西牛证券 WESTBULL SECURITIES | RESEARCH

8 Nov, 2021

Intron | 01760.HK

Strong focus in the future:

New Energy Vehicles and ADAS

STOCK RATING	TARGET PRICE
HOLD	HK$ 4.20

Intron (01760HK) is an automotive electronics solutions provider in China, it provides solutions targeting critical automotive electronic components applied in new energy, body control, safety and powertrain systems. Its services cover i) designing, validating and fine-tuning solutions, ii) developing the customized design of the electronic components, and iii) sourcing and delivering advanced semiconductor devices, or electronic components.

Sustainable business model: Intron (01760.HK) primarily focuses on the R&D and it aims at providing the solutions supported by the latest technology to the customers, it i) offers the OEMs and manufacturers a lower cost and higher efficiency modulized solutions, and ii) lowers the entry-level for smaller OEMs which do not have solid R&D. Besides, the Group has built a solid business relationship with the suppliers, it entered into a non-exclusive distribution agreement with Infineon, the largest supplier, in 2016, authorizing the Group to distribute Infineon's automotive semiconductor devices in China and Hong Kong. Moreover, Intron (01760.HK) adopts an asset-light business model, it does not involve in manufacture and assembly, it, instead, outsources the assembly processes to contract manufacturers who would be responsible for the manufacture and assembly of the electronic components.

Strong focus in the future: The adoption of new energy vehicles and ADAS is supported by the government, i) according to the "New Energy Vehicle Industry Development Plan (2021 – 2035)", sales of new energy vehicles will account for approximately 20% of total sales of PV by 2025, ii) ICT equipped with conditional autonomous driving can be massively produced and applied under the specific environment in 2025, according to the "Strategies for the Innovative Development of Intelligent Vehicles", resulting in an increase of the market size of electric components in China. Intron (01760.HK), an automotive electronics solutions provider in China which adopts Cost+ pricing strategy, will directly benefit from the surging demand.

Valuation: We use a combination of DCF valuation methodology and P/E valuation methodology to derive the fair value of Intron (01760.HK). We initiate our first coverage on Intron (01760.HK) with a "HOLD" rating and a HKD 4.20/share target price, implying 31.6x/22.6x/18.9x forward P/E of 2021/2022/2023.

INITIATION

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Intron (01760.HK)	
Stock Rating	HOLD
Target Price	HK$ 4.20
Current Price	HK$ 4.40
52-Week Range	HK$ 2.68 – 9.53
Market cap. (HKD, bn)	HK$ 4.8

RMB, mn	20(A)	21(E)	22(E)	23(E)
Revenue	1,993.2	2,811.7	3,425.5	4,021.4
Gross Profit	358.2	544.9	670.9	795.9
Gross Margin	18.0%	19.4%	19.6%	19.8%
Net Profit	94.8	137.2	193.7	233.8
EPS	0.092	0.111	0.157	0.189
P/S	1.0	2.0	1.6	1.3
P/E	23.9	33.0	23.6	19.7
ROE	7.5%	9.3%	11.1%	12.3%

Performance	1 mth	3 mth	6 mth	1 year
Absolute	6.8%	-4.1%	-3.9%	53.2%
Relative to HSI	2.1%	-0.4%	7.3%	55.1%

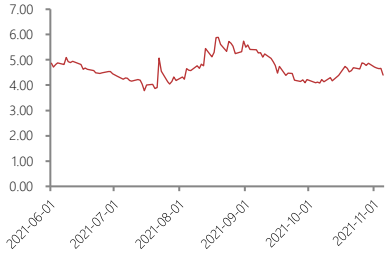


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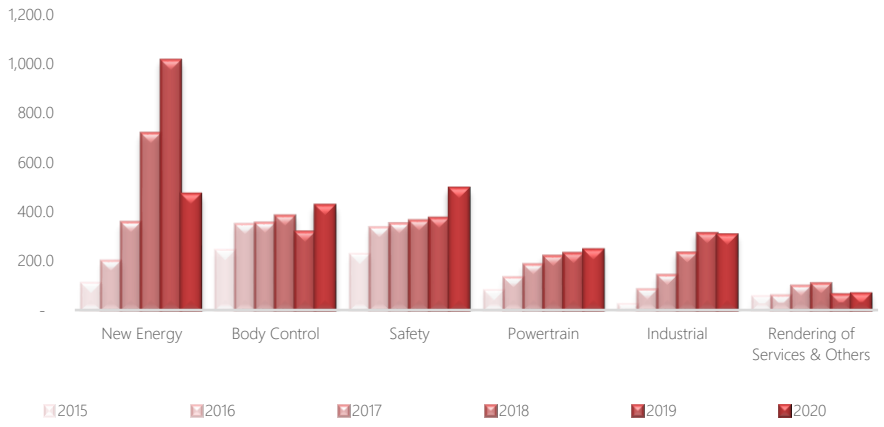
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Business Overview

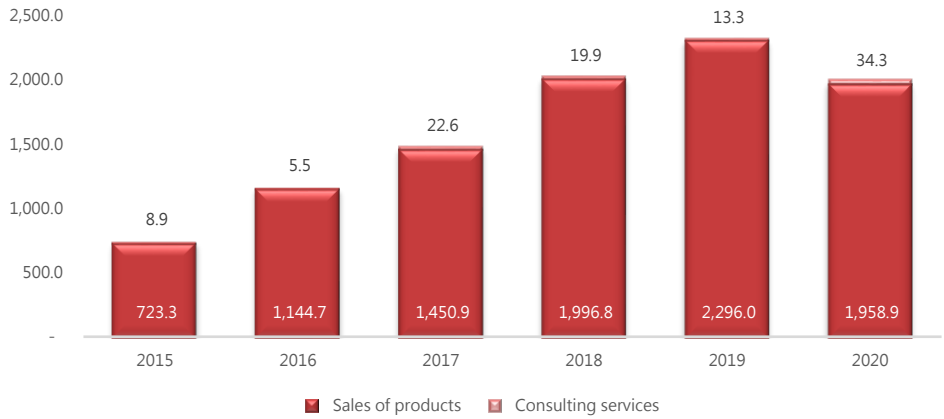
Intron (01760HK) is an automotive electronics solutions provider in China, it primarily provides solutions targeting critical automotive electronic components applied in new energy, body control, safety and powertrain systems. Its services cover i) designing, validating and fine-tuning solutions, ii) developing the customized design of the electronic components, and iii) sourcing and delivering appropriate advanced semiconductor devices, or electronic components. The Group typically works with the OEMs and their suppliers from the very beginning of the development cycle to achieve the targets of fuel efficiency improvement, emission reduction, reliability improvement and vehicle intelligence enhancement.

Exhibit: Revenue breakdown by the categories of automotive electronics



Source: Company data, West Bull Securities

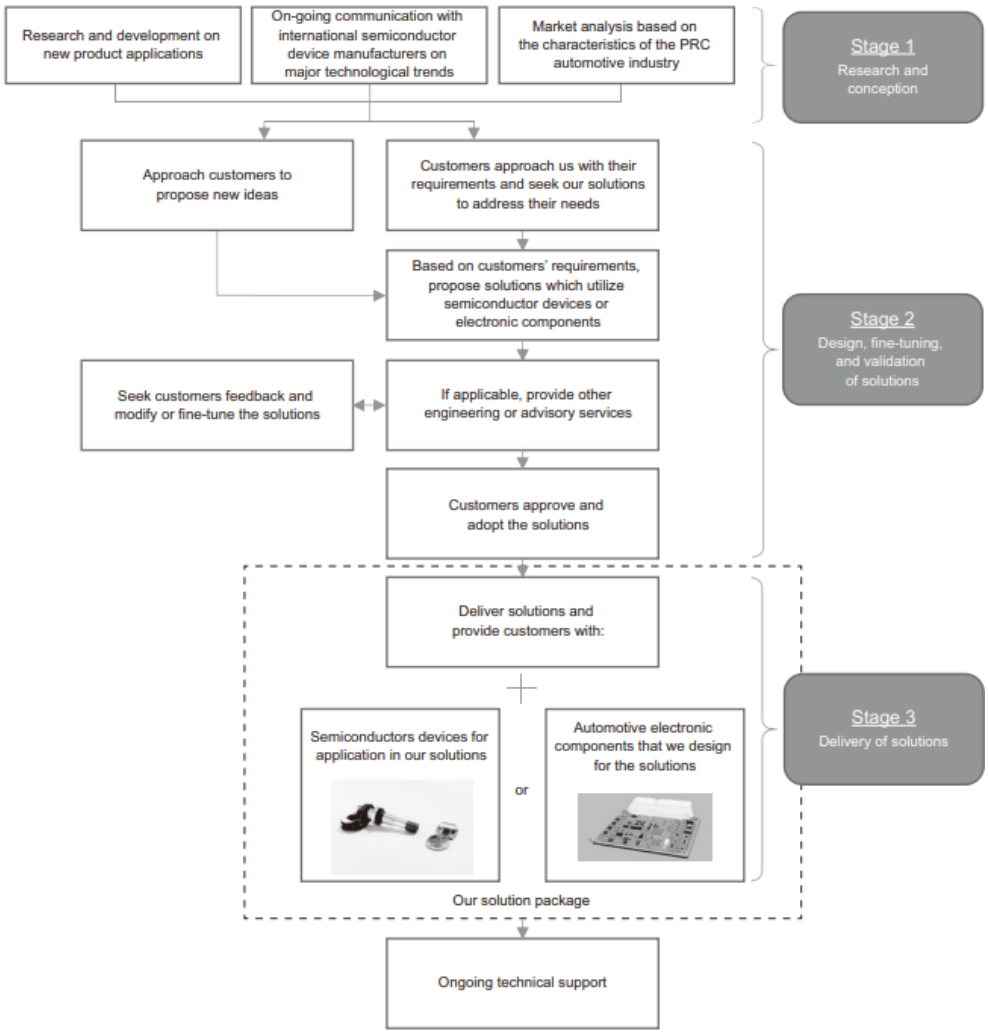
Exhibit: Revenue breakdown by segments



Source: Company data, West Bull Securities

Business Model

Exhibit: Business model of Intron (01760.HK)



Source: Company data, West Bull Securities

Exhibit: Typical business process of Intron (01760.HK)

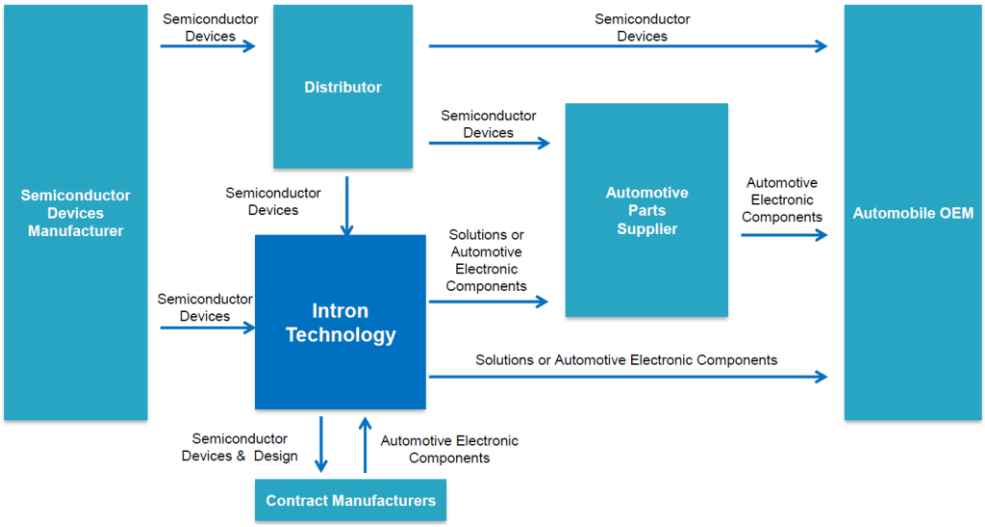
Research and conception	Design, fine-tuning and validation	Delivery of solutions package
The Group analyses the market and develops a conceptualization of new solution ideas. Besides, the Group maintains relationships with suppliers of semiconductor devices, including Infineon.	The Group i) designs the solutions, ii) develops relevant software and hardware technical specifications, iii) designs the functional prototype of the electronic components, and iv) assists the customers in developing product testing programs under the relevant industry standards.	The Group i) sources and delivers either semiconductor devices or electronic components, and ii) provides the product prototype, software or hardware design.

