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MAIN PRODUCT INTRODUCTION

MAKE R&D EASIER.

CONTENTS

1	HIL	05
	RAPID ECU	06
	HIL SYSTEM	07
	MINI HIL	13
	REPLAY HIL	14
2	Network communication	22
	VCAR DAS	23
	IVN tools	25
3	DATA MEASUREMENT, LOGGING and CALIBRATION	30
	adSoft	31
	AD STATION	32
	VGB	45
	VCAR MCD	46
	VGATE Series	47
	Video Acquisitor	51
	C Module	52
4	CLOUD MANAGEMENT	57
	WEB HIL	58
	WEB VGATE	59



COMPANY PROFILE

Founded in 2011, VCARSYSTEM is committed to the development of embedded system R&D testing tool chain, serving the automotive, education, rail transit, aerospace and other industries.

At present, the company has developed a series of R&D tools in rapid prototyping, virtual simulation testing, semi-physical simulation testing, real vehicle testing, data collection and analysis, network simulation testing, etc., aiming to create a more efficient R&D testing platform for customers, to help product development.

In the future, VCARSYSTEM will continue to be customer-centric, uphold the concept of "Making R&D Easier", around virtual simulation testing, software R&D tools and real vehicle testing tool chain, etc., to help customers improve R&D efficiency, shorten R&D time and cost, empower various industries, and help customers succeed.



VISION

MAKE R&D EASIER



RELIABLE PARTNER

Reliable products and services are the cornerstone of the continuous development of Kunyi Electronics. To this end, Kunyi Electronics has adopted:

ISO 9001-2015 Certification

ISO 17025-2017 Testing

General requirements for calibration laboratory capabilities.



APPLICATION OF OUR PRODUCTS AND SERVICES

Bus development test service

Hardware-in-the-loop simulation test

ECU calibration and measurement diagnosis

Production line batch flush test

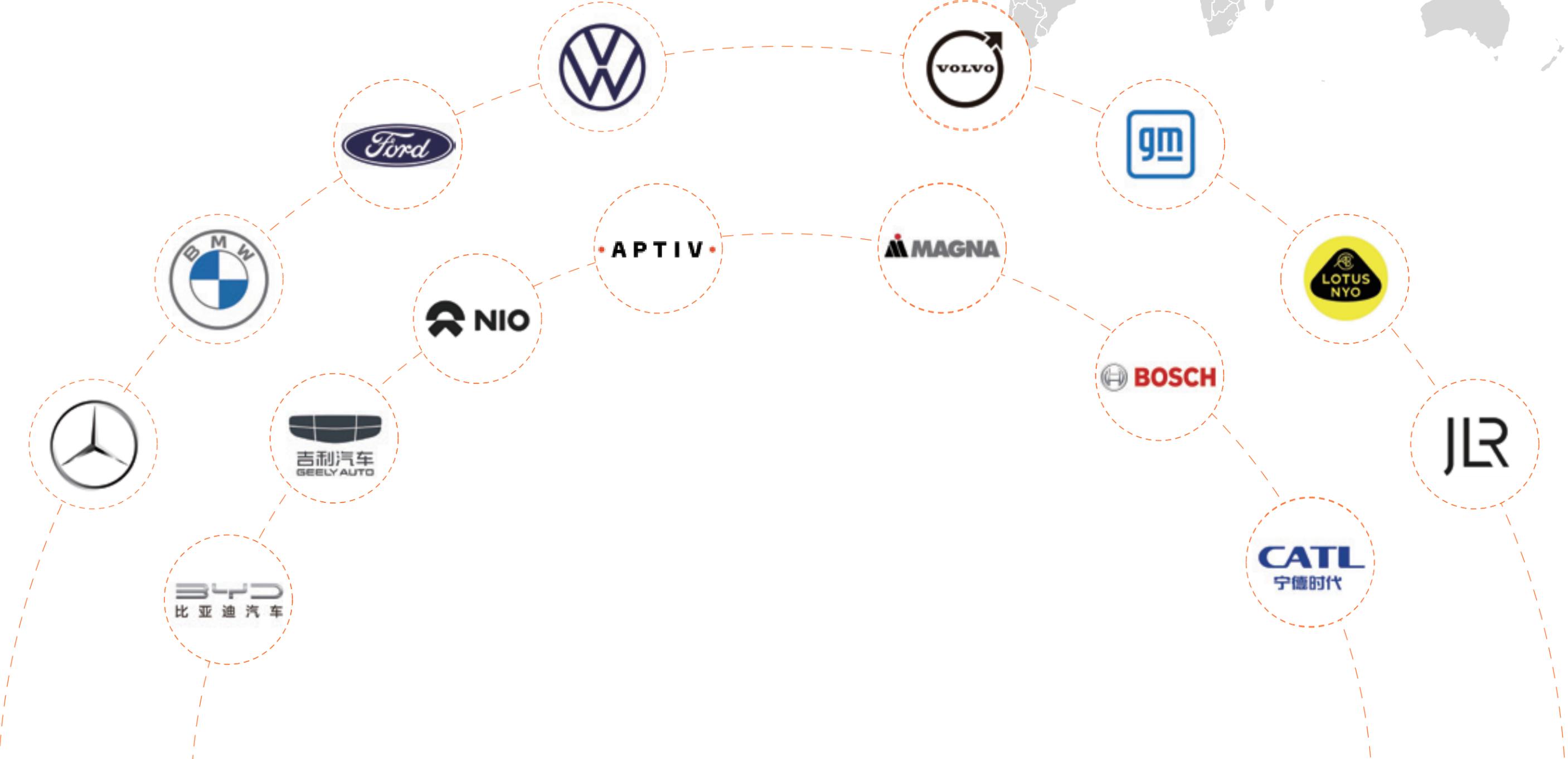
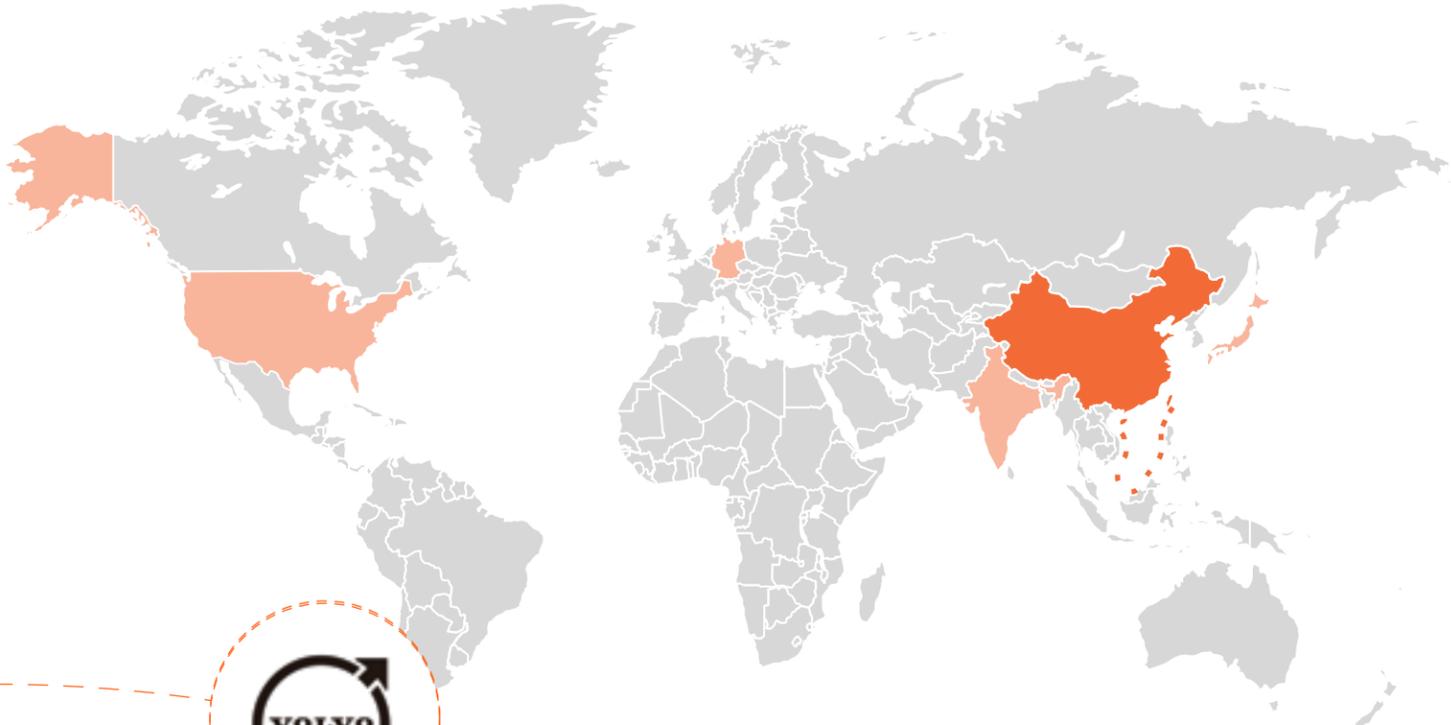
Vehicle data logging

Software testing

HIL test platform and services

ADAS test solutions

COOPERATIVE CLIENT



HIL

- RAPID ECU
- HIL SYSTEM
- MINI HIL
- REPLAY HIL



RAPID ECU

Rapid Prototyping Controller

RAPID ECU provides rich IO interfaces and complete low level drivers. Application model can be developed based on MATLAB/Simulink. The Simulink model is easy to transfer to model files which can be handled by software tools. Model import, application configuration and download to the rapid prototyping controller are realized in RAPID ECU supporting software, which support direct measurement and calibration as well.



FEATURES

- **Modeling based on Matlab/Simulink:** Rapid ECU allows users to model and simulate control strategies in the software environment provided by Matlab/Simulink, making the development process more intuitive and convenient.
- **Automatic code generation:** VCARSYSTEM provides automatic code generation tools that can convert control strategy models into VCX files and import them into VCARSYSTEM's VCAR EM software tools, simplifying the process of code generation.
- **Online parameter calibration:** Rapid ECU supports real-time modification of control strategy parameters and realizes online parameter calibration through the upper computer, greatly improving the flexibility and efficiency of development.
- **Real environment verification:** Rapid ECU will connect real sensors, actuators, and communication nodes, allow users to verify control strategies in real environments, which improve the accuracy and reliability of development.

ADVANTAGES

- **Shorten the development time:** Users can save the development process, such as hardware design, production, operating system transplantation, software design, development of low level drivers and other steps, to shorten the development time.
- **Quick problem location:** Allows users to model and simulate in the software environment provided by Matlab/Simulink during the control strategy development process, and then use the automatic code generation tool to convert the model into a VCX file and import it into the VCARSYSTEM VCAR EM software tool. If any abnormalities are found during verification, they can be immediately investigated through the software tool to help users quickly locate and solve the problem.
- **Online parameter adjusting:** supports real-time modification of control policy parameters, allowing users to achieve online parameter adjusting through the host computer, without code compilation, download and debugging, highly improving development efficiency.

- **Simplify the development process:** Users do not need to develop hardware, write hardware drivers, or focus on the defects of C code itself, and can focus all their energy on the development of control strategies to speed up product development.

APPLICATION SCENARIOS

- Automotive domain control research and verification
- Gateway development and verification
- Preliminary Algorithm and Verification of General Controller
- New energy vehicle control algorithm and verification

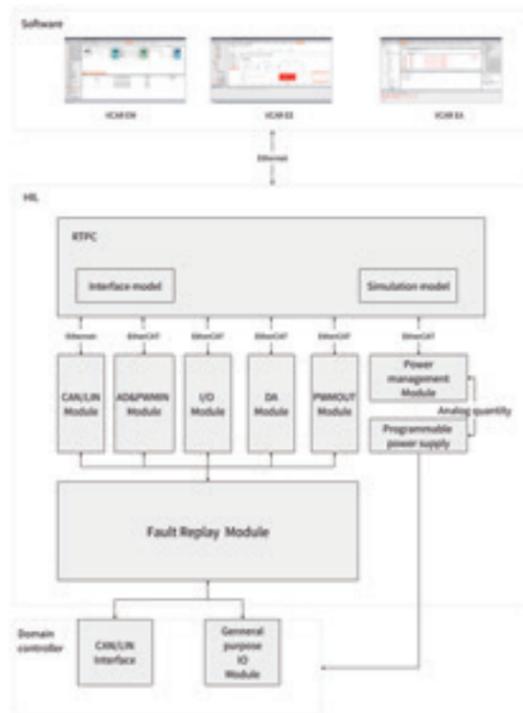
HIL SYSTEM Hardware-in-the-loop Test System

VCARSYSTEM has provided a complete set of HIL SYSTEM covering multiple key areas, including the new energy field (BMS/VCU/MCU), ADAS autonomous driving field (ACC/LKA/AEB, etc.), car body field, traditional automotive power field (EMS/EPS/ESP, etc.), and cockpit field, providing comprehensive hardware-in-the-loop



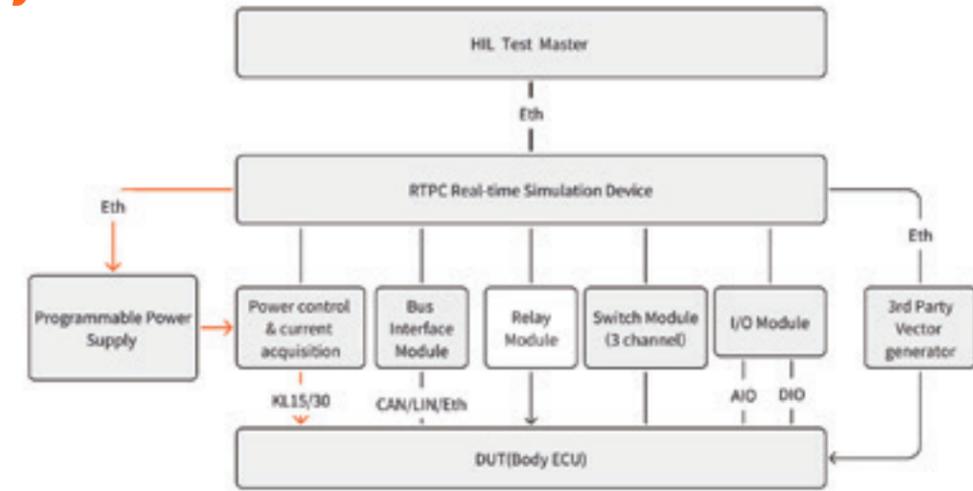
MAIN FUNCTIONS

- **Functional testing:** According to the functional description document of the controller, test and verify all achievable functions one by one.
- **Fault test:** The FIU board can inject electrical faults into each defined pin of the controller, such as open circuit, short circuit to ground, short circuit to power supply, and short circuit between controller pins, to test the controller's diagnostic and fault tolerance capabilities.
- **Automated testing**
 - Various fault injections can be automated tested by writing test scripts.
 - The HIL system also needs to have the ability to read controller diagnostic information in order to achieve automated testing of diagnostic functions
- **Bus network communication test**
 - CAN /LIN network communication test.
 - Ethernet communication test



HIL CLASSIFICATION

Body HIL



The body domain is an important part of the vehicle. With the continuous improvement of vehicle safety and comfort requirements, the body domain controller is becoming increasingly diverse, complex, and intelligent. At the same time, the complexity of network communication, fault diagnosis, and functional interaction between the body domain controller and other controllers is increasing.

