For
Technology,
Quality & Value
Start with

erae AMS

01 WHO ERAE IS

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ERAE AMS at a Glance

ERAE AMS produces and supplies core components of automotive to global leading OEM

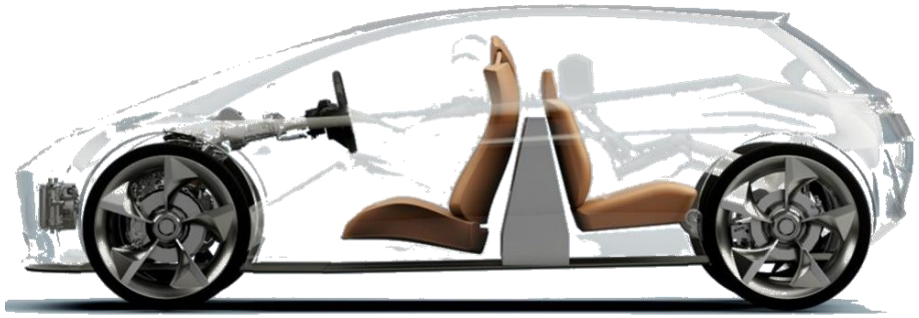
ERAE AMS is automotive components supplier with **37 years' remarkable corporate history**.
Since its establishment, **headquartered in Korea**, its excellent technology has been acknowledged by world renowned automobile manufacturers from USA, Germany, Italy and China as well as Korea as it has supplied compact and lightweight automotive components with outstanding performance and durability based on unparalleled capability in management, production, and technology.

ERAE AMS has state of the art manufacturing facilities and supplies over core automotive components including **driveline, chassis, autonomous driving and smart car components**. The annual production volume is **over 2 million vehicle parts globally**.

ERAE AMS is fully dedicated to become a global leader in the automotive component industry by achieving world-class technology, quality, price and service.

For achieving its goal, ERAE AMS has continued to expand its global presences, currently it has **13 locations in 9 countries**.

The efforts of ERAE AMS are not only for geographic expanding but for the advancement of its business and technology. ERAE AMS has made strenuous efforts to advance its technology base for autonomous driving and EV. Its advanced new products, such as **eAxle, EV platform, competitive core products for the next generation automotive business environment**, will be unveiled, soon.



Year of Establishment	Headquarter	Business	Intellectual Property	Global Presences	Production Capabilities	Employees
1984	Republic of Korea	Components of EV & Autonomous Driving	Domestic : 186 International : 59	13 Locations	Over 2 Million Vehicle parts	1,283

Corporate Philosophy

Reaching the highest levels of technology, quality, and value for our customers.

Creating ‘A better Driving Life’ through Human-oriented Automotive Component Technology

SHARING

Company grows together with and contributes to employees, customers and society by enhancing the values of customers and corporation.

CREATING

Company maximizes productivity and efficiency by focusing on the basics and leads the creative management through the innovation and new technology development.

PRIDE

Company emphasizes the sustainability based on trust, integrity, and harmony, in which all employees can take pride.

Growth History

2020s

Restructuring Biz Into the Future

- **Growing into a specialized company in the field of autonomous driving and electric vehicles**
- Achieved winnings in the autonomous and electric vehicles field
- Securing a smart factory through DX(Digital Transformation)

2010s

Globalization & Network

- 2010, USA tech center opened for USA Biz
- 2013, Established manufacturing site in Jilin, China
- 2014, e-intelligence founded to develop ADAS tech
- 2017, FATEC(Future Automotive Tech Center) founded
- **2017, Changed name as ERAE AMS**
- 2018, Established manufacturing site in Pontiac, USA
- **Grown into a global company by establishing a global manufacturing, R&D, and service network**
- Awarded Excellent Suppliers of GM, FCA, Toyota

2000s

Expansion

- **2001, Changed name as Korea Delphi Automotive system**
- 2007, Established manufacturing site and tech center in Changshu, China
- **Started to diversify customers and enter the global market**