Source: Company data, West Bull Securities

Positioning

Intron (01760.HK) is a party bridging the semiconductor manufacturers and the automobile OEMs / automotive parts suppliers, it sources the semiconductors from upstream and offers a series of solutions to the downstream parties. As at the end of Jun 2021, the Group supported 897 customers in China and Europe, covering both the OEMs and their suppliers.

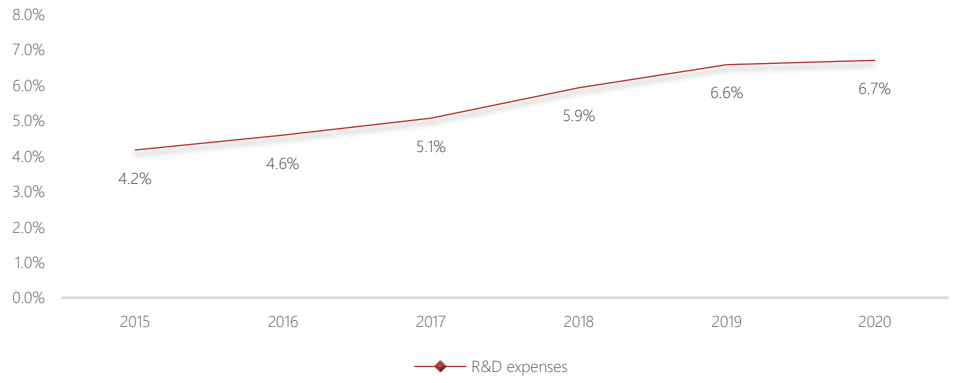
Exhibit: Positioning of Intron (01760.HK)



Source: Company data

Intron (01760.HK) does not involve in manufacture and assembly, it outsources the assembly processes to independent contract manufacturers who would be responsible for the manufacture and assembly of the electronic components. Instead, the Group primarily focuses on R&D and it aims at providing the solutions supported by the latest technology to the customers. As at the end of Jun 2021, the Group i) holds 152 registered patents and 129 software copyrights, ii) employed 607 employees under the R&D Department, accounting for approximately 62% of total employees.

Exhibit: Investment in R%D (% of total revenue)



Source: Company data, West Bull Securities

Products and Services

Intron (01760.HK) primarily offers solutions to both the OEMs and their suppliers in the automotive industry, and it adopts a simple Cost+ pricing strategy across all solution categories.

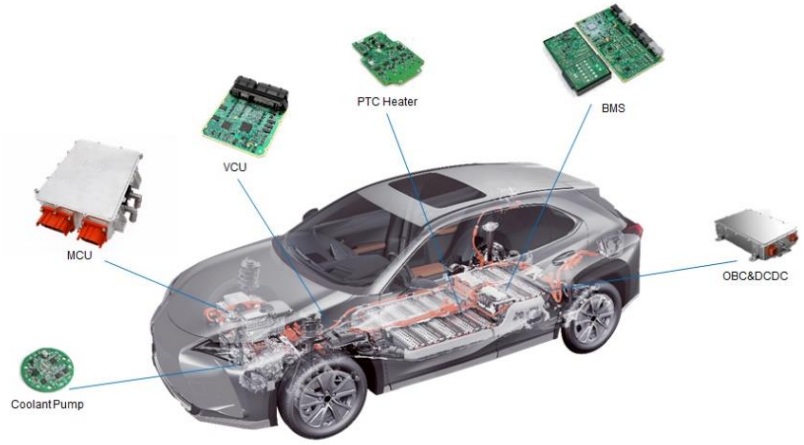
- Next-generation vehicles

  Intron (01760.HK) primarily invests in R&D with an emphasis on new energy and ADAS.

  #### New energy solutions

  New energy solutions include Battery Management System (BMS), Motor Control Unit (MCU) and Vehicle Control Unit (VCU), DC-DC converters, battery power inverters, high-voltage Battery Management, Vehicle On-Board Charging, Water Pump Controllers (WPC), PTC Heaters, powertrain system domain controllers and SIAPM Modules etc.

  Exhibit: Components related to new energy solutions

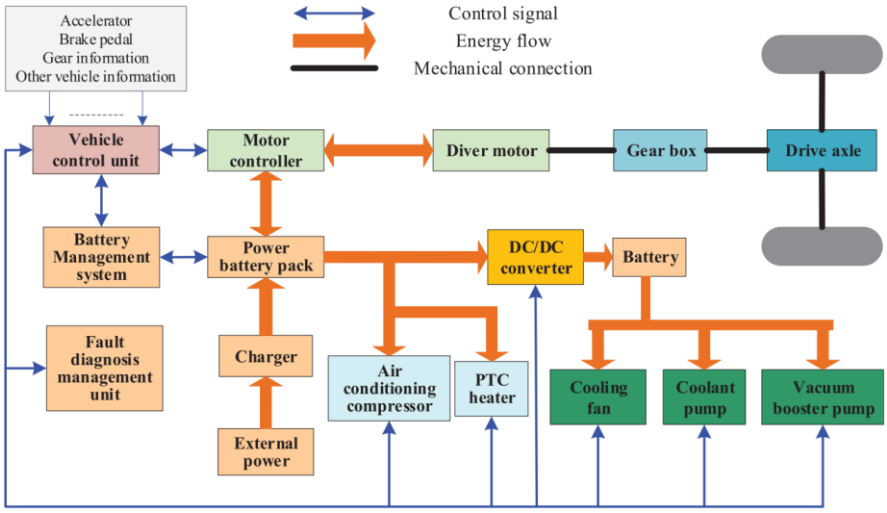


Source: Company data

  - Vehicle Control Unit (VCU)

    Vehicle Control Unit (VCU) typically receives the operation information like the accelerator pedal and the brake pedal from the drivers, it communicates with other control units by the Controller Area Network (CAN) and coordinates the components in the powertrain, including the control of the inverter, battery management system as well as engine control.

Exhibit: The structure of the vehicle control system

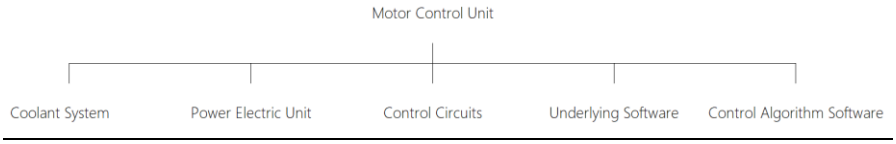


Source: "Advances in Mechanical Engineering"

- Motor Control Unit (MCU)

Motor Control Unit (MCU) is composed of a coolant system, power electronic unit, control circuits, underlying software, control algorithm software. It helps process the commands and controls the speed, torque, direction etc., "when the vehicle is running, the vehicle output torque and the vehicle status are sent to the Motor Control Unit (MCU); and when the vehicle is started and stopped, the high and low voltage power is controlled to turn on and off in sequence", according to the "Advances in Mechanical Engineering".

Exhibit: Motor Control Unit (MCU)



Source: Web of Conference, West Bull Securities

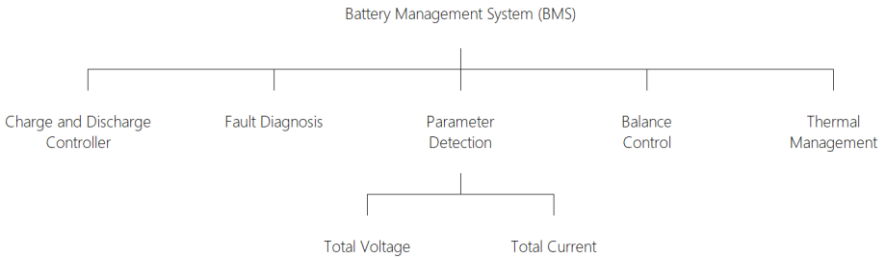
- DC-DC converter

DC power ranges from low voltages (used in ICs and electronic circuits) to high voltages (used to run the motors of electric vehicles), a DC-DC converter is a device that converts a DC voltage to another voltage. Typically, a DC-DC converter converts HV to 48V, HV to 12V, and 48V to 12V in the various configurations of electric vehicles. The key design requirements for DC-DC converters are low losses, high efficiency, low volume and lightweight.

- Battery Management System (BMS)

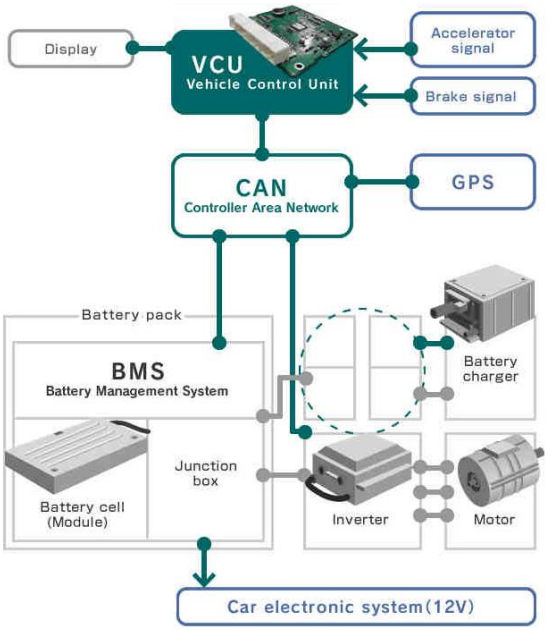
  Battery Management System (BMS) is a system to ensure that the battery is protected, it monitors the battery pack's state of charge along with the state of health. Battery Management System (BMS) also manages the battery optimization via cell balancing and monitors the voltage, temperature parameters and coolant flow. According to the Web of Conference, the functions of Battery Management System (BMS) can be categorized to i) battery parameter detection, ii) charging and discharging control (e.g. it guarantees the security of the charge-discharge process and prevents overvoltage and overcurrent), iii) battery fault diagnosis (e.g. it flags the faults by diagnosis algorithm), iv) balancing control, and v) thermal management (e.g. it checks the cell temperature to avoid thermal runaway).