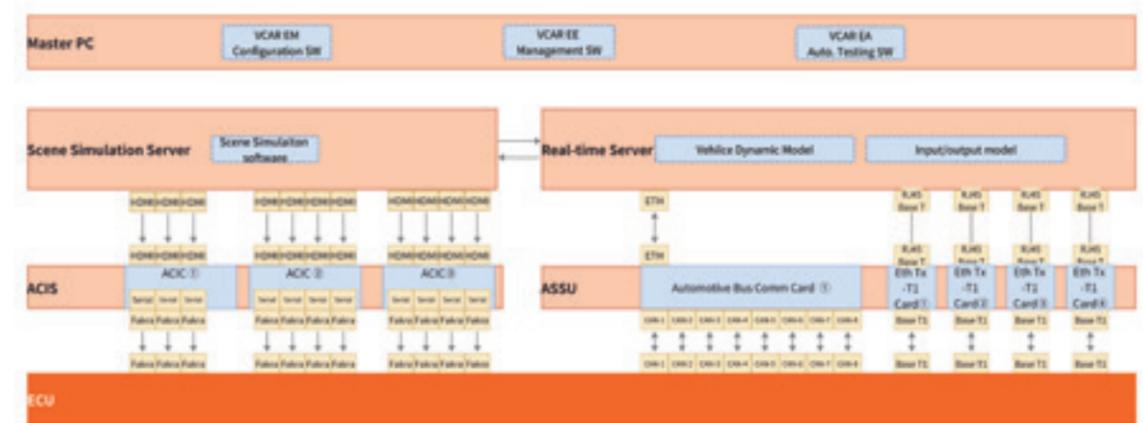
The hardware-in-the-loop test system realizes the closed-loop simulation and testing of the vehicle body domain controller by simulating the sensors and actuators of the domain controller.

Reserved interface can support testing in other domains (such as cockpit).

FEATURES

- Supports conventional bus (CAN/LIN/Eth) and hardwired I/O testing, supports SOA simulation
- Supports three-channel switching, that is, automatic switching of real/virtual sensors and real/virtual loads
- Customized development of related load platforms (PEPS shielding box, back door platform, seat platform, etc.)
- Combining third-party signal generators to achieve RKE simulation

AD HIL



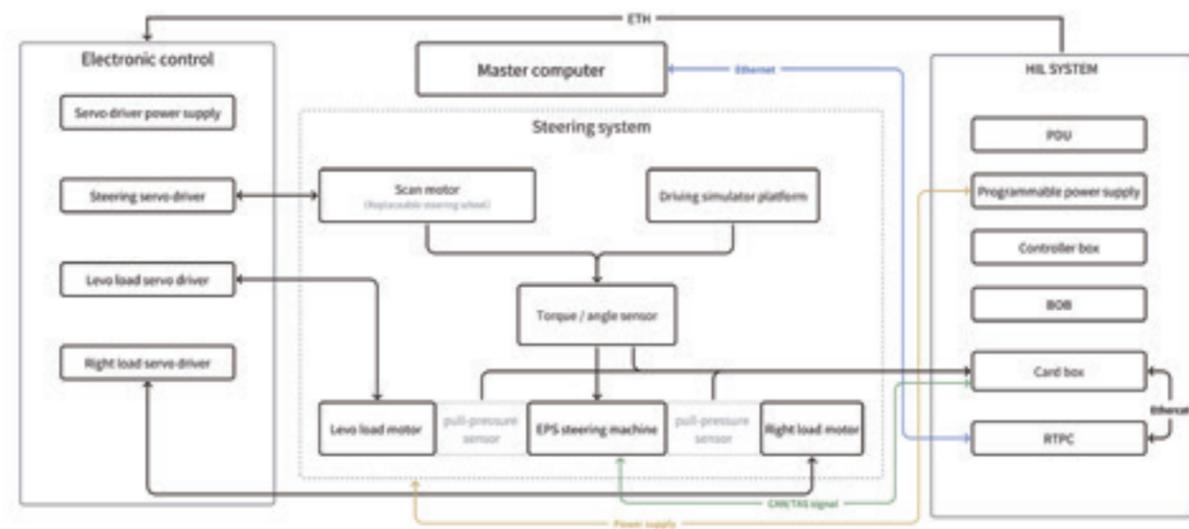
ASBU Automotive Sensor Signal Simulation Unit
 ACIC Automotive Camera Injection Card
 ACIS Automotive Camera Injection system
 ECUC Electronic Control Unit

AD HIL injects the virtual sensor data generated by the scene simulation software into the AD Domain Controller. Meanwhile, the system receives the data returned by the domain controller, parses it through the model in the real-time server, and then transmits the parsed data to the scene simulation software to achieve close-loop and expand the richness of scenario for autonomous driving feature testing and verification.

FEATURES

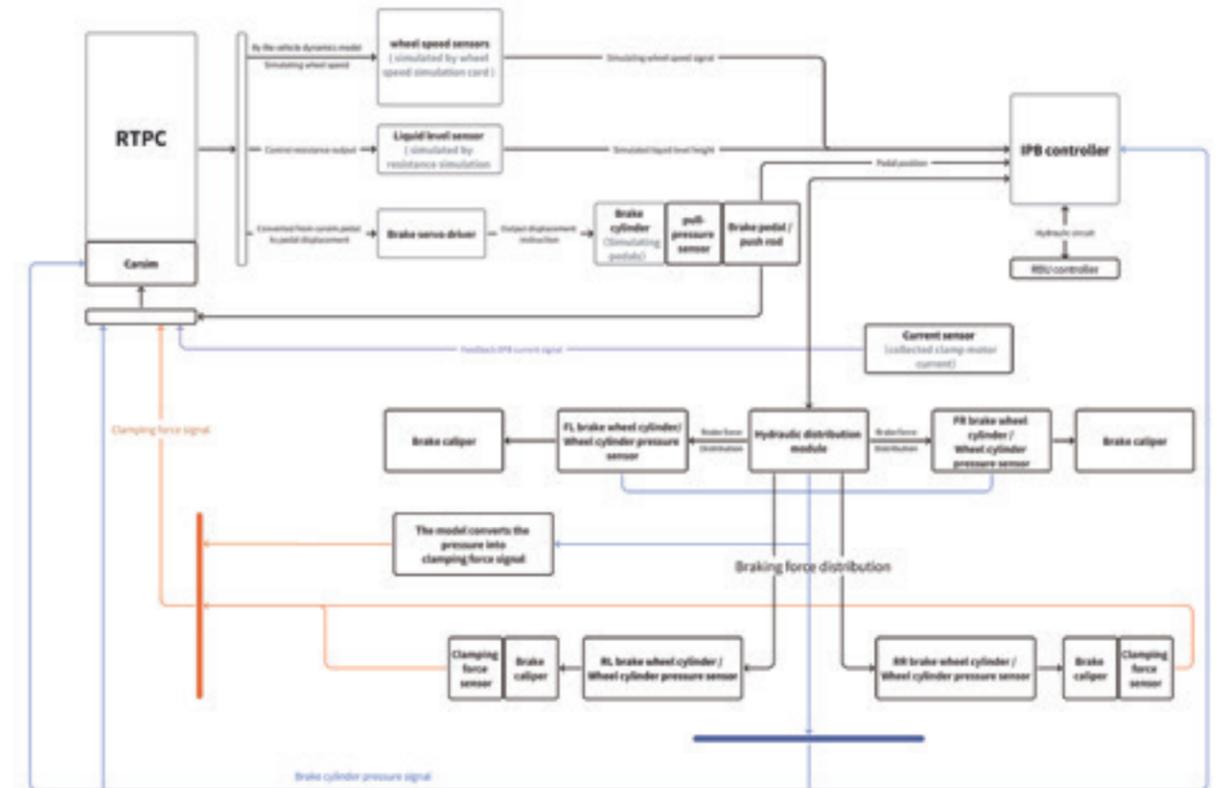
- Low latency System for close-loop simulation
- High fidelity image injection
- Bus Node Simulation
- Automotive Ethernet Middleware Node Simulation
- Support fault injection

SEMI-PHYSICAL SIMULATION TEST -STEERING HIL



VCARSYSTEM’ s independently developed EPS system test bench solution is a mechatronics bench, mainly composed of HIL cabinet, electrical cabinet, and steering machinery bench, combined with vehicle dynamics model, upper computer software, and automated testing software. It has the characteristics of openness and flexibility, supports simulated real environment testing, supports customers to freely set test parameters, can fully monitor experimental parameters and experimental output results during the experimental process, and generate reports, suitable for various testing scenarios of EPS systems.

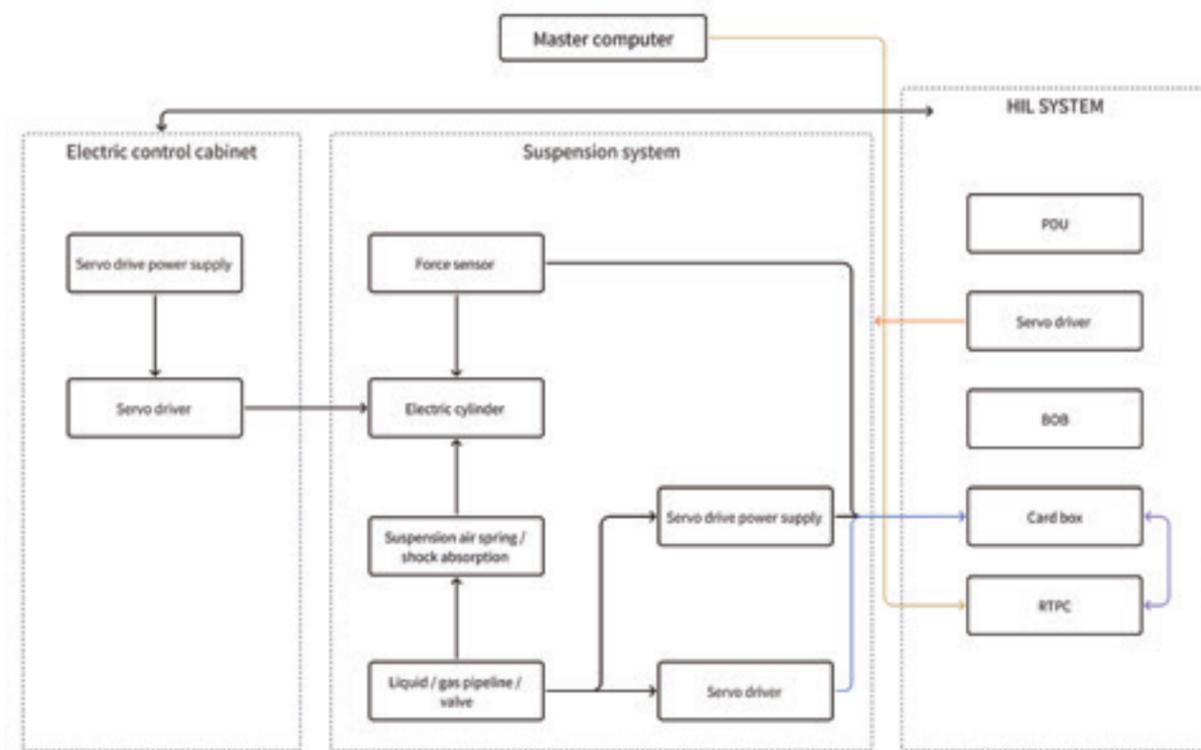
SEMI-PHYSICAL SIMULATION TEST – BRAKING HIL



The brake pedal opening degree input is provided by the dynamic model of the platform. The RTPC converts the opening degree signal into a control signal of the cylinder displacement through the conversion model to control the action of the brake cylinder. The integrated brake controller (one box) receives the pedal position, simulated wheel speed signal, and liquid level signal to control the action of the brake actuator. The signal of the brake actuator is collected by the corresponding sensor and converted back to the dynamic model by the RTPC, realizing the closed loop of the HIL braking system.