1990s

Technology Independence

- **1998. Established new technical center in Daequ, Korea**
- 1999, Completion of climatic wind tunnel
- **Secured independent design and production technology**

1980s

Establishment

- **1984, JV between GM and Daewoo (Daewoo Automotive Co. Ltd.)**

Product Portfolio

ERAE's Vision is to lead EV market by supplying EV's core technology to our customers

e-Axle System

- Mini/A~F & J/M seg. Available
- 1 or 2 speed transmission
- Motor-Inverter Module
- Various option : e-Parking, e-LSD, e-DD, Dual clutch Torque vectoring

ADAS

- Camera/Radar sensor
- Controller / AI
- Autonomous driving system

Driveline

- Halfshaft
- Rz/TP/DO/CG Joint
- Propeller shaft joint
- Monobloc tubular shaft
- Ball splined shaft

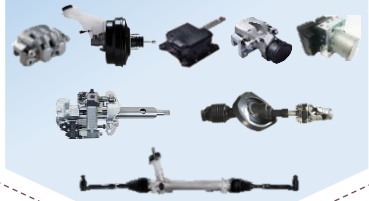
EV Open Platform

- Variable modular skateboard platform

Infotainment

- Smart AV
- Integrated infotainment

Brake & Steering



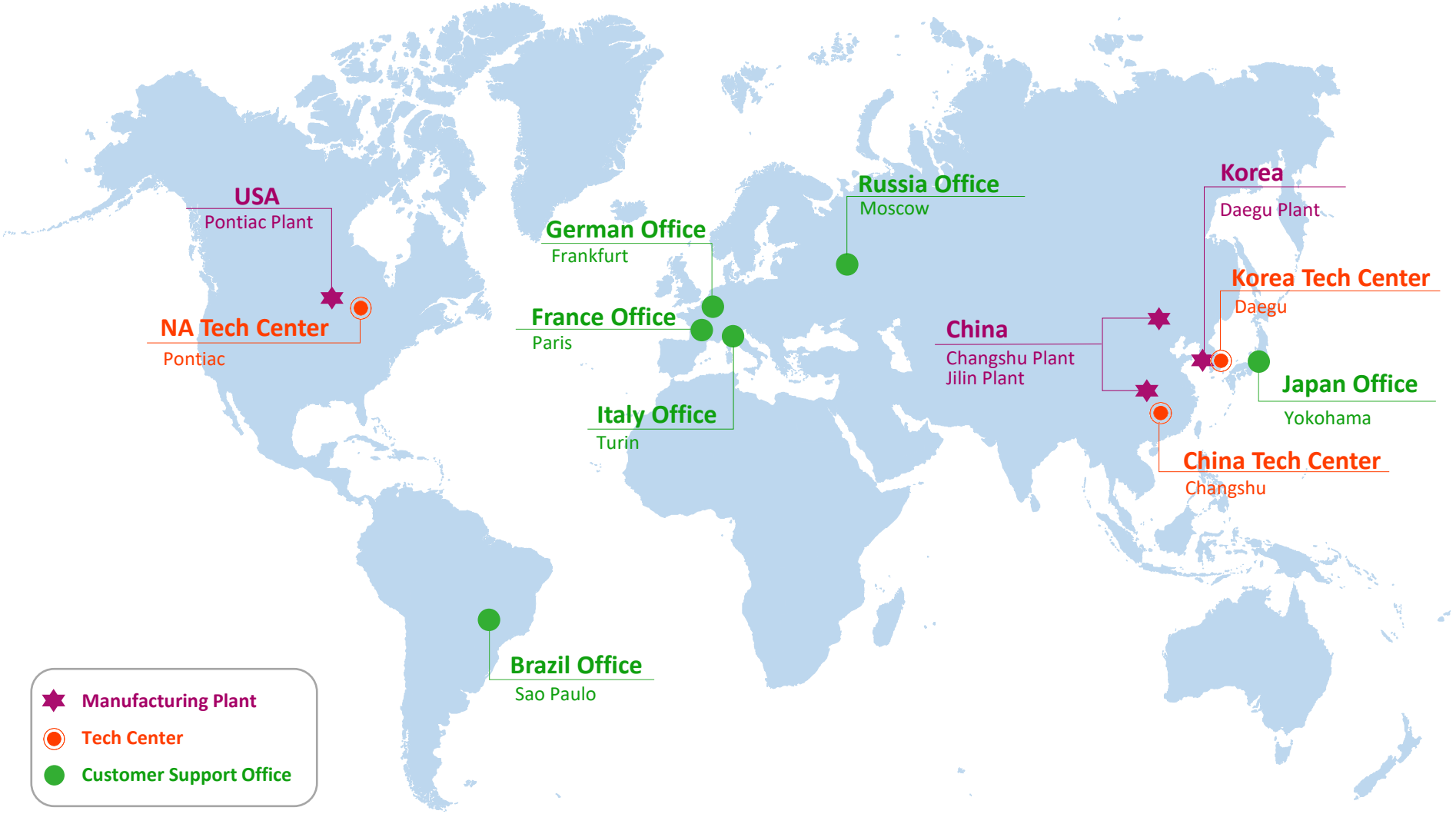
- Caliper brake/Brake booster
- ABS/ESC
- EPB (MoC, Cable Puller)
- Steering column
  Electric tilt & tele. Column
- Intermediate shaft
- Steering gear