Exhibit: Battery Management System (BMS)



Source: Web of Conference, West Bull Securities

Exhibit: Communication between the Vehicle Control Unit (VCU) and Battery Management System (BMS)

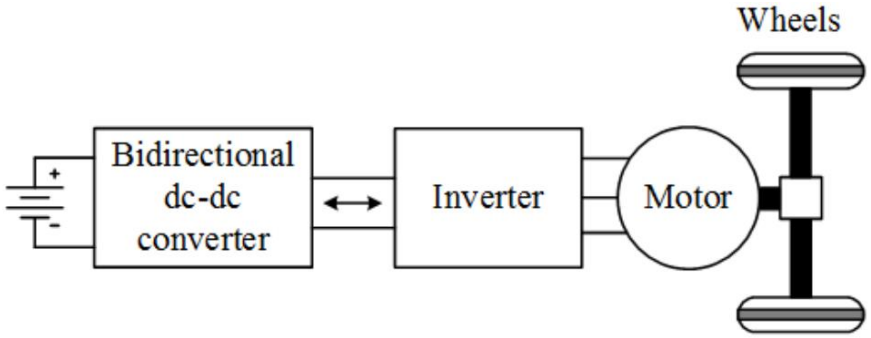


Source: Bemac

- Inverter

  Inverter converts the DC power to the AC power used in an EV, it helps i) change the speed of the motor, and ii) adjust the power or torque of the motor, it is designed to minimize switching losses and maximize thermal efficiency.

  Exhibit: Inverter

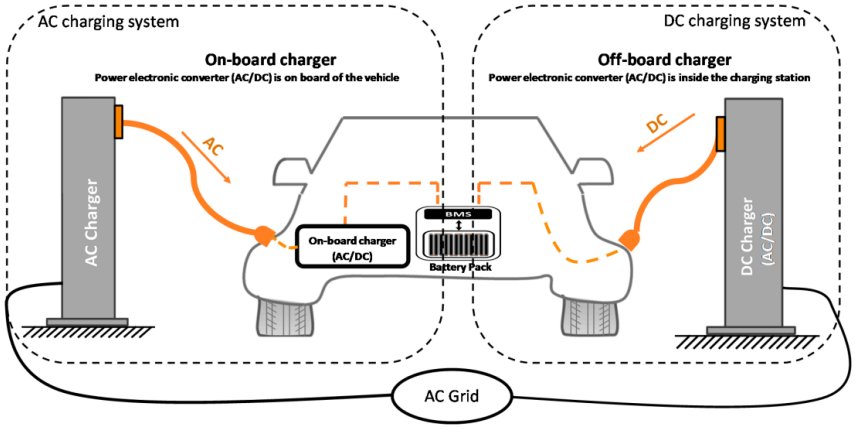


Source: "A Review of Non-Isolated Bidirectional DC-DC Converters for Energy Storage Systems"

- On-board charger

  On-board charger converts the AC to DC through the rectifier and Power Factor Correction equipment, it is used to charge the battery packs of EVs and to monitor the charge rate etc.

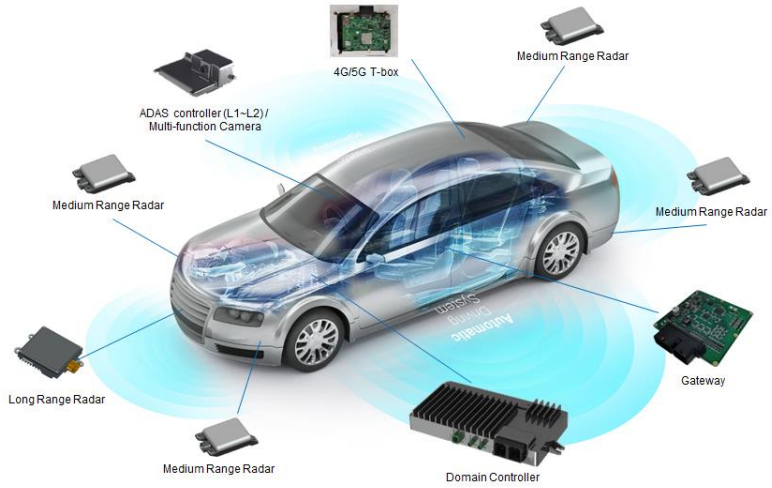
  Exhibit: On-board charger and off-board charger



Source: MDPI

Assisted driving and autonomous driving solutions

Exhibit: Components related to assisted driving and autonomous driving solutions

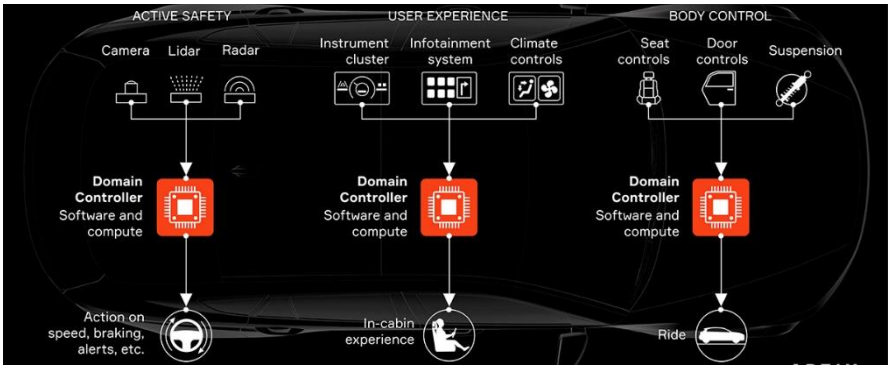


Source: Company data

- Domain controller (Domain Control Unit, DCU)

  The domain controller is a computer that specifically controls a set of vehicle functions like powertrain, infotainment and body control, it primarily offers integration of functions and architecture simplification.

  Exhibit: Domain controllers

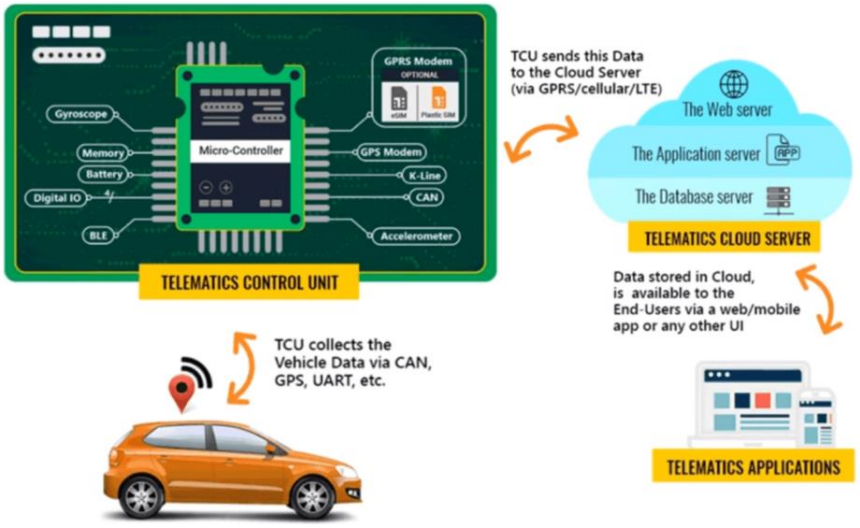


Source: Aptiv

- Telematics Box (T-Box)

  Telematics Box (T-Box) is also known as Telematics Control Unit, it is a hub connecting the vehicle through CAN to collect status parameters, it majorly i) uploads the data to the server and ii) receives commands from the server for remote control.

Exhibit: Telematics Control Unit

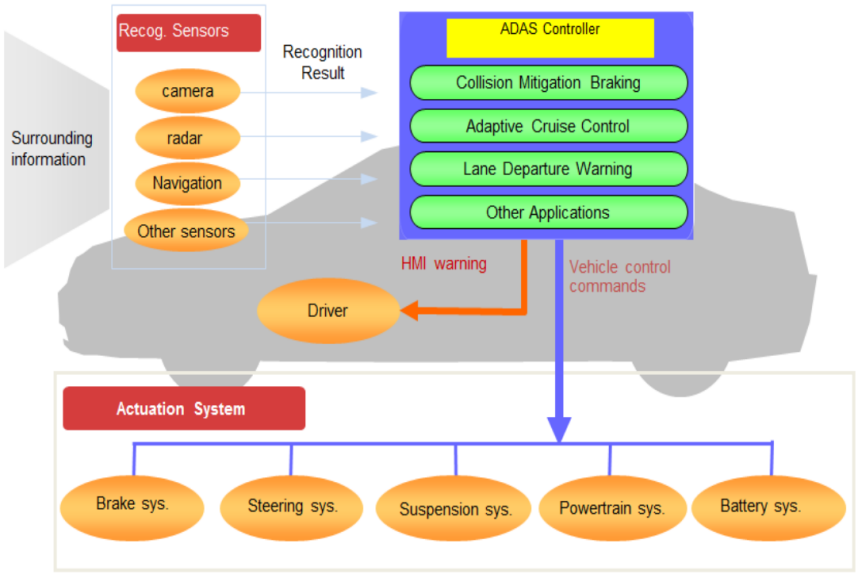


Source: Embitel

- ADAS controller

  The ADAS controller i) receives and processes the data from cameras, radar, lidar, sensors, and ii) realizes ADAS features such as Lane Departure Warning (LDW), Front Collision Warning (FCW), Pedestrian Collision Warning (PCW) etc.

Exhibit: Vehicle architecture with ADAS controller

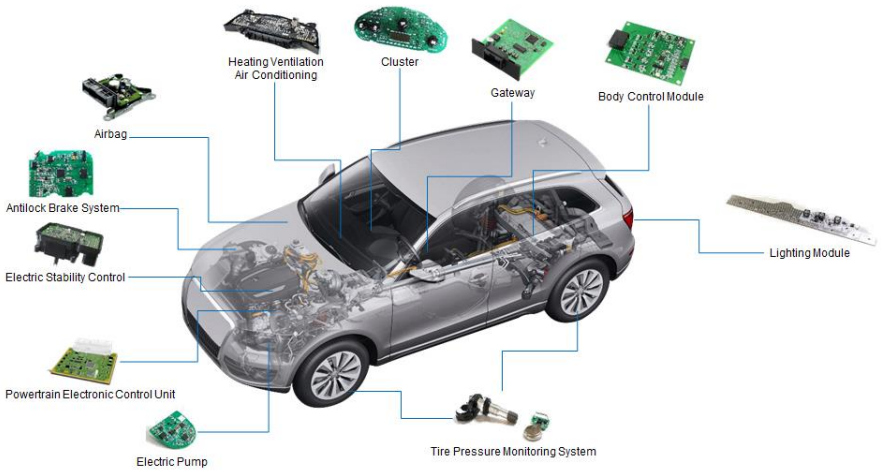


Source: HITACHI

- Conventional vehicles

  Intron (01760.HK) offers a spectrum of "ready-to-use" and "ready-for-mass-production" solutions for conventional vehicles, covering the body control, safety and powertrain areas.

  Exhibit: Components related to the solutions provided to the traditional vehicles



Source: Company data

Body control solutions

Body control solutions help achieve energy conservation and emission reduction by minimizing the use of coils and lowering the physical weight of the body control system.

Safety solutions

Safety solutions feature applications in both active and passive safety systems of a vehicle and are applied in automotive electronic components such as Antilock Brake System (ABS), Electronic Stability Control (ESC) and airbags.

- Antilock Brake System (ABS)

  Antilock Brake System (ABS) works with the Brake Assist (BA) to prevent the wheels from locking up during emergency stops.

- Electronic Stability Control (ESC)

  Electronic Stability Control (ESC) is also known as Electronic Stability Program (ESP), it helps detect the loss of control and stabilize the vehicle from skidding.

Powertrain solutions

Powertrain solutions help achieve energy conservation and emission reduction by managing the engine management systems.

- Industrial solutions

  Industrial solutions include power supply solutions designed for high-performance CPUs and graphics processors in the cloud server.

