify the electronic control systems of passenger cars and commercial vehicles, involving MIL/SIL/HIL/VIL in the whole development cycle of electronic control systems. In 2022, Jingwei Hirain Technologies explored new customers like FAW Hongqi, FAW Jiefang, BYD, NIO, Sinotruk, Leapmotor, Human Horizons and CATL, and successfully conducted chassis simulation tests, intelligent driving simulation tests and vehicle simulation tests. In addition, the intelligent driving version adds simulation of intelligent driving sensors (e.g., camera and LiDAR), traffic flow algorithms, enriches traffic scenario elements and are more compatible with co-simulation of various tools. Dark launch has been done.

In 2022, Jingwei Hirain Technologies saw a fast-growing revenue from its automotive network development business, and delivered several production model projects to FAW Jiefang, SAIC-GM-Wuling, Changan Automobile, etc. The company continues more investment in research and development of automotive high-speed communication technology. On the basis of mature 100M and Gigabit Ethernet solutions, it has introduced three cutting-edge technical solutions: multi-G automotive Ethernet design, time-sensitive networking (TSN) design, and data distribution service (DDS) design, and fulfilled the first production model TSN project in China.



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