Electronics

- Vehicle Control Unit for EV
- Alternator
- 48V BAS
- EGR valve

Global Footprint

4 Manufacturing Sites in 3 Countries
3 Technical Centers and 6 Customer Support Offices in 9 Countries



Customers

ERAE has gained trusted partnerships with customers through many years of technology & service.
These relationships enable us to uncover market trends, understand the challenges and develop new solutions.

02 WHAT WE DO

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+ Driveline
+ Brake
+ Steering
+ ADAS
+ Infotainment
+ VCU
+ eAxle
+ EV Open Platform

Driveline

Current Product Range

- Flexible Torque delivery capacity
- Joint type diversification with Rz/CG/TP/DO
- Solid or tubular interconnecting shaft

Current Product Features

- Lower GAF performance than conventional joint in anti-shudder joint
- Optimized outboard joint with enhanced cage strength at high angle

Advanced Products

- High Efficiency Rzeppa Joint (HERz)
- New Anti-shudder Joint (VSJ)
- 8-Ball CG Joint (CTPJ)
- Ball Splined Shaft (BSS)

HERz

VSJ

CTPJ

Plant Location

- Korea - Daegu Plant
- USA - Pontiac Plant
- China - JilinKdac Plant

Current Customers

- Stellantis, VW, GM, SYMC, Kubota, Daimler FUSO, VF, Rivian, Canoo

BSS

Brake

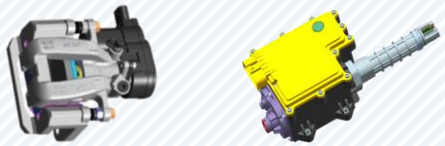
Current Product Range

- Single piston, dual piston, 4-piston, 6-piston caliper brake
- 7”~10” single booster, tandem brake booster
- EPB(MoC, Cable Puller)
- ESC, ABS-H, ESCi (ESC & EPB Integrated)

Conventional Brake

Current Product Features

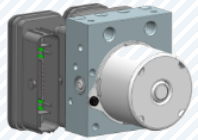
- From small to large size applications of conventional brake
- Fast response with MoC and high hill hold capacity with Cable Puller EPB
- Various high end-added function available with ESC (e.g. ACC,AEB)



EPB (Electric Parking Brake)