Relationship with the key supplier

Intron (01760.HK) established a business relationship with Infineon, a global semiconductor manufacturer listed on the Frankfurt Stock Exchange, in 2005. Infineon is the largest supplier of Intron (01760.HK), it engages in the design, development, manufacture, and marketing of semiconductors and electronic system solutions, covering the segments of Automotive, Industrial Power Control, Power & Sensor Systems and Connected Secure Systems. Under the Automotive segment, Infineon specializes in the areas of powertrain and energy management, connectivity and infotainment, body and comfort electronics, safety and security. Intron (01760.HK) entered into a non-exclusive distribution agreement with Infineon in 2016, authorizing the Group to distribute Infineon's automotive semiconductor devices in China and Hong Kong.

Exhibit: Major suppliers of Intron (01760.HK)

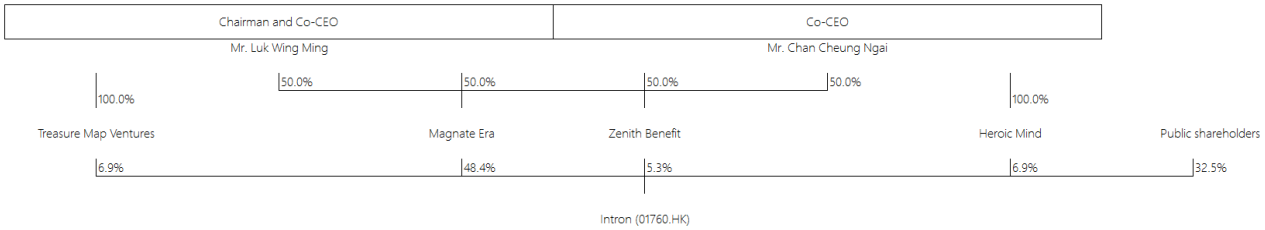


Source: Company data

Company Background

Intron was established in 2001 by Mr. Luk Wing Ming, existing Chairman and Co-CEO of Intron Technology Holdings (01760.HK) and Mr. Chan Cheung Ngai, existing Co-CEO of Intron Technology Holdings (01760.HK), and it commenced to establish a strategic partnership with Infineon in 2005. The listing entity, Intron Technology Holdings, was established in 2017, and it was listed on the Main Board of the Stock Exchange of Hong Kong in 2018 at a price of HKD 2.90 per share.

Exhibit: Shareholding structure of Intron (01760.HK)



Source: HKEX, Company data, West Bull Securities

Exhibit: Significant milestones

Year	Milestone
2001	Established Intron HK and Shanghai Intron Electronics
2003	Became authorized electronic components distributor of Microchip and Atmel
2005	Became authorized electronic components distributor of Infineon Automotive
2007	Became authorized electronic components distributor of Sonceboz
2009	Became authorized electronic components distributor of Epcos and JST
2014	Became authorized electronic components distributor of Eaton and Infineon Industrial Power Control
2015	Became authorized electronic components distributor of Sumida
2016	Became authorized electronic components distributor of Panasonic
2018	Listed on the Stock Exchange of Hong Kong Limited under the stock code 01760.HK
2020	Cooperated with Horizon Robotics Signed a licensing agreement with Infineon
2021	Cooperated with Xilinx and Antobot

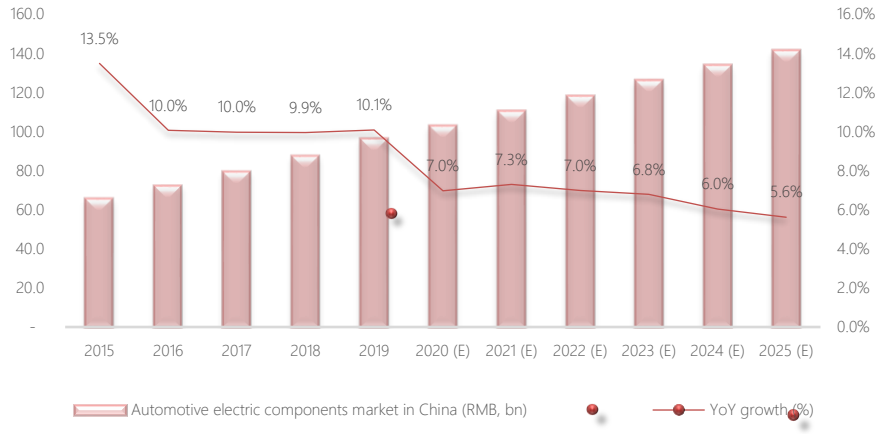
Source: Company data, West Bull Securities

Industry Overview

Automotive electric components market in China

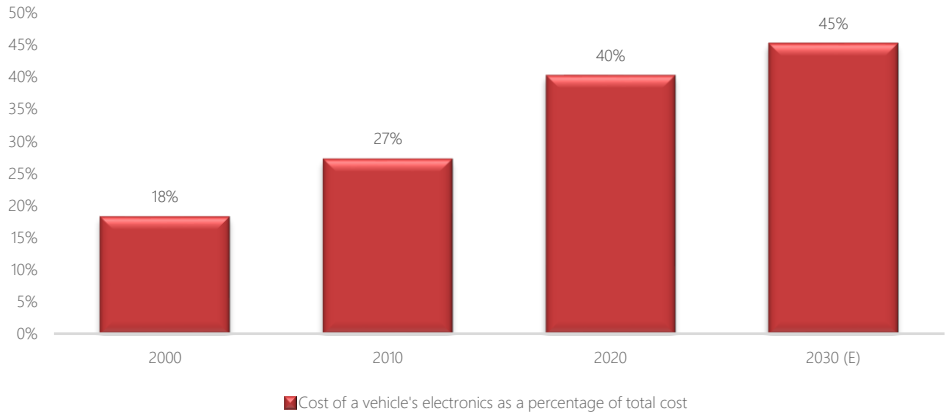
Benefit from i) growing number of EV, ii) adoption of ADAS, iii) increasing penetration of infotainment, iv) growing number of camera and radar etc., electronics are responsible for an increasing percentage of total manufacturing cost. Besides, the market size of automotive electric components in China boomed from USD 65.7bn in 2015 to USD 96.2bn in 2019, according to Qianzhan, and it is expected that the market will grow further to USD 141.2bn in 2025.

Exhibit: Automotive electric components market in China



Source: Qianzhan, West Bull Securities

Exhibit: Cost of a vehicle's electronics as a percentage of the total cost

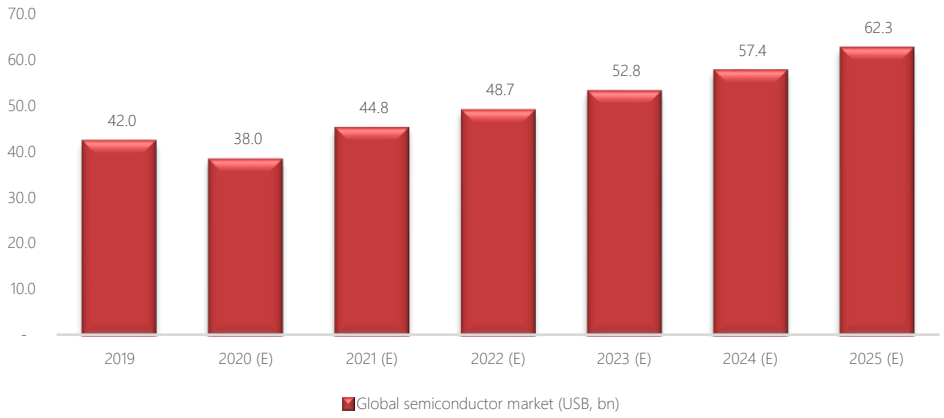


Source: Deloitte, West Bull Securities

Global automotive semiconductor market

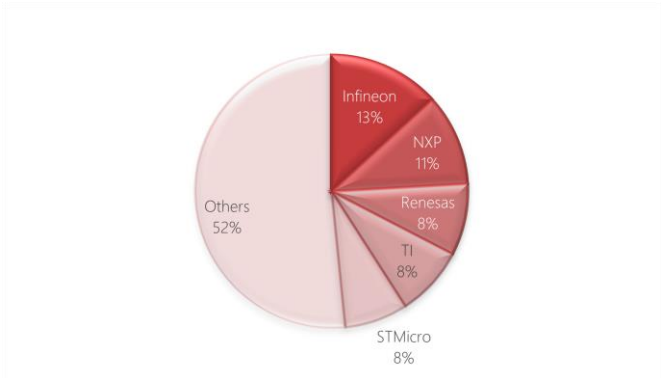
The global automotive semiconductor market reached USD 42.0bn in 2019, according to IHS, and it is expected that the market will expand to approximately USD 62.3bn in 2025 after a temporary retreat in 2020.

Exhibit: Global automotive semiconductor market (USD, bn)