The brake system HIL can be automated tested by automatic testing software. It can provide a test regulation database interface, achieve model loading and loading automation (dynamic model switching, such as different vehicle models, road models, and test condition models can be automatically loaded and loaded), regulation execution automation, regulation switching automation, data storage automation, automated test reports (can be customized according to user requirements), and post-processing automation (reserved post-processing interface, software interface supports C language or Python).

SEMI-PHYSICAL SIMULATION TEST – SUSPENSION HIL

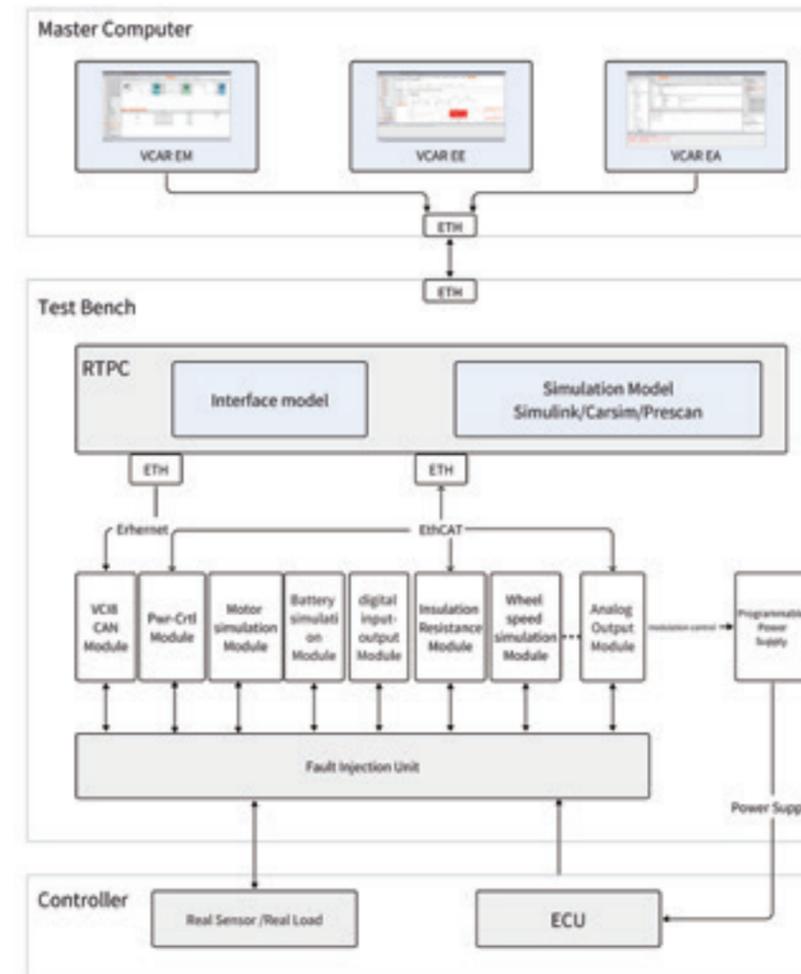


VCARSYSTEM’s self-developed semi-physical suspension testing platform solution has the characteristics of ease of use, openness, and flexibility. Some of the actual operation actions of the simulation system are completed by the real mechanical structure, and the environmental loading and signal input and output of the controller periphery are completed by the HIL system. The entire system consists of two parts: the mechanical testing platform and the upper computer HIL software.

FEATURES

- Characteristics of openness and flexibility.
- The platform supports simulating real environment testing.
- Supports customers to freely set test parameters.
- Able to fully monitor experimental parameters and output results during the experimental process.

Power Train-VCU/BMS/MCU HIL



VCARSYSTEM’s self-developed new energy electric HIL can perform functional testing on VCU, BMS, and MCU controllers. It can quickly verify the logic and functional response of the controller in the research and development stage in the laboratory, and assist in the development and debugging of the tested controller. By simulating the input signals required by the controller and detecting the output signals of the controller, the logic function, communication, and fault diagnosis functions of the controller can be tested.

FEATURES

- Simulate various working conditions of the controlled system and vehicle through mathematical models to meet the needs of functional testing.
- Equipped with fault injection function, it can simulate electrical faults, controlled system faults, etc. The upper computer can directly control the fault injection unit without the need for separate fault injection software.
- Supports motor inverter drive function verification, meets torque response and tracking condition testing.
- Supports simulation and testing of the national standard fast charging GBT27930-2011 and GBT27930-2015 "Communication Protocol between Off-Board Conductive Charger and Battery Management System for Electric Vehicles".
- Supports XCP-based calibration and measurement without the need to purchase additional third-party software and hardware for calibration.

MINI HIL

Desktop Hardware-in-the-loop Test System

MINI HIL is a desktop HIL testing system launched by VCARSYSTEM. It has powerful processing capabilities and flexible configurable board slots, high standardization, short delivery cycle, and can quickly respond to customers' testing needs.



FEATURES

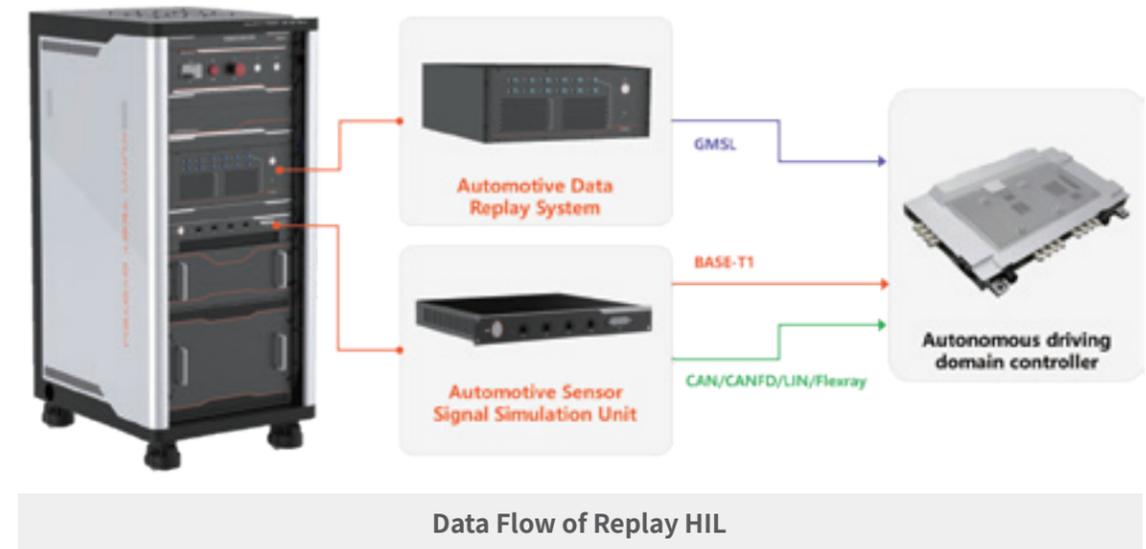
- Supports HIL 2.0 software platform
- The high computing power of the 8-core Intel processor better meets the development and verification of RCP and HIL stages
- Supports all kinds of vehicle networks, including CAN/CANFD, LIN, and Ethernet, etc
- Supports conventional input & output signals such as DA/AD, PWM and DIO etc.
- Supports special signals such as resistor output, cell simulation, fault injection, PSIS, etc
- Possibilities for more expansion and combination

APPLICATION SCENARIOS

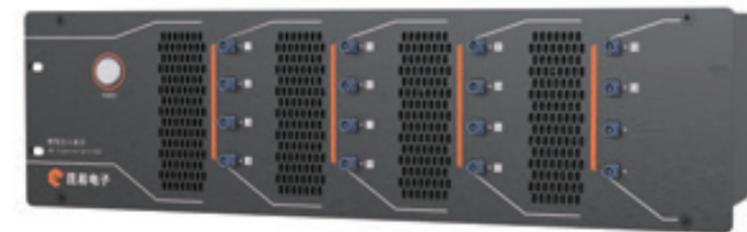
- Virtual controller simulation, in vehicle network simulation.
- Software and hardware functional testing, network testing, open-loop testing, durability testing

REPLAY HIL

The REPLAY HIL provides a solution to realize the raw data replay of high-order autonomous driving sensors in the laboratory environment. It can easily realize the repetition of specific scenes and environments, greatly improving the R&D and testing efficiency of the perception algorithm. The solution can be applied to DMS/OMS testing, and support fault injection to evaluate system robustness and capability under abnormal conditions.



ADRS -Automotive Data Replay System



- Forwarding video content to camera serialized link (e.g. GMSL1/2, FPDLINK, etc.)
- Supports serial data output for connecting ECU tested parts
- Supports serializer model customization
- Supports custom I2C handshake protocol
- Single channel resolution up to 8M pixels 30 frames
- Supports RAW/YUV and other types of video injection formats
- Supports MIPI/DVP protocol
- Synchronization accuracy of each channel is 1ms.

ASSU - Automotive Sensor Signal Simulation Unit

Road acquisition data injection and collection



HARDWARE CHANNEL OVERVIEW

- 8-Channel CAN/CANFD;
- 8-Channel LIN;
- 1-Channel FlexRay
- 4-Channel vehicle Ethernet conversion channel

FUNCTIONS

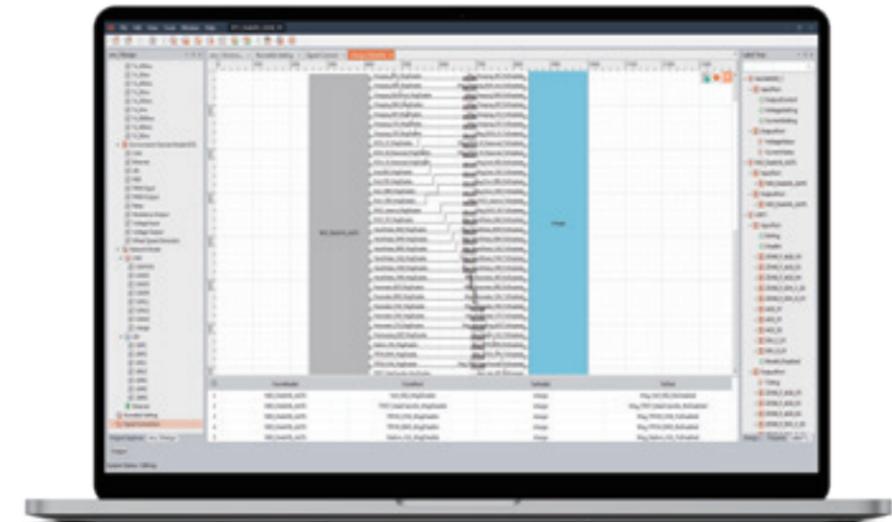
- Bus
 - CAN/CANFD protocol supports: ISO 11898-1, ISO 11898-5, ISO 11898-6, ISO11898-2 for high-speed CAN.
 - CAN/CANFD baud rate can be configured.
 - CAN supports baud rate range: 40kBd~ 1MBd.
 - CANFD supports baud rate range: 40kBd~ 5MBd.
 - Supports DBC file import and parsing.
 - LIN protocol supports: 1.3, 2.0, 2.1, 2.2;
 - LIN supports baud rate range: 0~ 20KBd;
 - FlexRay protocol Supports
- Ethernet
 - Supports 1-channel 100/1000BASE-T1 interface
 - Supports mutual conversion between 100/1000BASE-T1 and standard Ethernet
 - Supports reading link status (LINK UP/LINK DOWN)

HIL SOFTWARE TOOL CHAIN

VCARSYSTEM integrates a complete HIL software tool chain, including engineering configuration software VCAR EM, test management software VCAR EE and automated test software VCAR EA. Through this platform, users can quickly deploy and download software to achieve rapid switching and management between different software components. Among them, VCAR EM is responsible for project configuration, supporting multiple hardware and model running configurations, as well as mapping and compilation functions. VCAR EE focuses on test management, provides a rich control library and user interaction functions, and supports real-time data monitoring, record storage and bus monitoring.

VCAR EM - Configuration Software

VCAR EM is an engineering configuration software developed by VCARSYSTEM for the HIL platform, which can perform HIL engineering related configurations. It includes GPIO signal configuration, CAN/CANFD, LIN, Ethernet and other bus communication configurations, board hardware configuration, simulation object model import, signal mapping relationship configuration, real-time host multi-tasking allocation and management configuration, engineering compilation and other functions. At the same time, the software supports multi-tasking allocation management and multi-device cascade configuration, meeting different test scenario configuration requirements.