Advanced Products

- Under development of ESC for Autonomous driving level 3 vehicle
- EMB for brake by wire operation is under development



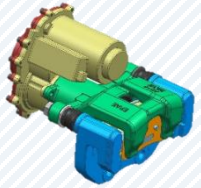
ESC (Electronic Stability Control)

Plant Location

- Korea - Daegu Plant

Current Customers

- GM, RSM, UAZ, NAMI, UzAuto, VINFAST, Korean Domestic EV Customer

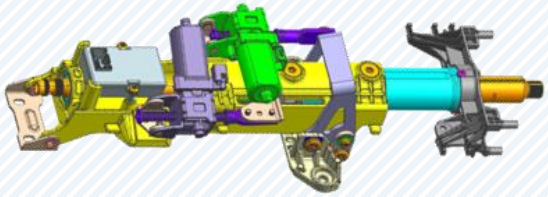


EMB (Electric Mechanical Brake)

Steering

Current Product Range

- Electric Adjustment Steering Column and Controller
- Tilt & Tele. Column with tooth lock mechanism
- 16 tooth Plastic molded (sliding)I-Shaft
- Ball Sliding I-Shaft (intermediate shaft)



EASC (electric adjustment steering column)

Current Product Features

- Tunable energy absorbing mechanism
  (J-Strap, Tear Strap, Moving Tolerance Ring,,.)
- Zero tooth on tooth mechanism for column position lock

Tilt & Telescope Column

Advanced Products

- Quiet Motor Operation (<50dBA)
- Column Natural Frequency (>50Hz)
- Low lash of I-Shaft (< 10’ @ ±1Nm)

Aluminium sliding I-Shaft

Plant Location

- Korea - Daegu Plant
- China – Changshu Plant

Ball sliding I-Shaft

Current Customers

- GM, NISSAN, HYUNDAI, KIA, BAIC, UzAuto, SYMC, VINFAST

ADAS

Current System Sensor Configuration

- Camera, Radar, Ultra Sonic Sensor, ADAS ECU
- Can be flexible depending on customer needs

Current Product Features

- LDW, FCW, LKAS, AEB, BSD
- ACC, RCTA, DOW, AHB

Advanced Products

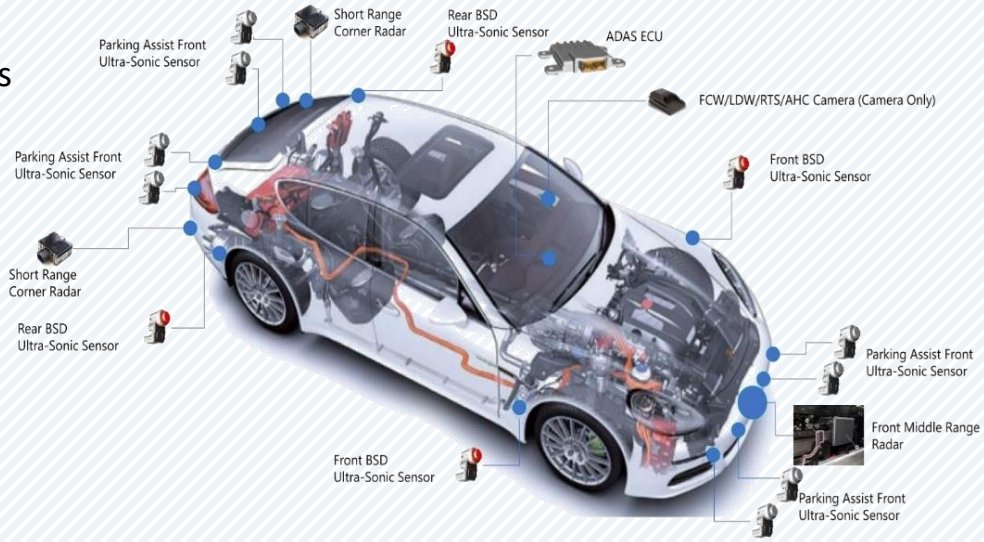
- HAD(Highway Autonomous Driving)