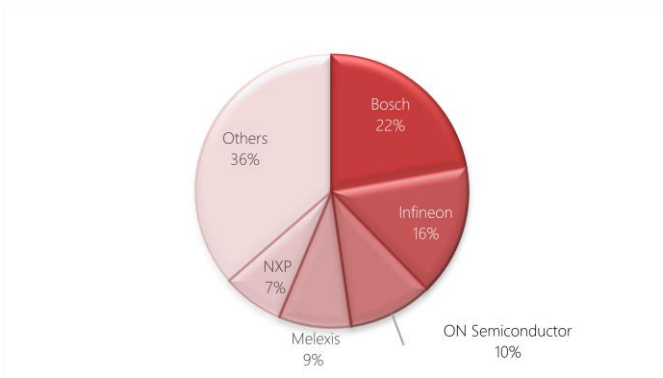
Source: IHS, West Bull Securities

Exhibit: Market share of automotive semiconductor market



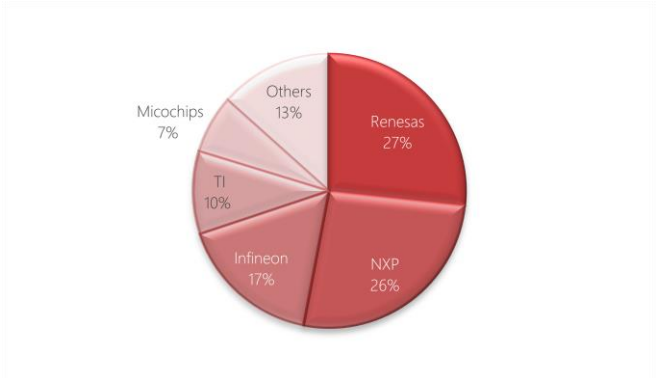
Source: Infineon, West Bull Securities

Exhibit: Market share of auto semiconductor market - Sensors



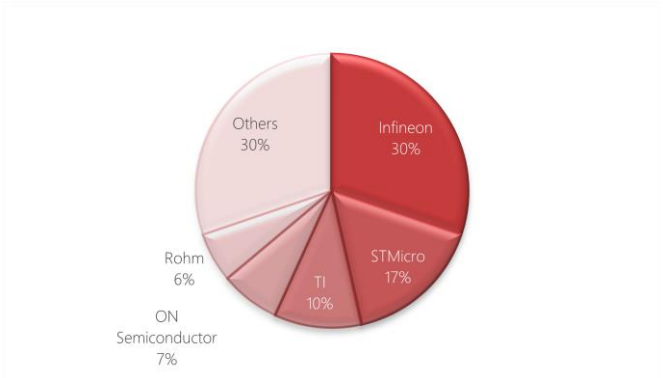
Source: Infineon, West Bull Securities

Exhibit: Market share of auto semiconductor market - MCU



Source: Infineon, West Bull Securities

Exhibit: Market share of auto semiconductor market - Power

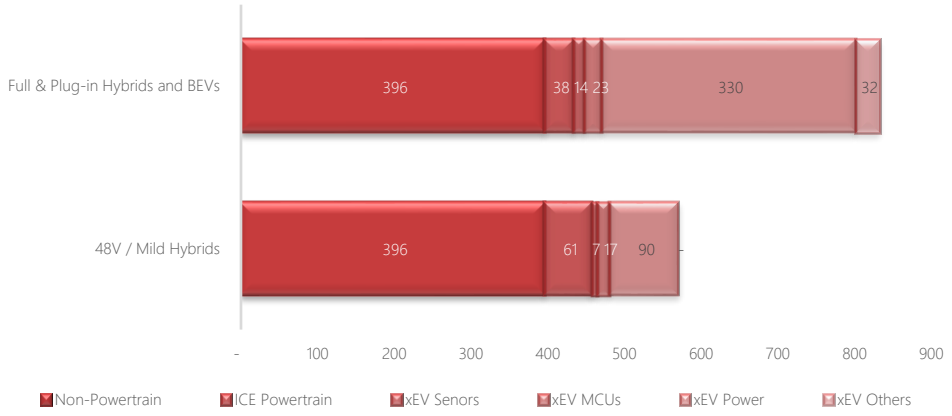


Source: Infineon, West Bull Securities

Infineon, NXP, Renesas, TI and STMicroelectronics are the global leaders in the automotive semiconductor market, accounting for approximately 48.6% of the total market share in 2020, in which Infineon was the major player which contributed about 13.2% of the total market. Among the automotive semiconductor market, the sensors, MCUs and Power semiconductors segments are relatively concentrated. According to the research conducted by Infineon, top-5 suppliers accounted for approximately 63.6%, 86.6%, 69.8% market share under the sensors, MCUs and Power semiconductors segments respectively.

Total semiconductor BOM cost of mild hybrids and BEVs were around USD 572 and USD 834 per vehicle respectively in 2020, according to Infineon. Apart from the non-powertrain (including body control, chassis, safety) components, power components like regulators were the most costly components, accounting for 15.8% and 39.6% of the semiconductor BOM cost of mild hybrids and BEVs respectively.

Exhibit: Average xEV (PHEV + BEV) semiconductor content by the degree of electrification

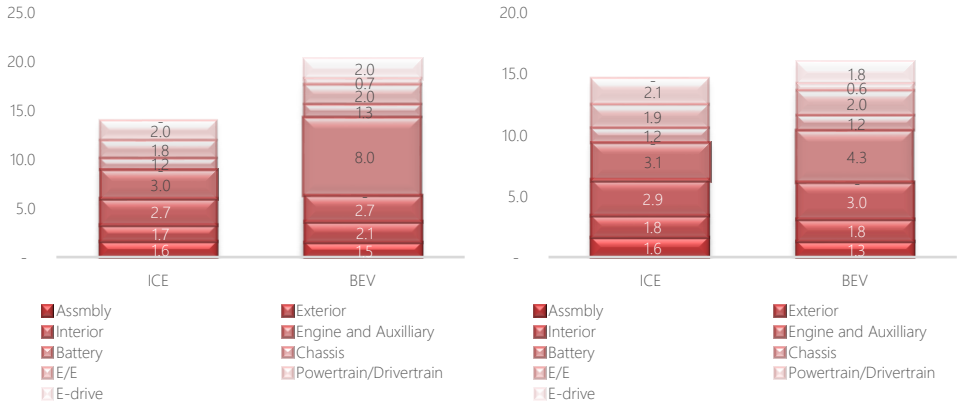


Source: Infineon, West Bull Securities

Cost breakdown of an electric vehicle

According to Oliver Wyman Research, the direct cost of a Battery Electric Vehicle (BEV) was approximately EUR 20.3k, and it will gradually decline to EUR 16.0k in 2030. The difference in the direct cost between the Internal Combustion Engine (ICE) vehicle and BEV was about 31.0% in 2020, according to Olive Wyman Research, and the gap will shrink to approximately 8.7% in 2030 due to a plunge in battery cost.

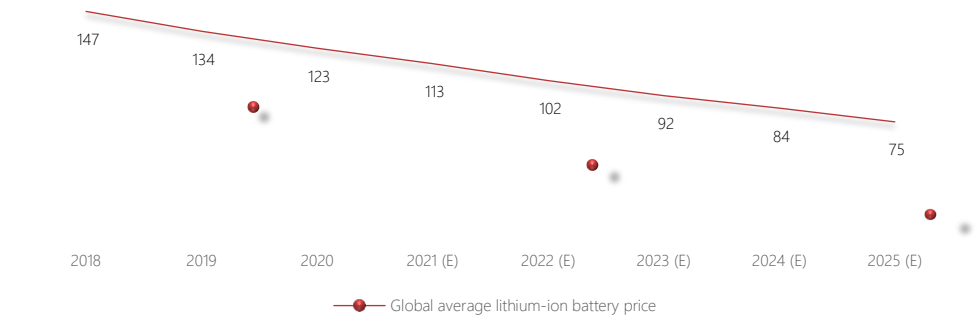
Exhibit: Estimation of the direct cost of ICE and BEV in 2020 and 2030 (000', EUR)



Source: Oliver Wyman Research, West Bull Securities

The battery, the costliest component, accounted for approximately 39.4% of the total direct cost of a BEV in 2020, according to Oliver Wyman Research, and it will drop to 26.9% in 2030. Driven by the economies of scale for global battery production and advancements in battery technology, the average price of lithium battery cells plummeted from USD 147/kWh in 2018 to USD 123/kWh in 2020, according to IHS, and it is expected to decrease to approximately USD 75/kWh in 2025.

Exhibit: Global average lithium-ion battery price (USD/kWh)



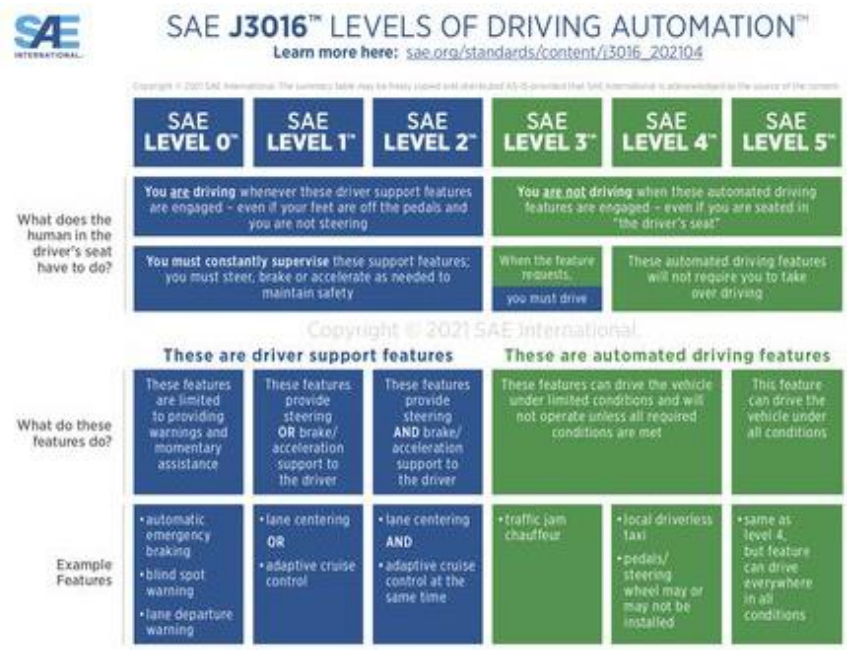
Source: IHS, West Bull Securities

Autonomous driving market

- Definition of autonomous driving

  SAE International provides a taxonomy with detailed definitions for six levels of driving automation, including Level 0 (No driving automation), Level 1 (Driver assistance), Level 2 (Partial driving automation with steering, braking and acceleration support), Level 3 (Conditional driving automation which allows hands-free driving under certain conditions), Level 4 (High driving automation), Level 5 (Full driving automation). "The levels apply to the driving automation feature(s) that are engaged in any given instance of on-road operation of an equipped vehicle, it means that is determined by the feature(s) that are engaged. Active safety systems, such as electronic stability control (ESC) and automatic emergency braking (AEB), and certain types of driver assistance systems, such as lane-keeping assistance (LKA), are excluded from the scope of this driving automation taxonomy because they do not perform part or all of the DDT on a sustained basis, their intervention does not change or eliminate the role of the driver in performing part or all of the dynamic driving task", according to SAE International.

Exhibit: Levels of driving automation

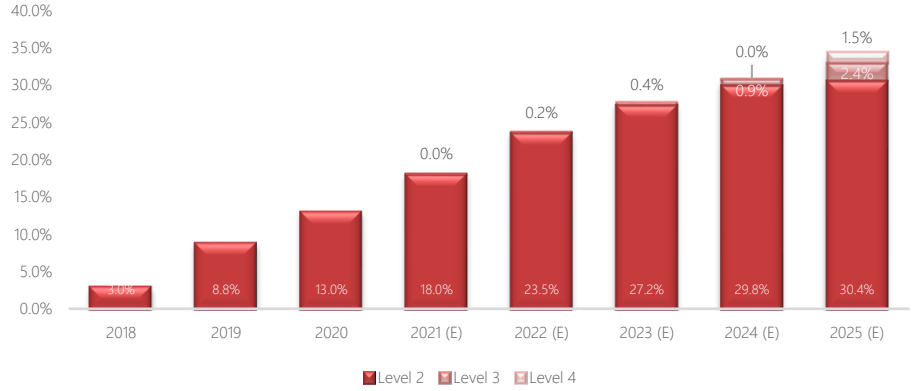


Source: SAE International

- Autonomous driving in China

The penetration rate of Level 2 autonomous driving systems in China's PV market grew rapidly from 3.0% in 2018 to 13.0% in 2020, according to IHS, and it is expected that the penetration rate of Level 2 autonomous driving systems will further grow to about 30.4% in 2025. Besides, Level 3 and Level 4 autonomous driving systems will be introduced in 2021 and 2024 respectively, bringing the penetration rate of Level 2 or above autonomous driving systems in China's PV market to approximately 34.2% in 2025.

Exhibit: Penetration rate of autonomous driving (Level 2 – 4) in China



Source: IHS, West Bull Securities

- Booming adoption of camera modules, Radar & Lidar modules

The technologies applied in the sensing area can primarily be categorized into three kinds of hardware technologies, namely basic camera, Radar and Lidar.

