New HiLS Platform HELIOS
For Real-time Simulation

A·N·D
Discover Precision

An optimal platform for large HiLS systems and integrated HiLS systems

Vehicle electrification, ADAS, automatic operation, etc... make vehicle systems complicated. For control development and verification, a HiLS is required which is capable of a high speed processing of complicated Simulink models and third party modeling tools. The HiLS must be able to integrate multiple HiLS such as powertrain HiLS (engine,T/M,battery,etc)/body HiLS/ vehicle environment/weather environment/steering stability.

A & D provides a highly scalable HiLS platform which supports multinode capability between multiple CPUs and multiple chassis.

Failure simulation circuits are mounted on the I/O boards, hence an external box is not required for fault simulation.

Self-diagnostic function is installed on all I/O boards as a standard. When problems occur during the test, it is possible to isolate the cause. It can also be used for inspection before use.

It has an operation time monitoring function which can monitor the software running time and power on time. It can be used to manage the utilization rate of HiLS equipment and capture the maintenance time.

Features

- CPU with powerful computing performance

- Core partitioning and multi-node distributed operation

- Commercially available PC can also be used as a node. User can use the latest high performance CPU.

- High-speed inter-node communication, low-latency model synchronization

- High scalability

- Extensive options that enable you to build test environments in a short period of time

- Compact, low price with all-in-one design combining I/O and Fault Insertion

- Integrated with A&D test bench (iTest) software

- Flexible configuration depending on purpose from small scale to large scale

HILS rack
Left：36U　Right：24U

HELIOS chassis

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I/O board line-up
Self-diagnostic function · Failure function mounted on each board as standard

Board Name	Functions
ENG-IO	Simulation of crank · cam signal Measurement/output of rotation synchronization signals (INJ · IGN · knock etc.)
ACT-IO	Voltage and current measurement of solenoid · DC motor etc.
SENSOR-IO	Analog output Analog voltage simulation/measurement of sensors etc.
PLS-IO	Pulse input/output Simulation/measurement of various switches and pulse output sensor etc. (Duty · On/Off · solenoid measurement)
COM-IO※	CAN・CAN FD・LIN・K-LINE・RS-232C
VB-SW	VB supply relay (with voltage / current monitor)

※Adding SENT・CXPI is planned

Options

◇ **Load Box**
- Customers can easily fit and wire the real loads
- It is unnecessary to change the wiring and can be expanded with an additional board as a set
- Can be managed on a per ECU or unit basis
- Risk avoidance function during continuous operation (temperature monitoring function)
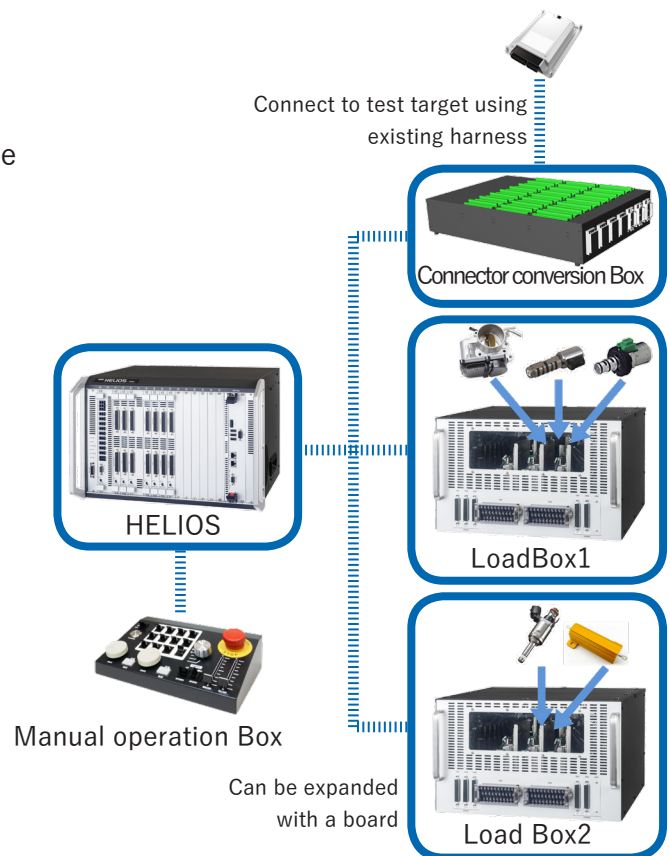- Easy to fix loads with various shapes

◇ **Manual operation Box**
- HiLS can be operated with dial, slider and mechanical switch
- Easy to operate with a human hand rather than GUI interface

◇ **Connector conversion Box**
- Convert to customers ECU connectors
- Possible to change the wiring

◇ **Pressure Box**
- Can change the atmospheric pressure condition
- Put ECU (built-in atmospheric pressure sensor) in the Box and it is possible to test for each atmospheric pressure condition

Connect to test target using existing harness

Connector conversion Box

HELIOS

Manual operation Box

LoadBox1

Can be expanded with a board

Load Box2