Plant Location

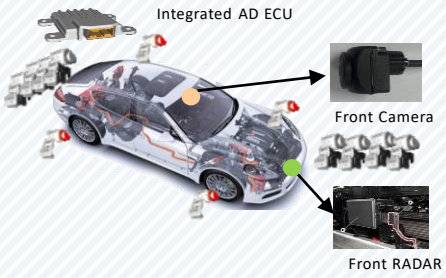
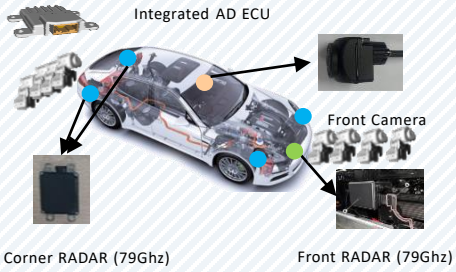
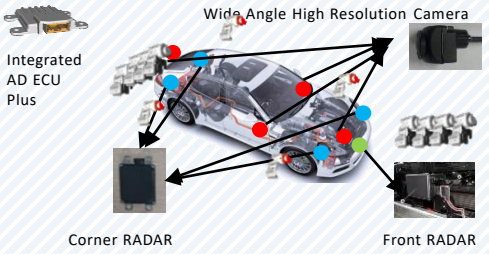
- Korea - Daegu Plant

Current Customers

- VINFAST
- Korean Domestic EV Customers



ADAS Sensor Configuration

System	Cost Effective	Function Effective	HAD (Highway Autonomous driving)
Main Function	LDW,FCW,LKAS,AEB,BSD	ACC /AEB/LKAS RCTA//DOW AHB/BSD/RTD/ISA	HAD (HWP + TJP) SDS (Surround detection System) Rear AEB, RCTA/FCTA/DOW
Main Sensors			

Infotainment

Current Product Range

- 8”~14.6” Smart Audio
- 8” Multimedia Display Unit Rear

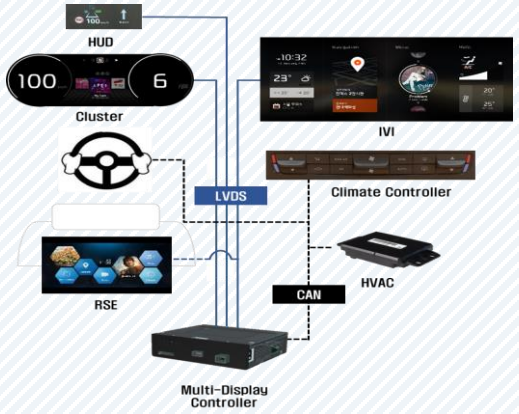
Smart Audio/ Multimedia Display Unit

Current Product Features

- Phone connectivity (CarPlay/ Android Auto)
- Radio/Navigation / climate control integration
- OTA Solution

Advanced Products

- Haptic feedback solution
- OTA Function/ Multi Display solution



Multi-Display Controllerl)

Plant Location

- Korea - Daegu Plant

Current Customers

- VINFAST
- Korean Domestic EV Customers

ERAE Total Infotainment Solution

IVI

In-Vehicle Infotainment
Vehicle Entertainment
Navigation
Mobile Connectivity

RSE

Rear Seat Entertainment
Movie
Music
TV
SNS

Full TFT Cluster

Digital Cluster
TFT LCD Display

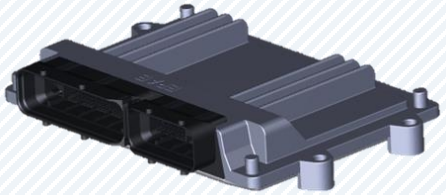
Multi Display

Displays Control System
Hypervisor OS
IVI
Digital Cluster
RSE
HVAC Control

VCU

Overview

- Core product for EV system management
- Optimal motor torque calculation based on drive modes
- Power management considering drivability and battery state
- Cooperative control with other EV components