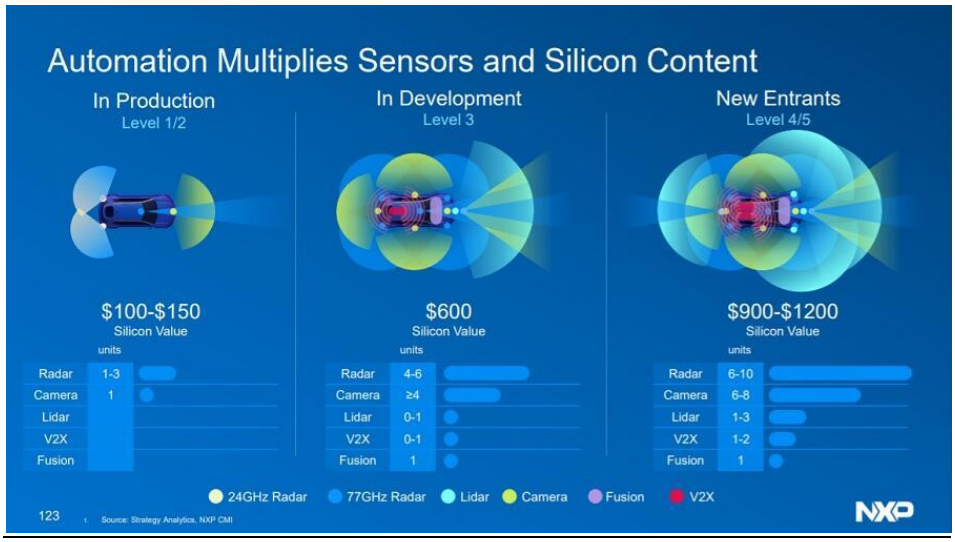
Exhibit: Differences between basic camera, Radar and Lidar

	Lidar	Radar	Basic camera
Pros	Instant response with high accuracy	Strong anti-interference ability	Lower cost
Cons	Expensive	Higher cost	Weak anti-interference ability
Unsuitable environment	Snowy, Rainy, Foggy	Rainy	Snowy, Rainy, Foggy, Nighttime

Source: CCID Group, West Bull Securities

The rising number of ADAS-equipped vehicles results in increasing adoption of camera modules, Radar & Lidar modules, a higher level of autonomous driving normally requires more number of those components. Level 1 and Level 2 autonomous driving normally requires 1 – 3 units of Radar and 1 unit of camera, according to NXP, and 6 – 10 units of Radar, 6 – 8 units of camera, 1 – 3 units of Lidar will be required in realizing Level 4 – 5 autonomous driving.

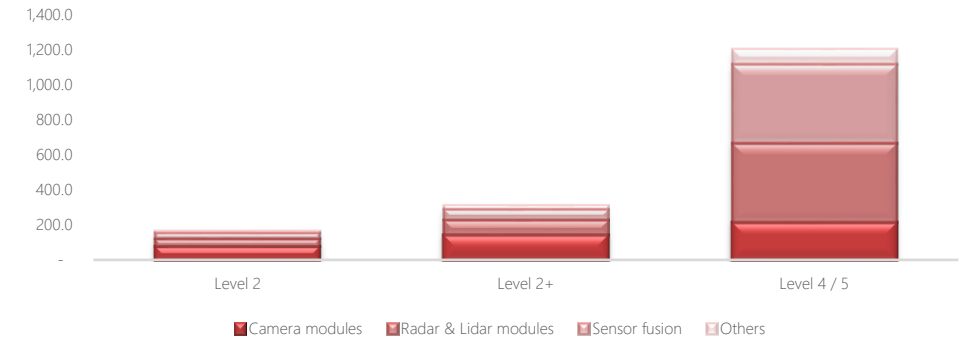
Exhibit: Number of camera modules, Radar & Lidar modules, sensor fusion in autonomous driving



Source: NXP

The BOM cost of camera modules, Radar & Lidar modules and sensor fusion for the vehicles equipped with Level 2 autonomous driving is about USD 170, according to Infineon, and it will surge to approximately USD 1,200 after the adoption of Level 4 / 5 autonomous driving.

Exhibit: BOM cost of camera modules, Radar & Lidar modules and sensor fusion (USD)

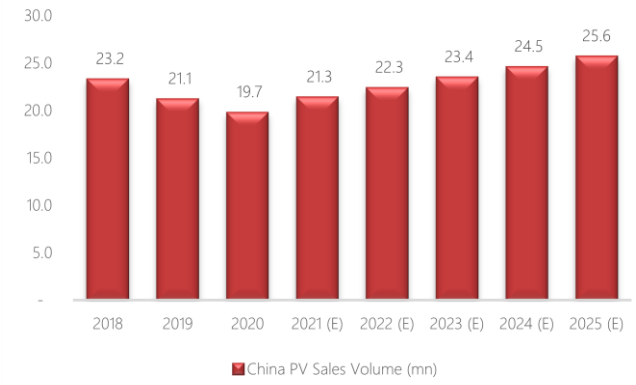


Source: Infineon, West Bull Securities

Sales of Passenger Vehicles (PV) and Electric Vehicles (EV) in China

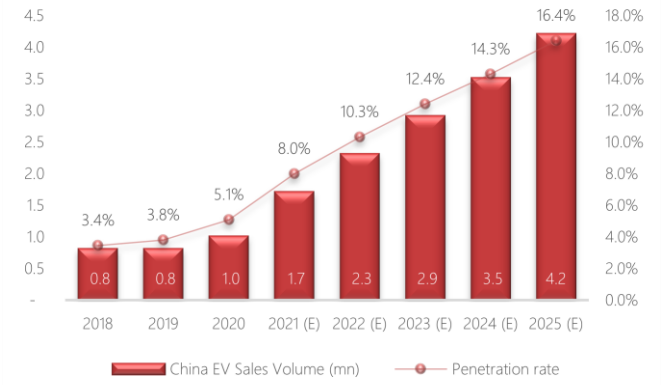
China, measured by sales volume in 2020, is the largest passenger PV in the world, according to IHS, the sales volume of PV in China reached 19.7mn units in 2020, and IHS expected that the sales volume will increase to 25.6mn units in 2025. Among the 19.7mn PV sold in 2020, 1.0mn units were attributable to EV, and it is expected that the sales volume of EV will climb to 4.2mn in 2025, implying 33.8% of CAGR.

Exhibit: China PV Sales Volume (mn)



Source: IHS, West Bull Securities

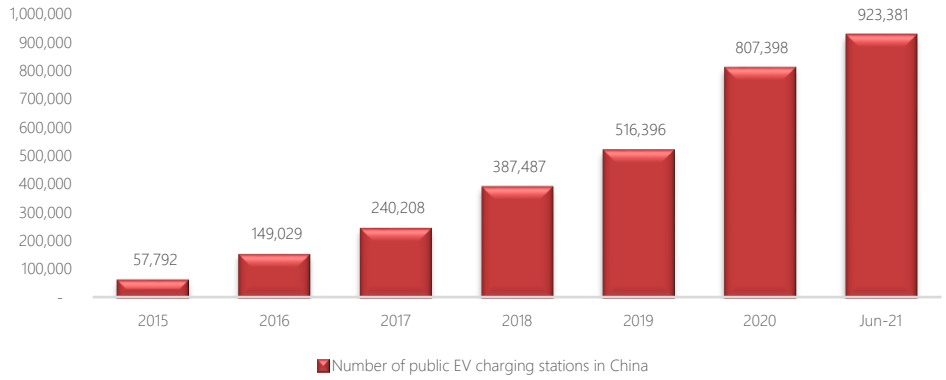
Exhibit: China EV Sales Volume (mn) and penetration rate



Source: IHS, West Bull Securities

The growth of the EV market in China was primarily driven by i) favourable government policy (according to the "New Energy Vehicle Industry Development Plan (2021 – 2035)" published by China's State Council, sales of new energy vehicles will account for approximately 20% of total sales of PV by 2025), ii) an expansion of charging infrastructure (the number of public EV charging stations and private EV charging stations, as at the end of Jun 2021, reached 923.4k and 1.0mn respectively, according to EVCIPA). IHS further estimates that the number of total EV charging stations will reach 10.4mn by the end of 2025.

Exhibit: Number of public EV charging stations



Source: EVCIPA, West Bull Securities

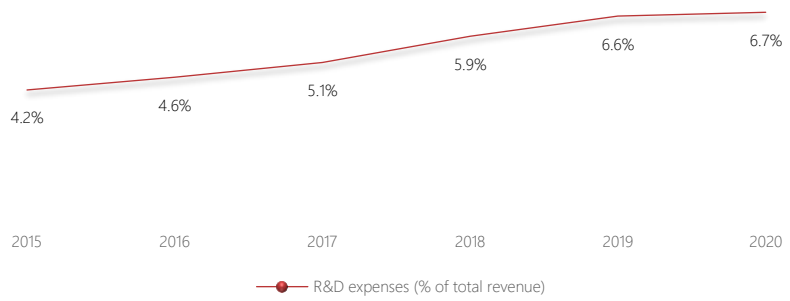
Investment Thesis

Sustainable business model

- Strong input in R&D

  Intron (01760.HK) primarily focuses on the R&D and it aims at providing the solutions supported by the latest technology to the customers, it i) offers the OEMs and manufacturers a lower cost and higher efficiency modulized solutions, and ii) lowers the entry-level for smaller OEMs which do not have solid R&D. As at the end of Jun 2021, the Group i) holds 152 registered patents and 129 software copyrights, ii) employed 607 employees under the R&D Department, accounting for approximately 62% of total employees.

Exhibit: R&D expenses of Intron (01760.HK)



Source: Company data, West Bull Securities

Latest progress on R&D

- Cooperation with BAIC

  Intron (01760.HK) cooperated with BAIC New Energy to develop a Level 4 Automated Valet Parking ("AVP") control unit and Level 3 urban autopilot controller software platform.

- Cooperation with Horizon Robotics

  In April 2021, Intron (01760.HK), together with Horizon Robotics, unveiled a series of jointly-developed intelligent automotive electronic products and solutions at the 19th Shanghai International Automobile Industry Exhibition. All four intelligent automotive solutions and products displayed at the exhibition were equipped with the "Journey" series chips of Horizon Robotics, satisfying Level 1 to Level 4 automated driving requirements and covering products and solutions from ADAS to automated driving functions.

- Cooperation with Xilinx

  In May 2021, Intron (01760.HK), together with Xilinx, announced to launch an open-source platform solution – CAELUS automated driving controller unit at the 8th China International Automotive Technology Expo. The Group adopted Xilinx's UltraScale MPSoC, a product featuring enhanced safety, high performance and maximum flexibility, to provide customers with a solution that is reliable and ready for mass production.

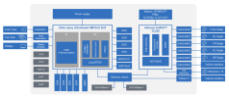
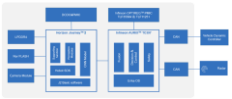
- Investment in Antobot

  In May 2021, Intron (01760.HK) made a strategic investment in Antobot which first product line is a fully integrated automotive-grade universal Robot Control Unit (uRCU®), the cooperation between the Group and Antobot will help grow Antobot into a leading force in the global agricultural robotics sector.

Development of open electronic control unit (Open-ECU) platform

Intron (01760.HK) officially launched an open electronic control unit (OpenECU) platform in 2021 Q3, it is a one-stop development resource covering product display, technology exchange and information download, and it aims at i) providing solutions to accelerate functionality development and system integration, ii) shortening the time for R&D and commercialization. The platform will gradually release Automated Driving ECU solutions and Connectivity ECU solutions, according to Intron (01760.HK), and it will connect more domestic and overseas developers in the fields of AI, visual computing, radar, GPS systems and functional safety.

For instance,

Projects	GDCU33B ADAS Domain Control Unit	GDCU34B ADAS Domain Control Unit	GDCU32A Multi-Functional Control Unit
			
Description	It supports access to five cameras, five millimetre wave radars and twelve ultrasonic sensors, and it also provides a video display interface for outputting surround view stitching data to the vehicle display. This control unit can be used for the technical research of Level 2 autonomous driving domain controller computing platforms.	It is developed for Level 2+ Navigate on autopilot assistant driving applications and it supports access to one 8MP camera, five 2MP cameras, five millimetre wave radars and 12 ultrasonic sensors.	It is developed for advanced driver assistance applications related with forward perception, it can be used for the research of advanced assistant driving controller platform technology for Level 2 and below.