FUNCTION

- Supports for configuring and managing multiple platforms simultaneously
- Supports for configuring and managing multiple runtime environments
- Supports manual addition of board information and remote automatic reading and scanning.
- Supports viewing and configuring hardware devices of HIL test system, such as board ID, board signal, IO signal channel information, IO channel parameters, etc.
- Supports automatic association mapping of model interface, function interface and hardware interface;

- Supports loading Simulink model, CarSim vehicle dynamics model, Prescan vehicle dynamics model, AmeSim model, Vgrade vehicle dynamics model. For models built on the Simulink platform, it is possible to browse the models for easy real-time viewing.
- Supports user-defined models for data transmission; for example, simple logical transportation processing and output of input signal values (using this function requires certain programming skills).
- Supports loading and creating common models, such as CAPL models, structure models, electronic load models, timer models, expression models, and event generator models, for easy user access; support importing Vector CAPL scripts to automatically create virtual nodes, and enable data interaction between the node and other models in the testing system for closed-loop testing.
- Supports loading and creating network models, such as FastDDS, SOME/IP, dynamic and static PDU LDF, Socket-Client, Socket-Server, CAN Codec.
- Supports configuration and simulation of Ethernet topology, support creation and editing of virtual switches, connections between virtual and physical network ports, MAC address, VLAN, IP Address, routing table and other information, support simulation of residual Ethernet topology structure.
- By importing an arxml file, a someIP simulation node is automatically generated to simulate and test functions such as Service Discovery, publishing, subscribing, and remote procedure calling of the someIP node. The generated someIP simulation node can interact with other models of the testing system to achieve joint closed-loop testing.
- Supports importing dbc/arxml/ldf files to achieve real-time encoding/decoding of CAN (FD)/LIN messages/PDU signals, support SecOC standard, and realize calculation and verification of Rolling Counter and MAC values in messages.
- Supports creating virtual CAN (FD)/LIN nodes by importing dbc/arxml/ldf files, and realize data interaction between this node and other models in the test system for closed-loop testing.
- Supports virtual simulation of multi-channel CAN (FD)/LIN bus and residual bus communication simulation.
- DDS node simulation function: Supports automatically generating DDS simulation nodes by importing DDS protocol description files, achieving simulation and testing of DDS node functions such as Service Discovery, publishing, subscribing, and remote procedure calling. The generated DDS simulation nodes can interact with other models of the testing system to achieve closed-loop testing.
- Custom protocol node simulation: Provide Socket interface, supports users to implement their own private protocol node simulation through socket interface model.
- Supports database functions to manage various files, such as .dbc, .ldf, .idl, .proto, .vcx, .par, .sim, .arxml, .a2l, etc., for users to use when configuring models.

VCAR EE - Management Software

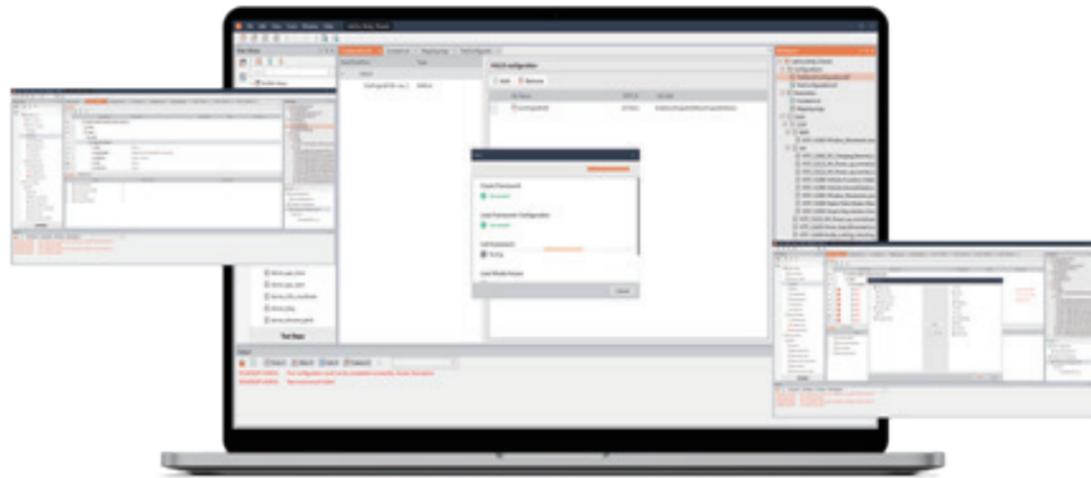
VCAR EE is an easy-to-use and highly customizable HIL test software with various types of control libraries, making it easy to operate. The software can customize the test interface to achieve different test contents. At the same time, it provides a data recording function, which can save and record relevant data in the test for subsequent analysis. It also integrates VCARSYSTEM'S self-developed measurement calibration diagnostic equipment to achieve virtual calibration and diagnosis of the controller, and synchronizes the internal data of the controller and HIL test data.



FUNCTION

- Supports simultaneous deployment and operation of multiple test environments on the same device
- Supports functions such as managing multiple projects and experiments simultaneously.
- Supports access to bus systems such as CAN, LIN, ETH, etc.
- Recorded bus data can be replayed, and automatic monitoring, recording, and playback control can be performed.
- GUI editing function, supporting users to create controls and experimental interfaces by dragging and dropping.
- Supports functions such as engineering and experimental management.
- Compatible with multiple ASAM standards.
- Supports accessing various buses through PC bus or wireless, as well as monitoring and data recording of various buses.
- Supports XCP and CCP protocols to access ECU.
- Provide a powerful editor for graphically defining excitation signals.
- Easy playback of measured and recorded data, including: ASAM MDF.
- Supports control fault injection unit, can be used to simulate line faults of electronic control unit.
- Supports fault injection for CAN/LIN in the physical layer, data link layer, and application layer, including electrical open circuit, short circuit fault, link layer transmission bit fault, error frame injection, application layer message delay, MAC tampering and other fault injection functions.
- Supports real-time monitoring, display and storage of Ethernet communication messages, and synchronize with other buses and signals of the test system.
- Supports users to flexibly generate and send Ethernet Layer 2 messages, realizing the generation and sending of any Ethernet Layer 2 messages.
- Supports fault injection function of multi-layer Ethernet protocol, and the injection logic can be linked with other models in a closed loop.
- Supports real-time monitoring, display and storage of communication messages on CAN (FD)/LIN bus, and synchronize with other buses and signals of the test system.
- Supports flexible user configuration to generate and send CAN (FD)/LIN messages.
- Supports graphical signal source editing, providing commonly used signal forms such as constant input, ramp input, saw-tooth wave input, pulse input, Sine input, exponential input, etc. Complex signals can be achieved through the combination of the above signal sources.

VCAR EA - Auto.Testing Software



VCAR EA is an automated testing software independently developed by VCARSYSTEM. Through dedicated interfaces and testing tools, it can provide excellent support for editing and managing test cases, executing and evaluating test cases, generating test reports and other aspects.

In addition, considering the constantly changing testing requirements, VCAR EA supports the establishment of various user-defined steps to meet personalized needs and is widely used in the field of automotive Control Unit testing. (If there is support for standard interfaces, it can also be extended here.)

FUNCTION

- Built-in basic action steps such as read and write and conditional judgment, supporting graphical drag-and-drop method to build test sequences
- Basic action steps to support ADB tools and image recognition
- Supports creating user-defined action steps based on python
- Supports Excel to automatically generate executable test cases
- Supports nesting and serialization editing of test sequences
- Supports automated testing of diagnostic and flashing functions based on ISO standards
- Automatically generate test reports in formats such as .html and .pdf, as well as custom test report generation, including customization of layout, format, content and other aspects.

CUBESTACK Cloud Real-time Simulation Test System



A clustered real-time test system solution that test resources are pooled and support flexible resource expansion, multi-task and multi-environment parallel operation, and support remote access.

FEATURES

- **Flexible allocation of resources:** configurability and scalability enable flexible access to HIL resources
- **Multi-user remote access:** one HIL for one user/multi-users, multi-HIL for one user/multi-users
- **Multi-environment concurrent execution:** multi-user concurrency, multi-environment concurrency
- **Synchronization:** time synchronization and data synchronization for multi-HIL
- **Digital management:** account management, cluster HIL management, remote monitoring, digital reports
- **Automated testing:** support automated script and access to CI/CD system

APPLICATION SCENARIOS

- Multi domain testing of the whole vehicle
- Software concurrency test
- Autonomous driving concurrent perception test
- Real-time simulation and data injection test of multi-sensor signals for autonomous driving
- Establish a test factory to support various testing scenarios and requirements



CUBESTACK is a comprehensive testing system consisting of three parts: HIL cluster test management platform, test toolchain VCAR SYSTEM, and cluster HIL hardware.

- The HIL cluster test management platform is mainly responsible for user management, configuration of test resources, and monitoring of bench status.
- The test toolchain is responsible for building test engineering, models, and configuration benches, writing and executing test scripts, and recording test data.
- The hardware part includes key components such as real-time machine RTPC, IO board, load board, bus board, time synchronization board, and cluster management platform server, providing powerful hardware support for testing. These three parts work closely together to ensure efficient, accurate, and reliable testing.

CUBESTACK management platform



- Administrators create and manage user accounts
- Accept applications from users and create virtual benches
- Allocate RTPC resources, I/O resources, CAN bus resources, etc. to virtual benches
- To distribute the allocated virtual bench resources to the host EM and RTPC
- Monitor the running status and report the platform status information

FUNCTIONAL MODULES

- Virtual bench management: create and release virtual benches according to the application of users, allocate and release RTPC resources, IO resources, CAN bus resources, etc.
- Device resource management: Add, delete and maintain RTPC nodes, bus boards, and IO resource boards for cluster HIL
- Device Monitoring Center: Real-time monitoring of the running status of each RTPC node, monitoring CPU resource usage and temperature information, monitoring the running status of the IO resource pool and bus resource pool, and reporting abnormal information
- User management: create, delete and maintain users accounts, group management and user permission configuration
- Big data visualization: real-time display of virtual bench running status, node information, device status statistics, resource usage and device monitoring and early warning information

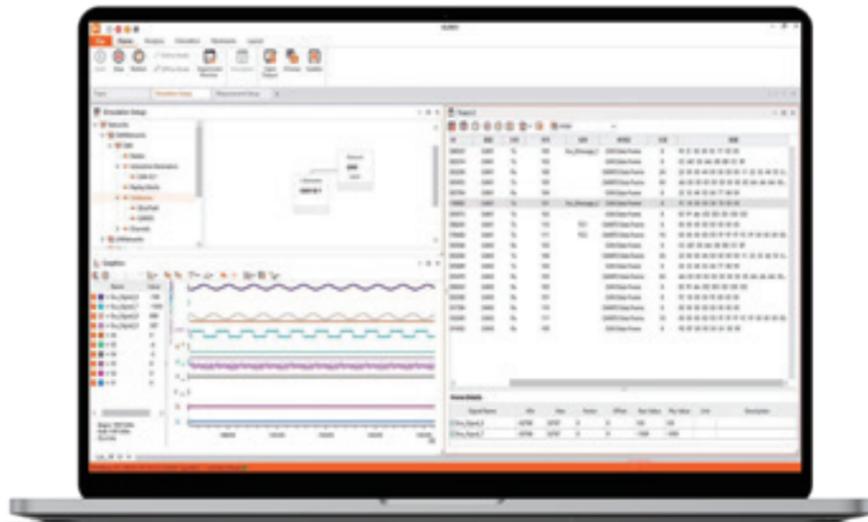


NETWORK COMMUNICATION

VCAR DAS
IVN TOOLS

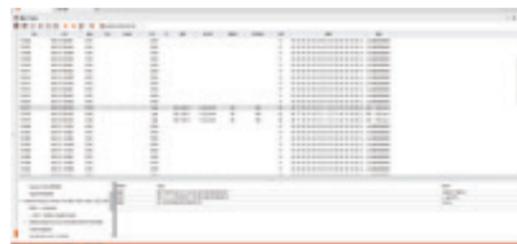
VCAR DAS

Integrated software for automotive developing, testing, and analyzing



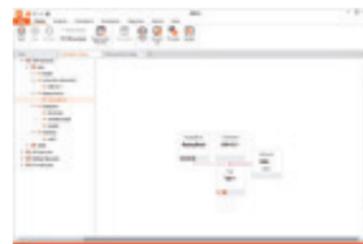
VCAR DAS integrates automotive bus simulation, analysis, testing, diagnosis, database editing, calibration testing, as well as radar, video, and GPS data monitoring. It supports CAPL scripts and Automotive Ethernet communication protocol. Not only does it possess outstanding features such as node simulation, diagnostic flashing, database editing, and parsing, but it also enables automated development testing, significantly enhancing development efficiency and accuracy.

FEATURES



Bus analysis, recording, replay

- Supports CAN/LIN/FlexRay/Ethernet bus analysis
 - Supports DBC, LDF, Arxml, Fibex database signal parsing
 - Supports bus signal import oscilloscope analysis
 - Supports Ethernet packet protocol field parsing
 - Supports various filters
- Supports data recording, offline/online data replay
 - Supports online logging file recording
 - Supports online playback data injection
 - Supports offline data playback analysis
 - Supports multiple file formats such as BLF, PCAP, ASC, MDF, etc



Node simulation

- Node simulation
 - Supports CAPL node simulation
- IG module
 - Supports custom message sending
 - Supports adding messages from the database
 - Supports button, manual, periodic sending
- Replay Block
 - Supports playback node addition and configuration
- Database import
 - Supports DBC, LDF, Arxml, Fibex database import



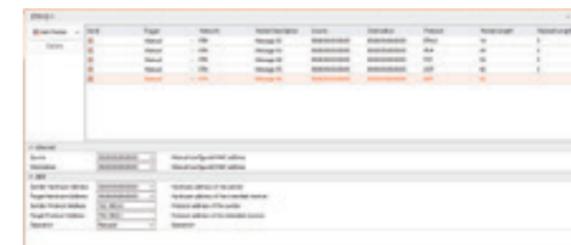
UDS diagnosis

- Supports CAN/CANFD/Ethernet diagnostics
- Supports CDD, ODX, PDX file import
- Supports parsing of diagnostic message parameters
- Supports diagnostics related parameter configuration
- Supports security unlocking algorithm DLL file import
- Supports custom diagnostic service command configuration
- Supports multiple diagnostic commands to execute configurations in order



CAPL, Python automated testing

- Full support for CAPL interface, quick switch from CANoe to VCAR DAS
- The CAPL program runs in real time, and the test cases are executed accurately in chronological order
- Add DBC, LDF, Arxml database messages and signals by dragging and dropping
- According to user needs, support custom CRC, E2E, SecOC interface development
- Supports Python test script development



Vehicle Ethernet simulation, analysis, and testing

- Supports 2-7 channels layer Ethernet message sending and receiving
- Supports Ethernet protocol field parsing
- Supports TCP/IP protocol stack configuration, supports VLAN configuration
- Supports DoIP diagnostic protocol testing
- Supports SOA simulation testing based on SOME/IP protocol.
- Capable of parsing SOME/IP payload
- CAPL programming interface, supports Socket and Output methods
- Send and receive Ethernet messages

ADVANTAGES

- Supports remote calibration, measurement, and diagnostic flashing
- Supports CAPL and Python script editing, can complete complex simulation testing work
- Supports vehicle Ethernet protocol conformance testing and vehicle control network protocol conformance testing based on vehicle Ethernet OPEN TC8 and custom test standards
- The core software is independently developed and controllable
Software is stable and reliable

APPLICATION SCENARIOS

- Network development
- Network simulation
- Network testing
- Calibration and measurement
- ECU/Vehicle Development
- ECU/vehicle diagnostics flashing

IVN TOOLS

VCI Series

The VCI series support multiple bus interfaces such as CAN, CANFD, LIN, FlexRay, and Ethernet. It can be used for simulation, testing, measurement, and calibration of CAN, CANFD, LIN, FlexRay, and Ethernet buses. Based on SOC and FPGA, it provides powerful performance and stability guarantees for simulation and testing solutions for CAN, CANFD, LIN, FlexRay, and Ethernet buses.