Main Function

- Powertrain System Control
  - ✓ Optimal motor torque control using pedal map
  - ✓ Speed governing control for cruise & max speed limit
- Driving/Regenerative Braking Control
- DC/AC Cooperative Charging Control
- Vehicle System Sequence Control (e.g. start-up, driving, charging)
- Component/System Diagnostic & Fail Safety

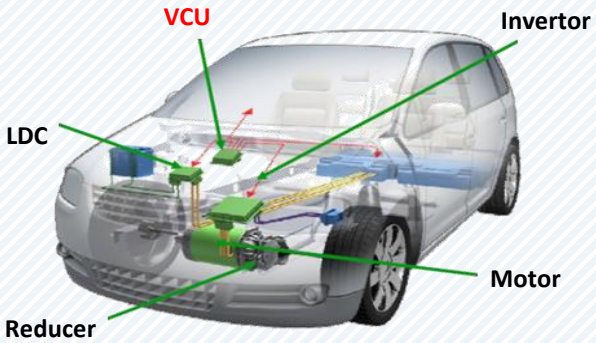
< Logic & Calibration Development System >

Plant Location

- Korea - Daegu Plant

Current Customers

- Songuo, Daechang



< VCU & Main Product of EV >

eAxle

Product Range

- Main e-Powertrain : Micro to D segment
- Main & Auxiliary e-Powertrain : D to J segment
- Vehicle drive type : FWD/RWD/AWD available

Product Features

- Increased energy efficiency & Driving performance
- Improved driving stability by torque vectoring option (Dual electric clutch, e-LSD, e-DD)
- Integrated motor-inverter and co-axial typed for optimized compact package

Advanced Products

- 2 speed shift transmission
- Torque vectoring by dual electric clutch

Tech Ready

- 2023. 12

Parallel type (3 axes)

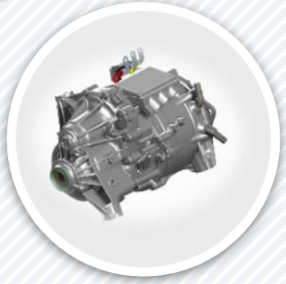
T/M gear ratio : 1 speed

- Motor + Reducer + Differential Gear
- Option : e-Parking
- Commercialization Technology
- For A Segment

Co-axial type (1 axis)

T/M gear ratio : 1 speed

- Motor + Reducer + Differential Gear
- Option : e-LSD, e-DD, e-Parking
- Integrated motor – inverter
- Commercialization Technology
- For B/C Segment



Co-axial type (1 axis)

T/M gear ratio : 2 speed

- Motor + 2 speed T/M + Dual electric clutch (Torque Vectoring)
- Option : e-Parking
- Integrated motor – inverter
- Advanced Technology
- For C/D Segment

EV Open Platform

- ERAE is developing new solutions in the EV Open Platform field with its development experience in Vehicle Control, Driveline, Chassis, and Autonomous Driving technologies
- As a result, ERAE can provide the following technologies to customers planning to enter new markets through co-development or technology transfer

☑ Drive motor replacing internal combustion engine (Applied 3rd generation e-Axle)

☑ Controls the speed of the drive motor (TCU, Inverter)

☑ Regenerative braking and Emergency braking (VCU, ESC, ADAS)

☑ Store electrical energy and supply the required electricity to the drive motor (Battery Module, BMS)

☑ Charging the electrical energy of the battery (OBC)

☑ Underbody constructed chassis and suspension modules for electric vehicles

+

☑ Autonomous Driving (ADAS)

☑ Electric Parking Brake (EPB)

☑ Thermal Management (TMU)

☑ Control/Information (Infotainment)

☑ Reprogramming through AWS (OTA)

☑ Integrated OS + Open API