

b-HiL

ADAS HiL System for camera, radar and AI-ECUs

The b-HiL platform delivers the ideal solution for Hardware-In-The-Loop tests or as raw data re-injection HiL, featuring a scalable FPGA/SoC concept.

Your ECUs will be electrical and mechanical via a Sensor Connector Board (SCB) or with cable to the b-HiL connected. The size of b-HiL enables the usage on the test bench of the development department and the test engineers.

There are 10 Gigabit Ethernet interfaces which are ideal for raw data transfer, especially necessary for high-resolution camera and radar systems. The b-HiL creates with its features and interfaces best preconditions for open- und closed-loop test runs.

Highlights

- Scalable processing power
- Various automotive bus interfaces onboard thinkable: CAN, CAN-FD, 100BASE-T1
- Replay of recorded data
- 10G Ethernet to transfer raw data
- Simulation of e.g. CSI2 or ZipWire as raw data interface (please contact us for more information)
- Dual version for more processing power
- Scalable as a cluster (crosslinking of e.g. two b-HiL systems for higher demands)
- Sync- and trigger-I/Os

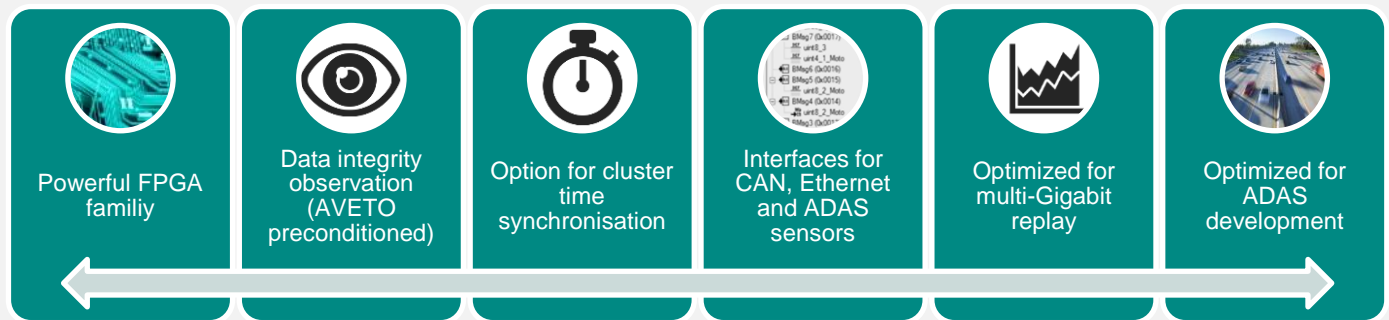


Illustration 1: Standalone version – front



Illustration 2: Standalone version – back

Multifunctional ADAS development tool



Functional details

- Linux based system
- Standalone-operation possible
- Interfaces for CAN, Ethernet and ADAS sensors (e.g. CSI-2)
- Programmable status LED
- Transfer of data per Ethernet interface or per USB connection possible
- Sustainable through possible update solutions and expandability
- GPIO for rigger connections present
- Enhancement of ECU software predevelopment
- Replacement of error prone „Monitor-HiL-Systems“ → cost reduction
- Reduced workspace requirements – ideal for developer workplace
- Cooling with fan, ECU power demand at up to 36W possible
- Device monitoring system included (e.g. temperature)
- Option for Clustering, ideal for the requirements of e.g. sensor fusion (HW stackable)

Hardware characteristics

Available versions (Standalone – processing power)

- bHiL35 – 275k logic cells
- bHiL45 – 350k logic cells
- bHiL100 – 444k logic cells

Key features

- Dual ARM Cortex-A9 MPCore
- 1 GByte DDR3 SDRAM

Interfaces

Bus- and network interfaces: CAN(-FD), (Automotive-) Ethernet (100Mbit/1Gbit/10Gbit), GPIO

Dimensions / – Standalone version

- 175mm x 250mm x 95mm WxDxH
- rugged metal case

Supply Voltage

- 12 V DC

Accreditation

- Project definition

Concept of SCB



Figure 3: b-HiL with open SCB case

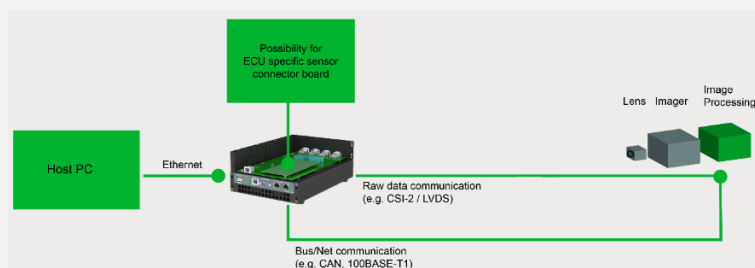


Figure 4: Schematic diagram b-HiL

Customer-specific adaptable

Sensor Connector Board (SCB)

For the ECUs/sensor there is a customer Sensor Connector Board (SCB) necessary. The ECUs differ from customer to customer. With the bHiL hardware it is possible to exchange/design just only the SCB for the customer needs.

In figure 3 an example configuration is shown. If there would be e.g. an ECU interface change in a follow-up project, it is possible to exchange just only the SCB and reuse the Baseboard.

Need for adaptability / project diversity

- Possible connection of sensors / ECUs with different interfaces and use cases for the customer (e.g. CSI-2, ZipWire, ...)
- Variable for sensors (imager, radar, ...)
- Emulation of sensor parts possible
- Replay of synthetic generated image data
- Customer-specific imager-initialization or provide imager information for the ECU (e.g. with I2C)