APPLICATION SCENARIOS

- **Used with VCAR DAS**
 - Analysis of vehicle bus data
 - Bus load monitoring
 - Vehicle network test
 - Vehicle/ECU Testing
 - Vehicle/ECU Diagnostics
 - Simulate sending CAN /CANFD/LIN messages
 - CAN /CANFD/LIN Bus Node Simulation
 - ECU calibration and measurement
 - OBD emission diagnosis

VCI 2200- Multi-Channel Interface for IVN

The VCI 2200 is suitable for CAN /CANFD and LIN bus message transmission and node simulation, with excellent performance and minimum latency, while ensuring the accuracy of timestamp.



FEATURES

Multi-channel

- 2-Channel independent isolation high-speed CAN/CANFD channel supports simultaneous operation, each with a baud rate of up to 1Mbps.
- 2-Channel independent isolation LIN channel supports baud rates of up to 19200 bps.
- Supports digital interference, applicable for bus off and sampling point testing.

Multi-scenario application

- Small in size and light in weight, with waterproof IP5K and dustproof capabilities, along with an independent power supply, for easy portability, this device is suitable for various environmental scenarios.

VCI 4422- Multi-Channel Interface for IVN



The VCI 4422 is suitable for CAN /CANFD, LIN, FlexRay and Ethernet bus messaging and node simulation, with excellent performance and minimal latency, while ensuring the accuracy of timestamps.

FEATURES

Multi-channel

- 2-Channel 100/1000BASE-T1 Automotive Ethernet.
- 2-Channel 100BASE-TX/1000BASE-T standard Ethernet.
- 4-Channel independent isolation high-speed CAN/CANFD channels support simultaneous operation of 2 channels with baud rate support up to 1Mbps.
- 4-Channel independent isolation LIN channels support baud rates of up to 19200bps.
- 2-Channel independent isolation FlexRay channels support Channel A and Channel B, with each channel supporting baud rates of ≤ 10 Mbps and hardware/software clock synchronization capability.

Multi-scenario application

- Supports USB 3.0 connection to PC for data transfer.
- Supports flexible configuration of the Switch mode for Automotive Ethernet to meet diverse testing and simulation needs.
- Supports CAN/CANFD digital interference, applicable for bus off and sampling point testing.
- Supports clock synchronization to achieve synchronization across multiple devices after cascading. Small in size, light in weight, IP5K waterproof and dustproof, with independent power supply, making it convenient to carry and suitable for various environmental scenarios.

VBE Series

VBE can realize the physical layer conversion between vehicle Ethernet and standard Ethernet, which is convenient for engineers to develop and test. With DAS software, it can realize the decoding and analysis of Ethernet data streams.

VBE 1001- Automotive Ethernet Interface

Automotive Ethernet Conversion for 100/1000BASE-T1 Automotive Ethernet Data Acquisition Analysis and Testing Module.



FEATURES

- Supports 1-channel 100/1000BASE-T1 interface
- Supports conversion between 100/1000BASE-T1 and standard Ethernet
- Supports reading link status (LINK UP/LINK DOWN)

ADVANTAGES

- Small size, light weight, convenient to carry
- Supports IP5K waterproof and dustproof
- Independent power supply
- Suitable for various environmental scenarios

APPLICATION SCENARIOS

- Bench testing/Real Vehicle test
- Acquisition and analysis of Automotive Ethernet data
- Automotive Ethernet test

VBE 1010 - Automotive Ethernet Interface

Automotive Ethernet Conversion Board for 2.5G/5G/10GBASE-T1 Automotive Ethernet Data Acquisition Analysis and Testing Module.



FEATURES

- 1-Channel 2.5G/5G/10GBASE-T1 interface
- Supports mutual conversion between 2.5G/5G/10GBASE-T1 and 2.5G/5G/10GBASE-T standard Ethernet
- Supports reading link status (LINK UP/LINK DOWN)

ADVANTAGES

- Small size, light weight, convenient to carry
- Supports IP5K waterproof and dustproof
- Independent power supply
- Suitable for various environmental scenarios

APPLICATION SCENARIOS

- Bench testing/Real Vehicle testing in high-bandwidth and high-speed scenarios
- Acquisition and analysis of Automotive Ethernet data in high-bandwidth and high-rate scenarios
- Automotive Ethernet testing in high-bandwidth and high-speed scenarios

VBE 1200 - Automotive Ethernet Interface

Automotive Ethernet Conversion Board for 100/1000BASE-T1 Automotive Ethernet Data Acquisition Analysis and Testing Module.



FEATURES

- 2-Channel 100/1000BASE-T1 interfaces
- Supports conversion between 100/1000BASE-T1 and standard Ethernet
- Supports reading link status (LINK UP/LINK DOWN)
- Supports port mirroring

ADVANTAGES

- Small size, light weight, convenient to carry
- Supports IP5K waterproof and dustproof
- Independent power supply
- Suitable for various environmental scenarios

APPLICATION SCENARIOS

- Bench testing/Real vehicle test
- Acquisition and analysis of Automotive Ethernet data
- Automotive Ethernet test

VIT 1101 - LINK Partner

VIT 1101 supports 100/1000BASE-T1 physical layer IOP testing.



FEATURES

- Supports 100/1000BASE-T1 physical layer IOP testing
- Supports UART/CANFD (FD)/100BASE-T1/1000BASE-T1 communication with DUT
- Supports 100/1000BASE-TX communication with PC
- Output voltage $\geq 24V$, output current $\geq 10A$
- Supports internal Gaussian noise source or external noise source

APPLICATION SCENARIOS

- Automotive Ethernet Physical Layer IOP Testing



DATA MEASUREMENT LOGGING AND CALIBRATION

- ADSOFT
- AD STATION
- VGB
- VCAR MCD
- VGATE SERIES
- VIDEO ACQUISITOR
- C MODULE

adSoft-ADAS FUNCTIONAL EVALUATION SOFTWARE

adSoft integrates multiple ADAS evaluation functions to meet the driving and parking function evaluation needs of intelligent driving, such as AEB/FCW, LDW/LKA, ACC, APA, etc. For different evaluation items, the software provides corresponding functional pages to achieve online/offline intuitive visualization, as well as the final statistical analysis report generation and export.

- **Evaluation function** : Supports AEB/FCW, LDW/LKA, ACC, APA and other ADAS functions evaluation
- **Online/offline visualization** : Supports the visualization of target information detected by sensors, bus signal values, waveform diagrams, point clouds, and video image displays, easy to observe and find problems
- **Marking and triggering functions** : Supports manual, automatic, conditional, external triggering functions, multiple ways to mark key events/scenes
- **Pop-up function** : Supports ADAS events such as AEB/FCW/LDW/ACC and other functions to trigger key information pop-up display, highlighting important information to assist in functional judgement
- **Report generation** : Supports one-click generation and export of multiple ADAS function evaluation reports for users to improve and optimize functions and algorithms.



ADVANTAGES

- **Convenient operation** : simple, easy to use, flexible interface controls
- **Rich evaluation functions** : support evaluation of multiple ADAS functions, such as AEB/FCW, LDW/LKA, ACC, APA, etc
- **Rich marking functions** : support automatic/manual/conditional triggering, easy to mark key time segments
- **Easy export of statistical analysis reports** : support one-click export of statistical analysis reports in PDF format for easy download and viewing
- **Statistical analysis reports with rich contents**: for different ADAS functions, provide targeted analysis reports, and conduct targeted, multi-dimensional, and diversified statistical analysis of data

APPLICATION SCENARIOS

- Evaluation of intelligent driving and parking functions

AD STATION Autonomous Driving Data Recorder

The AD STATION SERIES are All-in-One and high-precision time synchronous autonomous driving data recorders, which support multiple ADAS sensors such as GMSL/FPD-Link cameras, LiDARs, Radars, IMU, etc. Besides, user-controller visualization software supports ADAS/AD functionality validation.

ADS 1024

Industrial-grade artificial intelligence platform , supports Automotive Ethernet interface , Intel 9th generation Core™ processor

- Intel 9th Generation Core™ i9 LGA1151 CPU
- Supports 64GB DDR4 2133 memory
- 10-channel Automotive Ethernet interface
- 32-channel CAN/CANFD
- 30-channel LIN
- 4-channel FlexRay
- 6-channel Gigabit Ethernet interface
- Supports multiple serial port functions



System kernel

CPU	Intel®i9-9900K CPU
Chipset	Intel®Q370 Platform controller
Memory	2×SO-DIMM slots for up to 64G DDR4 2133 memory
Ethernet	6×regular gigabit ethernet (expandable); 10×automotive ethernet
Display interface	1×DVI-D interface; 1×DP interface; 1×VGA interface
Serial port	Multiple RS-232/422/485 ports (COM1/COM2/COM3)
USB 3.1	8 USB 3.1 Gen1 (5Gbps)
CAN/CANFD	32 Channels
LIN	30 Channels
Flexary	4 Channels
Audio interface	A 3.5mm interface for microphone input and speaker output

Storage port

SATA	2×Hot-swappable hard drive brackets for mounting 2.5 "solid state disks
PCI Express	2 PCIe x16 slots @Gen3, 16-lanes
mini-PCIe	1×Full-length mini-PCIe slots

Power supply

DC input	A 3-core plug-in terminal module provides 8 ~ 35V DC input.
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Mechanical Specifications

Size	403x331×235(mm)
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Environmental indicators

Operating temperature	-25° C to 70° C
Storage temperature	-40° C to 85° C
Humidity	10% to 90%, no condensation

APPLICATION SCENARIOS

- Data collection and analysis for scenarios with multiple CAN channels, multiple Ethernet, and multi Automotive Ethernet.

ADS 1280

Industrial grade artificial intelligence platform , supports USB camera , Intel 9th generation Core™ processor

- Intel 9th generation Core™ i9 LGA1151 CPU
- Supports 32GB DDR4 2133 memory
- Supports 2 hot-swappable 2.5 "hard disk boxes
- Supports 16-channel CAN/CANFD
- Supports 16-channel LIN
- Supports 2-channel FlexRay



System kernel

CPU	Intel® i9-9900KCPU	Chipset	Intel® H310 Platform Controller
Memory	1×SO-DIMM Slots for up to 32GB of DDR4 2133		
Ethernet	2× Gigabit Ethernet (extensible)	Display interface	2×DVI-D interface
Serial port	3×RS-232 / 422 / 485 port (COM1 / COM2 / COM3)	USB	4×USB3.2 Gen1(5Gbps)
CAN/CANFD	16 channels	LIN	16 channels
Flexray	2 channels	Audio interface	1×3.5mm port for Microphone input & Speaker output

Storage interface

SATA	2× Hot-swappable hard drive bracket for mounting 2.5" hard drive	mini-PCIe	1×Full-length mini-Pcie slot
PCI Express	1× PCIe x16 slot @Gen3, 16-lanes; 1× PCIe x8 slot @Gen3, 4-lanes; 1× PCIe x4 slot @Gen3, 1-lane		

Power supply

DC Input	1×3-core plug-in terminal module provides 8-35V DC input
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Mechanical specification

Size	264 x 331 x235 (mm)
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Environmental indicators

Operating temperature	-25° C ~ 70° C	Storage temperature	-40° C ~ 85° C
Humidity	10% ~ 90% (no condensation)		

APPLICATION SCENARIOS

- Data collection for USB cameras/CAN/LIN/FlexRay data.