Source: Company data, West Bull Securities

- Solid business relationship with the suppliers

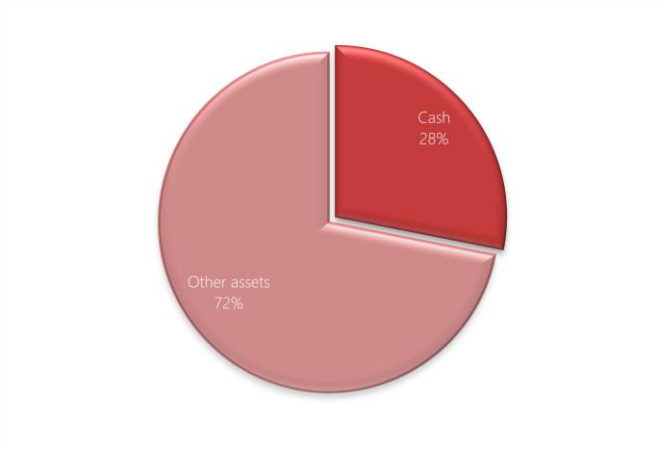
  Intron (01760.HK) established a business relationship with Infineon, a global semiconductor manufacturer listed on the Frankfurt Stock Exchange, in 2005. Infineon is the largest supplier of Intron (01760.HK), it engages in the design, development, manufacture, and marketing of semiconductors and electronic system solutions, covering the segments of Automotive, Industrial Power Control, Power & Sensor Systems and Connected Secure Systems. Under the Automotive segment, Infineon specializes in the areas of powertrain and energy management, connectivity and infotainment, body and comfort electronics, safety and security.

  Intron (01760.HK) entered into a non-exclusive distribution agreement with Infineon in 2016, authorizing the Group to distribute Infineon's automotive semiconductor devices in China and Hong Kong. In addition, purchases from Infineon accounted for over 80% of total purchases the Group before listing. The long-term business relationship with the key supplier is an essential intangible asset for the Group to access the material supply amid a global shortage of chips, alleviating the damage brought by the ongoing chips shortage crisis.

- Asset-light business model

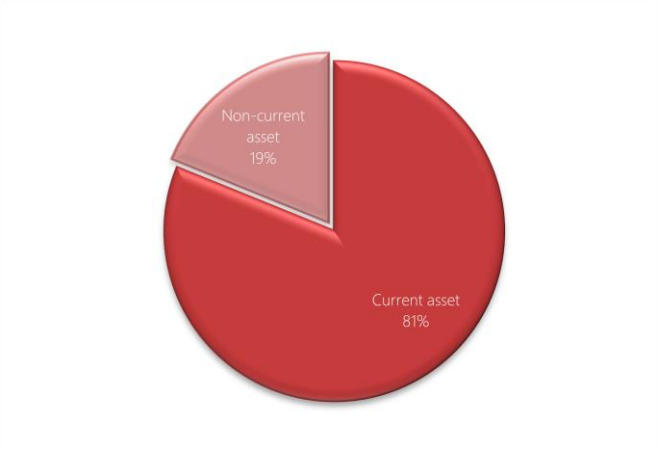
  Intron (01760.HK) is a party bridging the semiconductor manufacturers and the automobile OEMs / automotive parts suppliers, it sources the semiconductors from upstream and offers a series of solutions to the downstream parties. It does not involve in manufacture and assembly, it outsources the assembly processes to independent contract manufacturers who would be responsible for the manufacture and assembly of the electronic components. As at the end of Jun 2021, the Group held RMB 673.3mn cash and RMB 1,945.4mn current assets, accounting for 28% and 81% of total assets respectively.

Exhibit: Cash and other assets at the end of Jun 2021



Source: Company data, West Bull Securities

Exhibit: Current and non-current assets at the end of Jun 2021

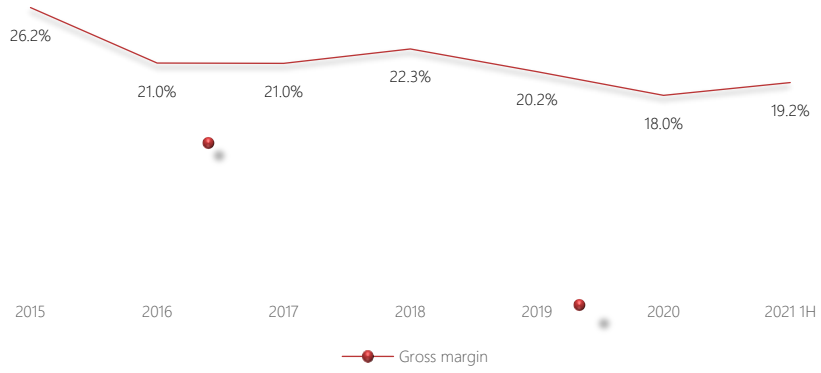


Source: Company data, West Bull Securities

- Cost+ pricing strategy

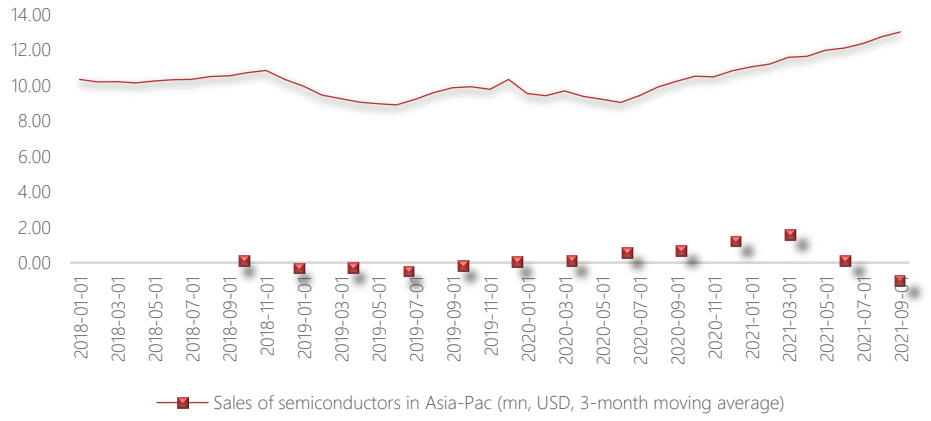
Intron (01760.HK) primarily adopts a Cost+ pricing strategy, and it typically takes i) purchase costs, ii) design complexities of solutions, iii) processing fees, iv) logistics costs, v) exchange rate, and vi) taxes into account. An adoption of Cost+ strategy helps stabilize the gross profit margin of the Group at approximately 20% regardless of the fluctuation of material cost, making its business more sustainable in various cycles.

Exhibit: Gross margin of Intron (01760.HK)



Source: Company data, West Bull Securities

Exhibit: Sales of semiconductors in Asia-Pac (bn, USD, 3-month moving average)



Source: Semiconductor Industry Association, West Bull Securities

Strong focus in the future: new energy vehicles and ADAS

- Supported by government policies

New energy vehicles

According to the "New Energy Vehicle Industry Development Plan (2021 – 2035)" published by China's State Council, sales of new energy vehicles will account for approximately 20% of total sales of PV by 2025.

Intelligent Connected Vehicle (ICT)

ICT is a vehicle focusing on the areas of i) sensing, ii) decision, iii) execution, iv) connection, v) mapping, vi) cloud and vii) after-sales, according to CCID Group. ICT equipped with conditional autonomous driving can be i) massively produced and ii) applied under the specific environment in 2025, according to the "Strategies for the Innovative Development of Intelligent Vehicles", and i) regional coverage of LTE-V2X and ii) coverage in certain cities / highways of 5G-V2X will be also realized. In May 2021, China's Ministry of Housing and Urban-Rural Development and China's Ministry of Industry and Information Technology announced that Beijing, Shanghai, Guangzhou, Wuhan, Changsha, Wuxi were set as the first pilot cities for the collaborative development of smart city infrastructure and ICT.

- Expanding market of EV and vehicles equipped with ADAS

China, measured by sales volume in 2020, is the largest passenger PV in the world, according to IHS. The sales volume of PV in China reached 19.7mn units in 2020, and IHS expects that the sales volume will increase to 25.6mn units in 2025. Among the 19.7mn PV sold in 2020, 1.0mn units were attributable to EV, and it is expected that the sales volume of EV will climb to 4.2mn in 2025, implying 33.8% of CAGR. The growth of the EV market in China will primarily be driven by i) favourable government policy and ii) an expansion of charging infrastructure.

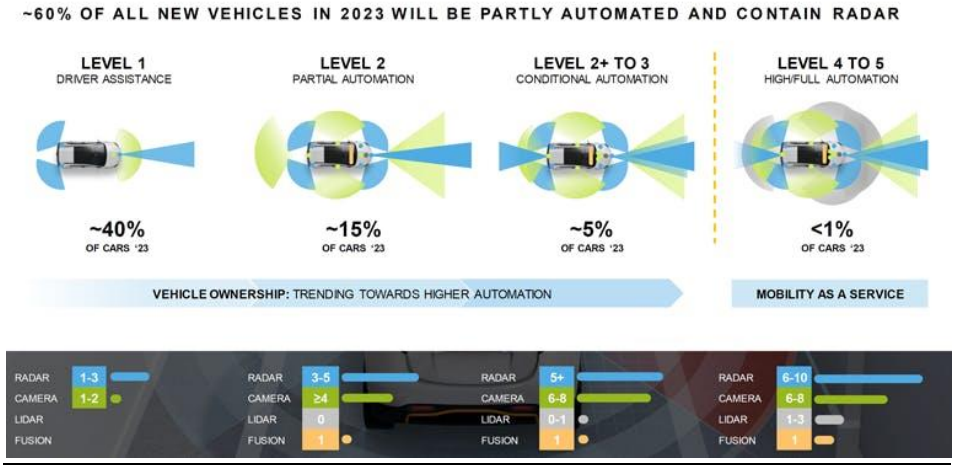
Furthermore, the penetration rate of Level 2 autonomous driving systems in China's PV market grew rapidly from 3.0% in 2018 to 13.0% in 2020, according to IHS, and it is expected that the penetration rate of Level 2 autonomous driving systems will further grow to about 30.4% in 2025. Besides, Level 3 and Level 4 autonomous driving systems will be introduced in 2021 and 2024 respectively, bringing the penetration rate of Level 2 or above autonomous driving systems in China's PV market to approximately 34.2% in 2025.

Benefit from i) growing number of EV, ii) adoption of ADAS, iii) increasing penetration of infotainment, iv) growing number of camera and radar etc., electronics are responsible for an increasing percentage of total manufacturing cost. Besides, the market size of electric components in China boomed from USD 65.7bn in 2015 to USD 96.2bn in 2019, according to Qianzhan, and it is expected that the market will grow further to USD 141.2mn in 2025.

- Booming adoption of sensing modules

  Level 1 and Level 2 autonomous driving normally requires 1 – 5 units of Radar and 1 – 4 units of camera, according to Electric Design, and 6 -10 units of Radar, 6 - 8 units of camera, 1 - 3 units of Lidar will be required in realizing Level 4 – 5 autonomous driving. Besides, approximately 60% of all new vehicles sold in 2023 will incorporate radar sensors, according to the same article.