ADS 1281

Industrial GPU artificial intelligence platform, supports two RTX 30 Series NVIDIA® graphics cards, Intel 9th generation Core™ processor

- Supports 2 RTX 30 Series NVIDIA® graphics cards
- Intel 9th Generation Core™ i9 LGA1151CPU
- 4 SO-DIMM memory slots for up to 128GB of ECC/ non-ECC DDR4 2133 memory
- 16-Channel CAN/CANFD
- Supports 16-Channel LIN
- Supports 2-Channel FlexRay



SYSTEM KERNEL

CPU	Intel® i9-9900KCPU	Chipset	Intel® C246 Platform Controller
Memory	4 × SO-DIMM slot, supporting up to 128GB of ECC/non-ECC DDR4 2133 memory		
Ethernet	2 × Gigabit Ethernet (Extensible)	Display interface	1×VGA interface,1×DVI-D interface, 1×DP interface
Serial port	2 × RS-232/422/485 port (COM1/COM2)	USB	4×Gen1(5Gbps) & 4× Gen2(10Gbps)
CAN/CANI	16 channels	LIN	16 channel
Flexray	2 channels	Audioport	1×3.5mm port for Microphone input & Speaker output

STORAGE PORT

SATA	2× Hot-swappable hard drive brackets for mounting 2.5" solid state disks	mini-PCIe	2×Full-length mini-Pcie slot
PCI Express	2× PCIe x16 slots@Gen3, 8-lanes, 2× PCIe x8 slots@Gen3,4-lanes,1× PCIe x4 slots@Gen3,1-lane		
M.2	1×M.2 2280 M Key slot (Gen3 PCIe4)		

Power supply

DC Input	2×4-core plug-in terminal module provides 8~35V DC input
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Mechanical specifications

Size	318x360x235(mm)	Installation method	Shelf installation
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Environmental indicators

Operating temperature	-25° C ~ 70° C	Storage temperature	-40° C ~ 85° C
Humidity	10% ~ 90%(no condensation)		

APPLICATION SCENARIOS

- ADAS Laboratory Development and Debugging
- ADAS Site Testing
- ADAS Road Testing

ADS 1284

Industrial GPU artificial intelligence platform, supports two RTX 30 Series NVIDIA® graphics cards, Intel 11th generation Core™ processor.

- Supports 2 RTX 30 Series NVIDIA® graphics cards
- Intel 11th Generation Core™ i9 LGA1200 CPU
- 4 SO-DIMM memory slots for up to 128GB of ECC/ non-ECC DDR4 2133 memory
- Supports 16-Channel CAN/CANFD
- Supports 16-Channel LIN
- Supports 2-Channel FlexRay



SYSTEM KERNEL

Controller	Intel® i9-11900 CPU	Chipset	Intel® W580 Platform Controller
Memory	4 × SO-DIMM slot, supports up to 128GB ECC/non-ECC DDR4 2133 memory		
Ethernet	1× Gigabit Ethernet, 1× 2.5G Ethernet(Extensible)		
Serial Port	4× COM RS-232/422/485	USB	6× Gen2(10Gbps)
CAN/CANFD	16 channels	LIN	16 channels
Flexray	2 channels	AudioPort	1 × 3.5mm interface for microphone input and speaker output

Storage interface

SATA	4× Hot-swappable hard drive brackets for mounting 2.5" solid state disks	mini-PCIe	2× Full-length mini-Pcie Slots
PCI Express	2× PCIe16 Slot @Gen3, 8× Lanes, 3× PCIe16 Slot @Gen3, 4-Lanes		
M.2	1× M.22280M Key Slot (Gen3 PCIe4), 1× M.22242 B key Slot		

Power supply

DC Input	1 x 4-core plug-in terminal module provides 9~55V DC input
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Mechanical specifications

Size	253x375x208(mm)	Installation method	Shelf installation
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Environmental indicators

Operating temperature	-25° C ~ 70° C	Storage temperature	-40° C ~ 85° C
Humidity	10% ~ 90% (no condensation)		

APPLICATION SCENARIOS

- ADAS Laboratory Development and Debugging
- ADAS Site Testing
- ADAS Road Testing

ADS 1686

Industrial grade artificial intelligence platform, supports GMSL camera, Intel 9th generation Core™ processor

- Intel 9th generation Core™ i9 LGA1151 CPU
- Supports 32GB DDR4 2133 memory
- Supports 8-channel GMSL 1/2 camera interface
- High synchronization accuracy Up to 500µs-1ms synchronization accuracy, supporting PTP, GPS(PPS) synchronization
- High processing performance: It can build rapid prototypes of domain controllers, supports open data interfaces such as V4L2, Socket can, ROS, etc., and provides direct access to raw data from sensors to quickly validate algorithmic models in testing, facilitating rapid iterative validation.
- High adaptability: Adapt to mainstream sensors in the market.



SYSTEM KERNEL

CPU	Intel® i9-9900K CPU
Chipset	Intel® H310 platform controller
Memory	1× SO-DIMM slot for up to 32 gigabytes of DDR4 2133 memory
Ethernet	2× Gigabit ordinary Ethernet (extensible)
Display interface	2× VI-D interface
Serial port	3× RS-232/422/485 ports (COM1/COM2/COM3)
USB	4× USB 3.1 Gen1 (5Gbps)
CAN/CANFD	6 Channels
LIN	1 Channel
Audio interface	1× 3.5mm interface for microphone input and speaker output

Storage interface

SATA	2× Hot-swappable hard drive brackets for mounting 2.5" hard drive/solid state drive
PCI Express	1× PCIe x16 slot @Gen3, 16-lanes; 1 PCIe x8 slot @Gen3, 4-lanes; 1 PCIe x4 slot @Gen3, 1-lane
mini-PCIe	1× Full-length mini-PCIe slot

Power supply

DC input	1× 3-core plug-in terminal module provides 8-35V DC input
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Mechanical Specifications

Size	313x331x235(mm)
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Environmental indicators

Operating temperature	-25° C ~ 70° C
Storage temperature	-40° C ~ 85° C
Humidity	10% to 90% (no condensation)

APPLICATION SCENARIOS

- ADAS function evaluation solution
 - Used with adSoft, collect sensor data to achieve ADAS function evaluation.

ADS 3000 PRO

Industrial GPU artificial intelligence platform, supports two RTX 30 Series NVIDIA® graphics cards, Intel 9th generation Core™ processor



- Supports 2 RTX30 Series NVIDIA graphics cards, with FP 32 computing power up to 28 TFLOPS.
- Intel 9th Generation Core™ i9 LGA1151 CPU.
- 4 SO-DIMM memory slots for up to 128 GB of ECC/non-ECC DDR4 2133 memory
- 12-channel GMSL1/2 camera interface
- High synchronization accuracy: up to 500µs-1ms synchronization accuracy, support PTP, GPS(PPS) synchronization
- High processing performance: can build rapid prototypes of domain controllers, support open data interfaces such as V4L2, Socket CAN, ROS, etc., can directly access the raw data source of sensors, quickly verify algorithm models in experiments, and iterate and verify conveniently and quickly
- High adaptability: Suitable for the mainstream sensors in the market

Hd camera: GMSL cameras from Senyun, Leopard, Lianchuang, Desai, Hikvision, Yinchuang and other manufacturers

Lidar: Hesai LiDAR series, Sagitar Juchuang LiDAR series, etc

Smart cameras: Mobileye EyeQ4, Horizon J2/J3, etc

RTK/IMU: NovAtel, ASENSING, Beidou Satellite, CHCNAV, DAISCH, etc

APPLICATION SCENARIOS

- Advanced level automated driving data collection, capturing video YUV data encoding compression.

System kernel

CPU	Intel® i9-9900K CPU
Internal memory	4× SO-DIMM slots that support up to 128GB of ECC/ non-ECC DDR4 2133 memory
Display interface	1×VGA interface; 1×DVI-D interface; 1×DP interface
USB	4×Gen1(5Gbps) & 4×Gen2(10Gbps)
LIN	2 channels
Audio interface	1 × 3.5mm interface for microphone input and speaker output
Chipset	Intel®C246 platform controller
Ethernet	2× Gigabit Ethernet (extensible)
Serial port	2×COM RS-232/422/485
CAN /CANFD	16 channels
FlexRay	2 channels

Storage interface

SATA	2× Hot-swappable hard drive brackets for mounting 2.5“ hard drive/solid state drive
mini-PCIe	2× full-length mini-PCIe slots
PCI Express	2× PCIe16 slots @Gen3,8-lanes; 2× PCIe8 slot @Gen3,4-lanes; 1× PCIe4 slot @Gen3, 1-lane
M.2	1× M.2280M key slot (Gen3 PCIe4); 1× M.2242B key slot

Power supply

DC input	2 × 4-core plug-in terminal module provides 8~35V DC input
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Mechanical Specifications

Size	381 x 360 x 235(mm)
Installation method	Shelf installation

Environmental indicators

Operating temperature	-25°C~70°C
Operating Humidity	10% to 90%(no condensation)
Storage temperature	-40°C~85°C

ADS 3010

Data Acquisition and RAW video data for advanced autonomous driving

- Supports 2 RTX 30 Series NVIDIA graphics cards
- Supports 12-channel GMSL1/2 & FPD-LINK camera access
- Each channel supports ISP processing for 8MP 30FPS cameras
- Supports 16-channel CAN/CANFD, 15-channel LIN, 2-channel FlexRay
- Supports 2-channel Gigabit Ethernet and can support expansion
- High synchronization accuracy: up to 1ms synchronization accuracy, supporting gPTP/PTP synchronization



System kernel

CPU	Intel® i9-9900K CPU	Chipset	Intel® C246 Platform Controller
Memory	4 × SO-DIMM slot, supports up to 128GB ECC/non-ECC DDR4 2133 memory	Ethernet	2 × Gigabit Ethernet (extensible)
Display interface	1 × DVI-D interface, 1 × DP interface, 1 × VGA interface	Serial port	2 × serial port
USB	4 × USB3.1 Gen1(5Gbps) & 4 × USB3.1 Gen2(10Gbps)	CAN/CANFD	16 channels
LIN	15 channels	FlexRay	2 channels
Audio interface	1 × 3.5mm interface microphone input and speaker output		

Storage interface

SATA hard drive	2 × Hot-swappable hard drive brackets for mounting 2.5" hard drives/solid state drives	mini-PCIe	2 × Full-length mini-PCIe slots
PCI Express	2 × PCIe × 16 slots @Gen3,8-lanes; 2 × PCIe × 8 slots @Gen3,4-lanes; 1 × PCIe × 4 slots @Gen3,1-lane		

Power supply

DC Input	2 × 4 core plug-in terminal module provides 8~ 35V DC input
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Mechanical specification

Size	381 × 360 × 235(mm)
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APPLICATION SCENARIOS

- Advanced Autonomous Driving Data Acquisition, RAW video data ISP processing, encoding, compression and writing to disk

ADS 3020

For Advanced Autonomous Driving Data Acquisition and RAW Data Compression Acquisition

- Supports 2 RTX 30 Series NVIDIA graphics cards
- Supports 12-channel GMSL1/2 & FPD-LINK camera access
- Each channel supports 8MP 30FPS RAW compressed storage
- Supports 16-channel CAN/CANFD, 15 LIN, 2 FlexRay
- Supports 2-channel Gigabit Ethernet and can support expansion
- High synchronization accuracy: up to 1ms synchronization accuracy, supporting gPTP/PTP synchronization



System kernel

CPU	Intel® i9-9900K CPU	Chipset	Intel® C246 Platform Controller
Memory	4 × SO-DIMM slot, supports up to 128GB ECC/non-ECC DDR4 2133 memory	Ethernet	2 × Gigabit Ethernet (extensible)
Display interface	1 × DVI-D interface, 1 × DP interface, 1 × VGA interface	Serial port	2 × serial port
USB	4 × USB3.1 Gen1(5Gbps) & 4 × USB3.1 Gen2(10Gbps)	CAN/CANFD	16 channels
LIN	15 channels	FlexRay	2 channels
Audio interface	1 × 3.5mm interface microphone input and speaker output		

Storage interface

SATA hard drive	2 × Hot-swappable hard drive brackets for mounting 2.5" hard drives/solid state drives	mini-PCIe	2 × Full-length mini-PCIe slots
PCI Express	2 × PCIe × 16 slots @Gen3,8-lanes; 2 × PCIe × 8 slots @Gen3,4-lanes; 1 × PCIe × 4 slots @Gen3,1-lane		

Power supply

DC Input	2 × 4 core plug-in terminal module provides 8~ 35V DC input
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Mechanical specification

Size	381 × 360 × 235(mm)
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APPLICATION SCENARIOS

- Advanced autonomous driving video raw data source compression acquisition

ADS 3200

Industrial GPU artificial intelligence platform, supports two RTX 30 Series NVIDIA® graphics cards, Intel 9th generation Core™ processor



- Supports 2 RTX 30 Series NVIDIA® graphics cards
- Intel 9th Generation Core™ i9 LGA1151 CPU
- 4 SO-DIMM memory slots for up to 128GB of ECC/ non-ECC DDR4 2133 memory
- 16-channel GMSL 1/2 camera interface
- High synchronization accuracy Up to 500µs-1ms synchronization accuracy, supporting PTP, GPS(PPS) synchronization
- High processing performance: It can build a rapid prototype of domain controller, support open data interfaces such as V4L2, Socket CAN, ROS and so on, and can directly access by the car's electrical system. of the sensor, quickly verify the algorithm models in the test, convenient and quick iteration and verification
- High adaptability: Suitable for the mainstream sensors in the market

Hd camera: GMSL cameras from Senyun, Leopard, Lianchuang, Desai, Hikvision, Yinchuang and other manufacturers

Lidar: Hesai LiDAR series, Sagitar Juchuang LiDAR series, etc

Smart cameras: Mobileye EyeQ4, Horizon J2/J3, etc

RTK/IMU: NovAtel, ASENSING, Beidou Satellite, CHCNAV, DAISCH, etc

APPLICATION SCENARIOS

- Advanced Autonomous Driving Data Acquisition, video YUV data encoding compression capture.

System kernel

CPU	Intel®i9-9900K CPU
Chipset	Intel®C246 Platform controller
Memory	4×SO-DIMM slots for up to 128GB of ECC/ non-ECC DDR4 2133 memory
Ethernet	2×Gigabit Ethernet (extensible)
Display interface	1×VGA interface; 1×DVI-D interface; 1×DP interface
Serial port	2×COM RS-232/422/485
USB	4×USB 3.1 Gen2 (10Gbps) & 4×USB 3.1 Gen1 (5Gbps)
CAN/CANFD	16 Channels
LIN	15 Channels
FlexRay	2 Channels
Audio interface	1 × 3.5mm interface for microphone input and speaker output

Storage interface

SATA	2×Hot-swappable hard drive brackets for mounting 2.5"hard drives/solid state drives
M.2	1×M.2 2280 M key slot (Gen3 PCIe4); 1 M.2 2242 B key slot
PCI Express	2×PCIe x16 slots @Gen3, 8-lanes ; 2×PCIe x 8 slots @Gen3, 4-lanes; 1×PCIe x 4 slots @Gen3, 1-lane
mini-PCIe	2×full-length mini-PCIe slot

Power supply

DC input	2 × 4-core plug-in terminal module provides 8~35V DC input
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Mechanical Specifications

Size	381 x 360 x 235(mm)
Installation method	Shelf installation

Environmental indicators

Operating temperature	-25° C~70° C
Storage temperature	-40° C~ 85° C
Humidity	10%~90% (no condensation)

ADS 4000 PRO

Industrial GPU artificial intelligence platform, supports two RTX 30 Series NVIDIA® graphics cards, Intel 11th generation Core™ processor



- Supports Intel 11th Generation Core™ i9 LGA1151 CPU
- 4 SO-DIMM memory slots for up to 128GB of ECC/ non-ECC DDR4 2133 memory
- 12-channel GMSL 1/2 camera interface
- High synchronization accuracy: Up to 500µs-1ms synchronization accuracy. Support PTP, GPS (PPS) synchronization
- High transmission bandwidth meets the drop disk of RAW video data such as RAW/YUV
- High processing performance
- It can build a rapid prototype of domain controller, support open data interfaces such as V4L2, Socket CAN, ROS and so on, and can directly access the raw data of the sensor, quickly verify the algorithm model in the test, convenient and quick iteration and verification
- High adaptability: Adapt to mainstream sensors in the market.

Hd camera: GMSL cameras from Senyun, Leopard, Lianchuang, Desai, Hikvision, Yinchuang and other manufacturers

Lidar: Hesai LiDAR series, Sagitar Juchuang LiDAR series, etc

Smart cameras: Mobileye EyeQ4, Horizon J2/J3, etc

RTK/IMU: NovAtel, ASENSING, Beidou Satellite, CHCNAV, DAISCH, etc

APPLICATION SCENARIOS

- Advanced Autonomous Driving Data Acquisition, video YUV data encoding compression capture.

System kernel

CPU	Intel® i9-11900 CPU
Chipset	Intel® W580 platform controller
Memory	4 SO-DIMM slots for up to 128GB of ECC/ non-ECC DDR4 2133
Ethernet	1 Gigabit Ethernet, 1 2.5G Ethernet (extensible)
Display interface	3 DP interfaces
Serial port	4 COM RS-232/422/485
USB 3.1	6 USB 3.1 Gen2 (10Gbps)
CAN/CANFD	16 Channels
LIN	15 Channels
FleRay	2 Channels
Audio interface	1 3.5mm interface for microphone input and speaker output

Storage interface

SATA	4 Hot-swappable hard drive brackets for mounting 2.5" solid state disks
M.2	1 M.2 2280 M Key slot; 1 M.2 2242 B key slot
PCI Express	2 PCIe x16 slots @Gen4, 8-lanes; 3 PCIe x16 slots @Gen3, 4-lanes
mini-PCIe	2 full-length mini-PCIe slots

Power supply

DC input	1×4-core plug-in terminal module provides 9-55V DC input
Mounting method	Rack mounting

Environmental indicators

Operating temperature	-25° C~70° C
Storage temperature	-40° C~ 85° C
Humidity	10%~90% (no condensation)

VGB GMSL BYPASS ACQUISITOR

VGB is a self-developed GMSL camera bypass device that supports copying and splitting of camera data, high synchronization accuracy, and customizable deserializer to meet the high adaptability of different cameras

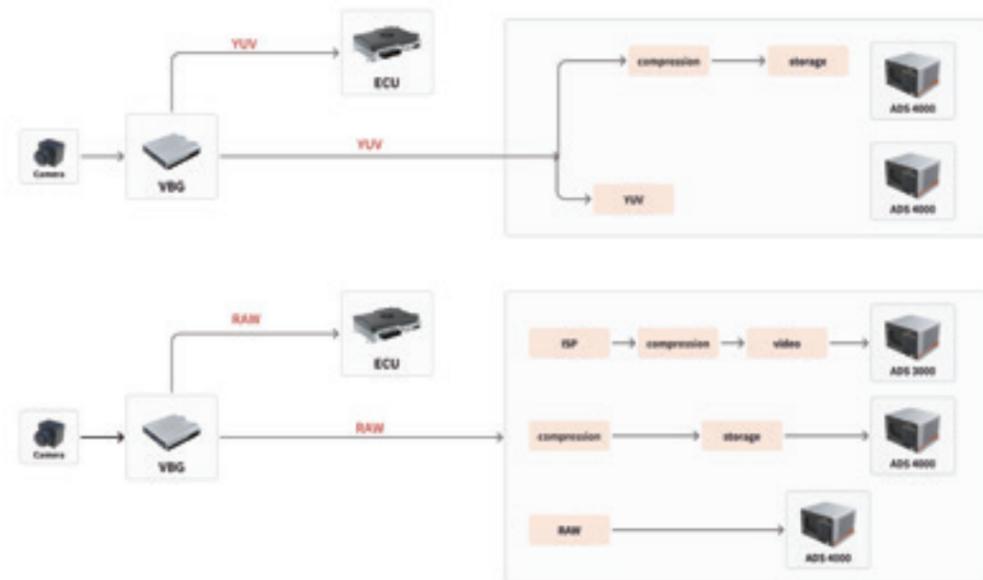


FUNCTIONAL FEATURES

- Supports bypass acquisition of camera data
- Supports 4-channel GMSL1/2 camera input
- Supports 8-channel GMSL1/2 camera output
- Supports for high-resolution camera acquisition
- Supports PPS signal synchronization with high transmission bandwidth to meet the video bypass acquisition needs such as RAW/YUV

ADVANTAGES

- Transmission μ s-level delay, high synchronization accuracy ensures data collection without affecting the normal operation of the domain controller
- Each channel supports 8MP 30FPS camera data input
- Maximum support for 4-channel video data input and 8-channel video data output

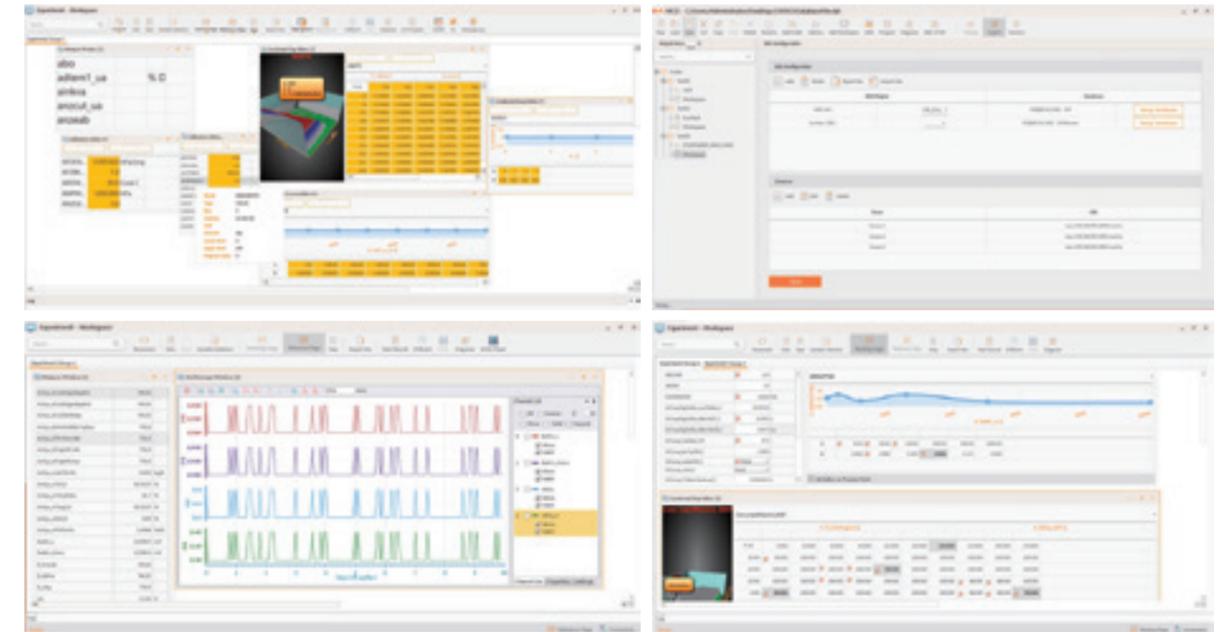


APPLICATION SCENARIOS

Data Acquisition vehicle bypass acquisition: divide the camera data into two parts, input one channel to the domain controller, and input one channel to the data acquisition equipment

VCAR MCD ECU Calibration Software

VCAR MCD is the ECU calibration software developed VCARSYSTEM. With MCD, traditional calibration, measurement, and diagnostic functions can be realized. It can also be combined with VCARSYSTEM's VGATE vehicle data logger to achieve remote calibration and measurement of controllers, providing a solution for high-quality and efficient calibration.



- CCP/XCP calibration and measurement
- Supports calibration and measurement of XCP ON ETH
- Calibration and measurement data logging
- CDM calibration data management
- UDS flashing
- ASAM3 automatic calibration
- OBD fault diagnosis
- Chinese/English switching

ADVANTAGES

- Localized R&D team and technical support;
- Flat learning curve, can be quickly mastered in five minutes;
- Capable of calibrating and measuring multiple controllers simultaneously;
- Fast synchronous data speed;
- Oscilloscope uses GPU for plotting, providing smooth performance and low CPU/GPU usage;
- Experimental environment supports grouping, allowing flexible grouping of calibration and measurement parameters;
- Flexible configuration of signals to be recorded.
- Independently developed, customizable development

APPLICATION SCENARIOS

- Development calibration related to controllers
- Bench calibration
- Vehicle calibration
- OBD emission diagnosis

VGATE SERIES

Vehicle Bus Data Logger

VGATE SERIES support recording vehicle bus data such as CAN/CANFD/LIN/FLEXRAY/Ethernet, and can also monitor and collect video, audio, and other signals. It can communicate with vehicle networks and controllers, commonly used for whole-vehicle road test data collection and controller bench data collection. Unlike traditional recorders, it not only supports offline recording but also enables real-time analysis and monitoring through 4G or WIFI networks, allowing remote debugging anytime, anywhere.

VGATE 3000 Series

The VG 3000 Series boasts synchronous recording capabilities for various vehicle bus protocols such as CAN, CANFD, LIN, FLEXRAY, and Ethernet. Additionally, it supports seamless communication via 4G, Wi-Fi, enabling remote operation with precision. Serving as a cutting-edge terminal, VG 3000 facilitates access to WEB VGATE and DAS, empowering users to conduct local and remote data calibration, analysis, and management effortlessly.



FEATURES

- Supports multiple vehicle bus types and various data protocol recording.
- Flexible data recording formats: BLF/BMR, MDF3/MDF4.
- Frame loss prevention under full load ensures data integrity.
- Supports sleep/wake-up functionality to prevent vehicle battery drain.
- Quick startup: Responds to data recording within 200ms.
- Flexible management options: 4G, local Ethernet, local wireless AP, remote web platform.
- Portable operation with USB flash drive: Batch data copying, local configuration.
- Supports generating separate data files triggered by bus messages, key presses, and signal value triggers.
- Large-capacity data storage space, supports storing data on big data platforms.

APPLICATION SCENARIOS

- Vehicle Road Test
- Reliability Test (high cold, plateau, high temperature)
- UPP Test
- New Energy Vehicle Road Test
- Bench Test Data Monitor
- Vehicle Remote Diagnosis and Refresh

VGATE 4000

VG 4000 provides more CAN/CANFD/LIN channels, supporting the acquisition of bus error frames. It can expand the functions of 6-channel Ethernet and 8-channel automotive Ethernet, and integrates the functions of acquisition, storage, monitoring, transmission, calibration, flashing and diagnosis. It supports remote 4G connection and local WIFI network real-time transmission, and can effortlessly manage remote configuration file updates and data downloads.



FEATURES

- Supports multiple vehicle bus types and various data protocol recording.
- Supports 8-channel Automotive Ethernet bypass and passthrough mode
- Flexible data recording formats: BLF/BMR, MDF3/MDF4.
- Frame loss prevention under full load ensures data integrity.
- Supports sleep/wake-up functionality to prevent vehicle battery drain. Quick startup: Responds to data recording within 200ms.
- Flexible management options: 4G, local Ethernet, local wireless AP, remote web platform.
- Portable operation with USB flash drive: Batch data copying, local configuration.
- Supports separate data file generation triggered by bus messages, IO wake-up conditions, key press, and signal value triggers.
- Large-capacity data storage space, supports storing data on big data platforms.

APPLICATION SCENARIOS

- Vehicle Road Test
- Reliability Test (high cold, plateau, high temperature)
- UPP Test
- New Energy Vehicle Road Test
- Bench Test Data Monitor
- Vehicle Remote Diagnosis and Refresh
- Development, Testing, and Analysis of Automotive Ethernet Bus

VG 5000 Series

The VG 5000 series can record vehicle bus data such as CAN /CANFD/LIN/Ethernet-T1, and support monitoring and acquisition of video, audio and other signals. It is commonly used in scenarios such as vehicle road test data acquisition, controller bench data acquisition, and durability test.