  Exhibit: Number of radar, camera, Lidar required in each automation level



Source: Electric Design

However, due to an uplifting manufacturing cost as well as the slow progress of related regulations, Level 2+, a level providing advanced ADAS features that approach Level 3 automation without fully crossing the threshold of Level 3, is a better choice to offer the customers an optimized balance between features and costs. According to NXP, Level 2+ allows the OEMs to roll out advanced safety and comfort features step-by-step, leaving more time for better commercialization.

We do believe that EV and vehicles equipped with ADAS will be the coming secular trend in the automotive sector, and i) growing penetration of EV and ii) increasing number of vehicles equipped with Level 2+ automation will result in a lustrous demand for related semiconductors and solutions in the near future. And Intron (01760.HK), an automotive electronics solutions provider in China which adopts Cost+ pricing strategy, will directly benefit from the surging demand.

Forecast & Valuation

Forecast

- Revenue

  Thanks to a higher penetration rate of EV as well as Level 2+ autonomous driving, Intron (01760.HK) will likely deliver a strong result in coming years, we estimate that the Group will achieve approximately YoY 17.4% - YoY 41.1% in the top-line. Besides, the continuous input in the R&D will allow Intron (01760.HK), in a longer term, to ride on the secular trend of higher-level autonomous driving. We forecast that the revenue of the Group may rally YoY 41.1% to RMB 2,811.7mn in 2021, and it will climb further to approximately RMB 4,021.4mn in 2023, in which 30% - 40% of total revenue may be generated from the new energy vehicle-related solutions.

- Gross profit

  Given the adoption of Cost+ pricing strategy, we are confident that the Group will be able to maintain its gross margin at around 20%.

- Net profit

  We believe that the net margin of Intron (01760.HK) will bottom out from 4.8% in both 2020 and 2021 after the recovery from COVID-19, and the net margin will further expand in accordance with the growing penetration of new energy vehicles and Level 2+ autonomous driving. However, due to a heavier input in R&D, the net margin will still be limited to 5% - 6%. According to our estimation, Intron (01760.HK) may achieve RMB 134.4mn bottom-line in 2021, representing YoY 41.7% growth.

Valuation

We use a combination of DCF valuation methodology and P/E valuation methodology to derive the fair value of Intron (01760.HK). We initiate our first coverage on Intron (01760.HK) with a "HOLD" rating and a HKD 4.20/share target price, implying 31.6x/22.6x/18.9x forward P/E of 2021/2022/2023.

- DCF valuation

  We assume a greater long term growth to reflect our positive attitude toward Intron (01760.HK) which is capable to ride on the coming secular trends, and we assume that the sales generated from new energy as well as autonomous driving will grow faster than other segments. Besides, the cash position of the Group is sufficient after a share issuance in 2021, we, thus, estimate that the gearing ratio will remain flat and we do not expect an additional re-financing. Derived from the DCF model with the assumptions below, we assign a fair value of HKD 4.22/share to Intron (01760.HK).

  Exhibit: Assumption of valuation

Discounted Cash Flow	246.3mn	LT Debt-to-Equity Ratio	28.0%
Terminal Value	6,692.7mn	BETA	1.0
Discounted Terminal Value	4,981.3mn	LT Risk-free Rate	1.5%
		Risk Premium	9.4%
		LT Equity Cost	10.9%
		LT Debt Cost	4.0%
		LT Debt Cost (After Tax)	3.6%
		WACC	9.3%
		LT Growth Rate	5.0%

Source: West Bull Securities

- P/E valuation

  Intron (01760.HK) is a unique underlying asset listed in Hong Kong, it is an intermediary between the manufacturers (avg. historical P/E: 39.6x, avg. forward P/E: 17.2x) and semiconductor suppliers (avg. historical P/E: 28.7x, avg. forward P/E: 21.1x). We believe that Intron (01760.HK) will be valuated similarly, and hence we assign a valuation of HKD 4.19/share to the Group.

Peers comparison

		Mkt. Cap. (HKD, mn)	P/E (%)	Fw. P/E (%)	P/B (%)	P/S (%)	Revenue (HKD, mn)	GM (%)	ROE (%)
00175.HK	Geely Auto	251,901.9	37.5	28.8	3.4	2.3	111,909.2	16.0	9.1
01958.HK	BAIC	21,801.7	8.8	5.4	0.3	0.1	215,004.5	23.8	7.5
02238.HK	GAC Group	176,009.1	24.3	14.4	0.7	2.3	76,729.4	3.6	7.3
02333.HK	Greatwall Motor	571,457.5	87.7	20.3	4.4	4.6	125,508.4	17.2	13.6
	Average – Traditional. manufacturers	*255,292.5*	*39.6*	*17.2*	*2.2*	*2.3*	*132,287.9*	*15.2*	*9.4*
01211.HK	BYD	786,815.6	153.0	159.4	8.8	4.2	186,449.7	17.8	4.6
02015.HK	Li Auto	253,877.0	-	-	4.9	22.1	11,488.8	16.4	(4.8)
09868.HK	XPeng	309,778.2	-	-	13.5	37.3	8,315.2	4.6	-
	Average – New energy car manufacturers	*450,156.9*	*153.0*	*159.4*	*9.1*	*21.2*	*68,751.2*	*12.9*	*(0.1)*
IFNNY.US	Infineon	498,375.7	-	30.5	-	-	74,603.9	32.4	8.7
MCHP.US	Microchip	340,209.5	29.4	18.1	4.0	3.7	42,162.4	62.1	8.7
NXPI.US	NXP	446,525.7	27.2	18.2	8.5	5.6	66,795.9	49.2	20.2
ON.US	On Semiconductor	193,943.7	29.6	17.1	6.0	3.8	40,758.5	32.7	17.8
STM.US	STMicroelectronics	349,513.9	-	21.5	-	-	79,260.0	37.1	22.6
	Average – Semiconductor suppliers	*365,713.7*	*28.7*	*21.1*	*6.2*	*4.4*	*60,716.2*	*42.7*	*15.6*
01760.HK	Intron	4,976.7	35.2	23.6	2.5	1.6	2,242.9	18.0	8.0

Source: Bloomberg, West Bull Securities

Risk factors

- Slower-than-expected penetration of new energy vehicles
- Insufficient facilities like charging stations to satisfy the booming demand for EV
- Disappointed market acceptance of Level 2+ autonomous driving
- Slower-than-expected penetration Level 3 or above autonomous driving due to the regulations
- Production limitation imposed by the prolonged shortage of chips

Financial Statement

PnL

(RMB, mn)	2020 (A)	2021 (E)	2022 (E)	2023 (E)
Revenue	**5,325.1**	**7,376.1**	**8,453.5**	**9,603.9**
YoY growth	*28.4%*	*38.5%*	*14.6%*	*13.6%*
COGS	(1,414.9)	(1,951.3)	(2,228.8)	(2,527.5)
Gross profit	**3,910.3**	**5,424.8**	**6,224.7**	**7,076.4**
Other income	121.4	46.1	39.9	71.7
Operating expenses	(3,455.8)	(4,473.4)	(5,148.4)	(5,853.9)
Operating profit	**575.9**	**997.6**	**1,116.2**	**1,294.1**
Finance expenses	(46.8)	(59.4)	(68.2)	(78.1)
JV & Ass.	(3.0)	-	-	-
Profit before tax	**526.1**	**938.2**	**1,048.0**	**1,216.0**
Tax	(86.7)	(159.5)	(178.2)	(206.7)
Net profit	**439.4**	**778.7**	**869.8**	**1,009.3**
YoY growth	*11.5%*	*77.2%*	*11.7%*	*16.0%*
Adj. EBITDA	*648.0*	*1,079.7*	*1,179.3*	*1,345.6*

Balance Sheet

(RMB, mn)	2020 (A)	2021 (E)	2022 (E)	2023 (E)
PPE	650.4	623.1	599.3	578.9
Others	2,685.5	2,760.7	2,863.9	2,985.0
Non-current assets	**3,335.8**	**3,383.8**	**3,463.2**	**3,563.9**
Inventories	679.6	779.9	1,013.7	1,174.6
Trade receivables	673.1	741.5	988.1	1,108.3
Cash & cash equivalents	582.9	424.5	568.7	826.4
Others	474.0	753.9	791.8	841.8
Current assets	**2,409.5**	**2,699.8**	**3,362.2**	**3,951.1**
Total assets	**5,745.4**	**6,083.6**	**6,825.4**	**7,515.1**
LT borrowings	113.6	89.5	70.2	-
Others	465.6	492.4	530.8	575.0
Non-current liabilities	**579.2**	**581.9**	**601.0**	**575.0**
Trade payables	280.6	329.4	314.4	360.2
ST borrowings	252.9	331.3	411.3	463.0
Others	1,154.6	932.5	1,121.8	1,181.4
Current liabilities	**1,688.1**	**1,593.2**	**1,847.5**	**2,004.6**
Total liabilities	**2,267.3**	**2,175.1**	**2,448.4**	**2,579.6**
Non-controlling interests	22.1	22.5	32.4	43.1
Controlling interests	3,456.0	3,886.0	4,344.6	4,892.4
Total equities	**3,478.1**	**3,908.5**	**4,377.0**	**4,935.5**

Cash Flow

(RMB, mn)	2020 (A)	2021 (E)	2022 (E)	2023 (E)
Profit before tax	526.1	938.2	1,048.0	1,216.0
Finance expenses	46.8	59.4	68.2	78.1
Finance income	(1.5)	(1.3)	(1.0)	(1.3)
D&A	125.7	111.9	102.8	96.5
Others	509.0	517.3	461.4	622.4
Change in working capital	210.5	(465.7)	(299.3)	(280.1)
CFO	**1,416.4**	**1,159.8**	**1,380.2**	**1,731.7**
CAPEX	(110.8)	(84.7)	(64.7)	(49.4)
Others	(702.2)	(221.6)	(4.0)	(3.7)
CFI	**(813.0)**	**(306.3)**	**(68.7)**	**(53.2)**
Shares issuance	-	-	-	-
Net borrowings	113.4	54.3	60.7	(18.5)
Interest paid	(18.8)	(26.1)	(29.8)	(33.9)
Dividend paid	(185.5)	(348.2)	(401.4)	(450.8)
Others	(627.9)	(692.0)	(796.8)	(917.6)
CFF	**(718.7)**	**(1,011.9)**	**(1,167.3)**	**(1,420.8)**
FCFE	**905.3**	**1,124.4**	**1,371.1**	**1,658.7**
FCFF	**807.6**	**1,091.8**	**1,335.2**	**1,705.3**

Financial Ratio

	2020 (A)	2021 (E)	2022 (E)	2023 (E)
Gross margin	73.4%	73.5%	73.6%	73.7%
Operating margin	10.8%	13.5%	13.2%	13.5%
Net profit margin	8.3%	10.6%	10.3%	10.5%
Adj. EBITDA profit margin	12.2%	14.6%	14.0%	14.0%
Return on Equity	13.2%	21.1%	21.0%	21.7%
Return on Asset	7.8%	13.2%	13.5%	14.1%
Current ratio	142.7%	169.5%	182.0%	197.1%
Quick ratio	98.0%	105.8%	112.4%	122.4%
Cash ratio	34.5%	26.6%	30.8%	41.2%
Debt-to-Equity ratio	10.5%	10.8%	11.0%	9.4%
Net Debt-to-Equity ratio	-6.2%	-0.1%	-2.0%	-7.4%
Inventory turnover days	171.7	136.5	146.9	158.0
Receivable turnover days	44.4	35.0	37.3	39.8
Payable turnover days	61.7	57.1	52.7	48.7

Source: Company data, West Bull Securities

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