FEATURES

- Car camera availability
 - Supports 3-channel 1080P@30fps or 4-channel 720P@30fps
- Multiple data acquisitions
 - Supports CAN /CANFD, LIN, Ethernet, Ethernet-T1, and FlexRay
- Multiple data protocol records
 - Supports CAN /CANFD monitor, XCP on CAN/CANFD, CCP on CAN, J1939, UDS, LIN, DoIP
- Multiple database type configurations
 - Supports loading ormat parsing library files such as DBC, A2L, LDF, XML, ARXML,etc
- Diverse data storage types
 - Bus data support MF4, BLF, MP4, network PCAP
- Conditional triggering for separated recording
 - Supports multi-key triggering, signal threshold triggering, multi-type data subcontracting at the same time, and pre and post time point recording
- Remote localization management
 - 4G networking enables remote localization, allowing for device management, data viewing, real-time monitoring and analysis, remote measurement and calibration anytime and anywhere
- Gathering bus error frames and error types

APPLICATION SCENARIOS

- Road Acquisition
- Reliability Test (high cold, plateau, high temperature)
- Durability Test
- New Energy Vehicle Road Test
- Bench Calibration
- Vehicle remote diagnosis and refresh

PRODUCT SPECIFICATIONS

Model number	VG3002	VG3005	VG3008	VG3016	VG4000	VG5008	VG5012	VG5020	VG5020
CAN/CANFD	2	5	8	16	20	8-CH	12-CH	20-CH	20-CH
LIN	-	2	5	16	18	4-CH	6-CH	12-CH	12-CH
Flexray	-	1	1	2	1	-	-	-	1
RJ45	1	1	4	4	6	1	1	1	1
ETH-T1	-	-	-	-	8	2	2	4	8
Camera						2-channel 720P/1080P @30fps	4-channel 720P/1080P @30fps	3*1080P or 4*720P@30fps	3*1080P or 4*720P@30fps
4G	Support								
WIFI	Support					Expandable (support AP/STATION)			
GPS	Support								
Audio interface	1 * 3.5Mm 2-in-one interface								
Button-triggered Tagging	Support					Expandable			
DI	-	-	1	1	3	6			
DO	-	-	4	4	3	2			
Hard disk	128G	128G	500GB/1TB	500GB/1TB	500GB/1TB	500GB/1TB			
Power consumption	< 10w	< 10w	< 12w	< 15w	< 25w	< 30W (no external load)			
Power supply	9-55V DC					8-36V DC			
Working temperature	-40°C-70°C					-40°C~ 70°C			
Humidity	10%~ 90%(no condensation)								

VIDEO ACQUISITOR

4-Channel Video Acquisition Module

In intelligent driving road testing and site testing, it is used for video data collection. A single module can simultaneously support the collection of 4 video streams.



FEATURES

- Supports 4-channel GMSL 1/2 camera inputs
- Supports multi-channel video synchronous exposure
- Supports multiple resolution camera access
- Supports H.264/H.265 encoding
- Supports JPEG/MJPEG encoding
- Supports HDMI output, RTSP video stream
- Supports deserialization chips: MAX9296A, TI FPDLinkIII (DS90UB954)

APPLICATION SCENARIOS

- Autonomous Driving
- Data Acquisition Vehicle
- ADAS Autonomous Driving Test System

C MODULE-DATA ACQUISITOR

The C Module launched by VCARSYSTEM, which can collect temperature, analog voltage/current signal, air-fuel ratio, frequency, turbine speed and other physical quantity signals, and output them in real time through CAN bus signal.

C-AD4 /8 — AD Module

A data signal acquisition device with 4 /8 voltage input channels, and a highly compact module supporting CAN protocol communication.

FEATURES

- 4 /8-Channel voltage input
- Voltage measurement
 - Analog voltage input
 - Measurement range: $\pm 60V$, $\pm 10V$ adjustable
 - Measurement accuracy: $\pm 10mv$, $5mv$ ($-40^{\circ}C \sim +85^{\circ}C$)
 - Sampling rate: configurable from 1Hz to 1kHz
 - Data transmission cycle: 1ms~ 1s
 - Adjustable sampling resolution: 24 bit
 - Sensor supply voltage: adjustable from 5V to 24V ;
- Supports multiple modules in series to collect more signals
- Electrical isolation (input, CAN , power supply, enclosure)
- Environmentally friendly designed for harsh conditions with a high waterproof and dustproof rating



C-Thermo-K10 /20 — Temperature Module

A data signal acquisition device with 10 /20-channel temperature measurement and a highly compact module supporting CAN protocol communication.

FEATURES

- 10 /20-Channel temperature input
- Temperature measurement
 - K-type thermocouple differential input (NiCr-Ni)
 - Measurement range: $-100^{\circ}C \sim +1250^{\circ}C$
 - Data transmission cycle: 100ms -5000ms
 - Measurement accuracy: $1^{\circ}C$ (ambient temperature: $-40^{\circ}C \sim +85^{\circ}C$)
 - Sampling rate: configurable from 0.2Hz to 10Hz
 - Sampling resolution: 16bit;
 - Display resolution: $0.1^{\circ}C$
- Supports multiple modules in series to collect more signals
- Electrical isolation (input, CAN , power supply, enclosure)
- Environmentally friendly design for harsh conditions with a high waterproof and dustproof rating



C-lambda — Lambda Module

A data signal acquisition device for monitoring air-fuel ratio, a highly compact module that supports CAN protocol communication.



FEATURES

- 1-Channel linear oxygen sensor interface
- Air-fuel ratio measurement
 - Input: continuous Oxygen Sensor LSU4.2 or LSU4.9
 - For LSU4.9, λ measurement range 0.55 -32.767
 - Measurement accuracy: IP accuracy 0.1% 0.007mA, (When λ Approximately equal to 1, the λ accuracy is 0.005)
 - Sampling frequency: 100Hz
 - Sampling resolution: 16bit
 - Data transmission cycle: 10ms
- Supports multiple modules in series for collecting more signals
- Electrical isolation (input, CAN , power supply, enclosure)
- Features a high waterproof and dustproof rating, suitable for harsh environments

C-FREQ — Frequency Module

A data signal acquisition device for monitoring frequency, a highly compact module that supports CAN protocol communication.



FEATURES

- 4-Channel FREQ input
- Frequency measurement
 - Input: 4-channel FREQ input;
 - Measurement range: 0.1~ 300KHz;
 - Input signal voltage range: $\pm 60V$, adjustable for high and low level thresholds
 - Sampling rate: adjustable from 1ms to 1s
 - Sampling resolution: 16 bit ;
 - Sensor supply voltage: adjustable from 5V to 24V ;
- Supports serial connection of multiple modules for collecting more signals
- Electrical isolation (input, CAN , power supply, enclosure)
- Possesses a high waterproof and dustproof rating, suitable for use in harsh environments

C-PT100 — PT Module

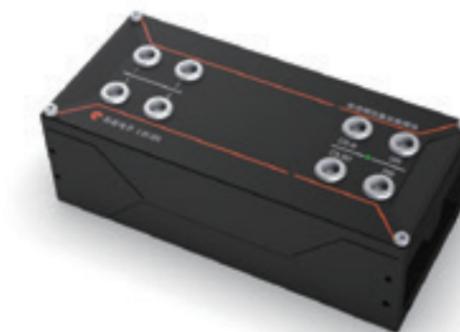
A data signal acquisition device with a temperature input channel and a highly compact module that supports CAN protocol communication.



FEATURES

- 4-channel PT sensor interface
- Temperature measurement
 - Input: 4-channel PT100 input, compatible with 2, 3, and 4-wire systems
 - Measurement range: -200 °C ~ + 850 °C
 - Measurement accuracy: +0.2°C (ambient temperature: -40 °C ~ 85 °C)
 - Data transmission cycle: configurable from 70ms to 10s
 - Sampling rate: configurable from 0.1Hz to 10Hz
 - Hardware sampling resolution : 24 bit
 - Display resolution : 0.1°C
 - Sensor power supply voltage : adjustable from 5V to 24V
- Supports serial connection of multiple modules for collecting more signals
- Electrical isolation (input, CAN , power supply, enclosure)
- Features a high waterproof and dustproof rating, suitable for use in harsh environments

C-HS-AD4 — High-speed acquisition module



FEATURES

- New high-speed analog acquisition module, sampling rate up to 200kHz.
- Suitable for high-speed signal sampling scenarios such as vibration, cylinder vibration, rapid changes, etc.
- 4-Channel analog signal input, measurement range $\pm 60V$.
- Provides Ethernet UDP data output for Ethernet cascade.
- 1-Channel CAN input, supports cascading input of other CAN modules
- Equipped with sensor power excitation function, capable of supplying voltage and current to sensors.

C-Multi LTK10 — Aggregate Module

A data signal acquisition device with temperature, air-fuel ratio and turbine speed input channels, and a highly compact module supporting CAN protocol communication.



FEATURES

- 10-Channel temperature input , 1 linear oxygen sensor interface, 1 speed sensor interface
- Temperature measurement
 - Input: K-type thermocouple differential input (NiCr-Ni)
 - Measurement range: -100 °C ~ + 1250 °C
 - Measurement accuracy: 1°C (ambient temperature: -40 °C ~ + 105 °C)
 - Data transmission period: adjustable from 100ms to 5000ms
 - Sampling frequency: adjustable from 0.2Hz to 10Hz
- Turbocharger speed measurement
 - Input: turbocharger speed signal
 - Speed measurement range (under conditions of 10 blades) : 0 RPM to 320,000 RPM; resolution: 12 RPM
 - Speed measurement range (under the condition of 30 blades): 0 RPM~ 100000 RPM: resolution: 4RPM; accuracy: 0.25%
- Air-fuel ratio measurement
 - Input: continuous Oxygen Sensor LSU4.2, LSU4.9
 - Sampling frequency: 100Hz
 - The measurement range is 0.55—32.767
 - Measurement accuracy: IP accuracy 0.1% + 0.007mA, (When λ Approximately equal to 1, the λ accuracy is 0.005).
- Supports serial connection of multiple modules for collecting more signals
- Electrical isolation (input, CAN , power supply, enclosure)
- Features a high waterproof and dustproof rating, suitable for use in harsh environments

APPLICATION SCENARIOS

- Vehicle Data Acquisition
- Vehicle Energy Flow Management
- High Voltage Scenarios

HV-MODULE — High Voltage Module

A data signal acquisition device with a high voltage input channel, and a highly compact module supporting CAN protocol communication.



FEATURES

- 1-channel high voltage circuit interface
- Voltage measurement
 - Input: analog voltage input
 - Measurement range: $\pm 1100V$
 - Measurement accuracy: $\pm 2V$ (-40 °C~ 85 °C)
 - Sampling rate: 1Hz~ 1kHz
 - Sampling resolution: 24bit
 - Input cutoff frequency: 2KHz
 - Input Impedance: 21M Ω
- Supports serial connection of multiple modules for collecting more signals
- Electrical isolation (input, CAN , power supply, enclosure)
- Features a high waterproof and dustproof rating, suitable for use in harsh environments

C-HV-K4 — High-voltage Temperature Module



FEATURES

- High voltage resistance module, designed for various high voltage environments, withstanding voltage range up to $\pm 1500V$
- Supports connection of K-type thermocouple sensors, measuring temperature range from -100°C to 1300°C;
- 4-channel high voltage thermocouple inputs, utilizing professional and authoritative high voltage resistant brand products for sensors;
- Triple insulation protection (wires & plastic connectors insulation, silicone shell & internal potting insulation, high-voltage isolation protection circuit), ensuring user safety and enhanced usability;
- Standard CAN bus output, compatible with all market bus tools for data retrieval.

CLOUD MANAGEMENT PLATFORM

WEB HIL

WEB VGATE



WEB HIL HIL Management Platform



HIL management platform is an efficient and fast visual management platform with cool 3D vehicle models that dynamically display the testing process, provide visual charts, and display the operating status and results of equipment in real time.

FEATURES

- Supports management of users, projects, equipment, personnel, announcements, etc
- Supports decoupling of controlled object models and interfaces to quickly achieve signal changes
- Visual charts display equipment and project operation status, abnormal alarms, 3D vehicle models demonstrate real-time testing actions, and simulate real-life scenarios

APPLICATION SCENARIOS

- Solve the problem of multiple types and quantities of customer platforms and difficult management
- Large-screen visualization displays test status, abnormal alarm handling, convenient for users to quickly find equipment problems
- Decoupling the controlled object model and interface, suitable for scenarios with changing testing environment

WEB VGATE

VGATE management platform

The VGATE series management platform is a remote management platform based on the network cloud as a service, which can be used as a comprehensive management platform integrating functions such as logger management, data management, signal detection, and remote services.

FEATURES

- **Data management** : can be bound to the vehicle to achieve centralized data management, high security, and maximize the value of data mining;
- **Rights management** : mature rights system, hierarchical management of users, equipment and other information;
- **Monitoring information** : real-time view of logger details, location information and status information
- **Remote management** : away from the traditional local access to data, can achieve remote acquisition of equipment data, remote real-time signal detection, remote refresh & diagnosis & calibration, version configuration replacement, equipment upgrade and maintenance functions;
- **Data storage** : using distributed storage, high data security and stability, can access the recorder data anytime and anywhere through the platform;
- **Reduce labor costs** : visual operation interface, quick to get started, low learning threshold, one person at the top of many people, improve the efficiency of engineers;
- **Customized function** : function customization, platform deployment, can be customized according to customer needs;

APPLICATION SCENARIOS

- Vehicle Road Test Data Acquisition
- Three High Test Data Acquisition
- Vehicle remote refresh diagnostics
- Controller Bench Data Acquisition