EB Assist solution

Test and validate ADAS & automated driving functions

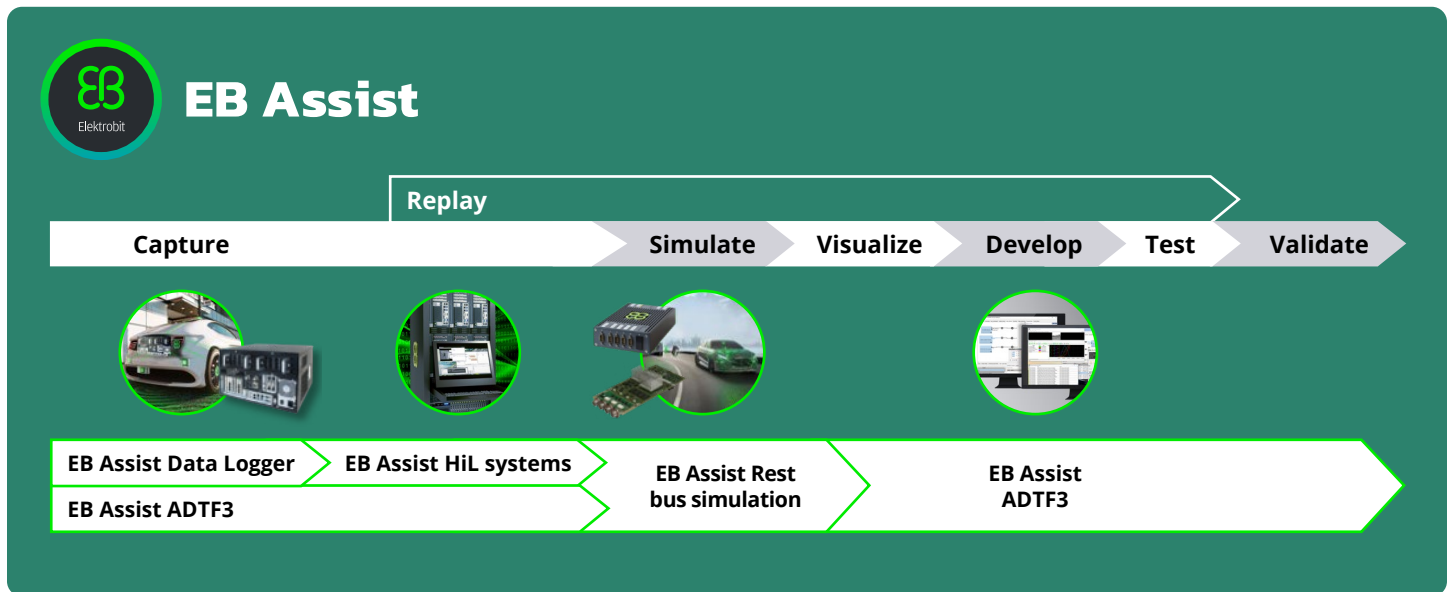**Elektrobit**

Data Logger solution
Test data logging

Rest bus simulation
Simulate bus systems

EB Assist

Test fleet

Development environment

On prem storage & interface to cloud

EB Assist ADTF3
Visualization and development tool

HiL solutions
Data replay
Rest bus simulation
Validate ECU performance

Capture and Replay with EB Assist solutions

Develop, visualize, and validate driving functions

EB Assist

Replay

Capture → Simulate → Visualize → Develop → Test → Validate

EB Assist Data Logger → EB Assist HiL systems

EB Assist ADTF3

EB Assist Rest bus simulation

EB Assist ADTF3

Benefits

Save costs
with reusable components

Seamlessly integrate and customize in highly precise test process environment

Single source solution to solve your complex issues working with our dedicated experts

Fulfill requirements when building flawless driving functions

Ready to use throughout the entire automated driving toolchain

EB Assist Logger Solution

Capture massive amounts of data

Featuring Elektrobit's own **cutting-edge technology**

➔ **Capture video with speeds** up to **12 GB per second for up to 1.5 hrs of driving** ←

- FPD3 and GMSL2/3 frame video grabber cards
- CAN, FlexRay, LIN, Automotive Ethernet with EB 5200 bus measurement card
- 100/1000 Base-T1 Automotive Ethernet with EB 7200 modular I/O interface card
- GPUs, network cards
- **Time-synchronized** interfaces
- **Low power consumption** 9-48VDC, 12VDC, 24VDC, 48VDC
- **Detachable storage** with up to **256 TB**

Capture up to 32 cameras!

It's not just a box, it's a full solution

2x detachable storage

The validation of automated driving functions requires customized and efficient solutions adapted and configured according to each use case. EB Assist provides the logger hardware and software and will help you to integrate- giving you a full solution!

It's scalable. The wide range of interfaces for different sensors and ECU connections make it a highly modular and flexible. High processing power allows capturing of multiple sensor streams in parallel. You can easily combine multiple logger systems to scale your system for video or bus data capturing.

It has high-performance. Benefit from a customized system for low, mid, and high variant use cases (up to 768GB RAM).

Link to our HiL. EB Assist Logger Solution is a high-performing, reliable logging device for your test vehicle. Combined with Elektrobit's HiL solution, it's the foundation of a strong and powerful replay and simulation tool for ADAS/AD ECU testing.

Features

- **Customizable turnkey solution** enables a fast and flexible realization of your requirements (e.g. capturing large amounts of synchronized video and bus data, extension of storage or PCI-e interfaces)

- **Modular system** supports all common automotive interfaces (video signals FPDIII /GMSL2/3, CAN-FD,HS/LS, FR, ETH/BroadR-Reach, LIN, GPS)

- **Flexible and customizable** I/O configuration based on individual requirements

- **High-computing performance** for data processing and data visualization storage or PCI-e interfaces

Benefits

- **Save money**
  Capture massive data in one test drive (instead of multiple trips)

- **Improve the quality of data logging**
  Highly precise time stamping on hardware 25ns resolution

- **Save time during development and validation**
  Visualize and test with our Automotive Data and Time-Triggered Framework (ADTF3)

- **Delivery and support from one single source**
  Get complete and professional support with short response times during your configuration decision and beyond
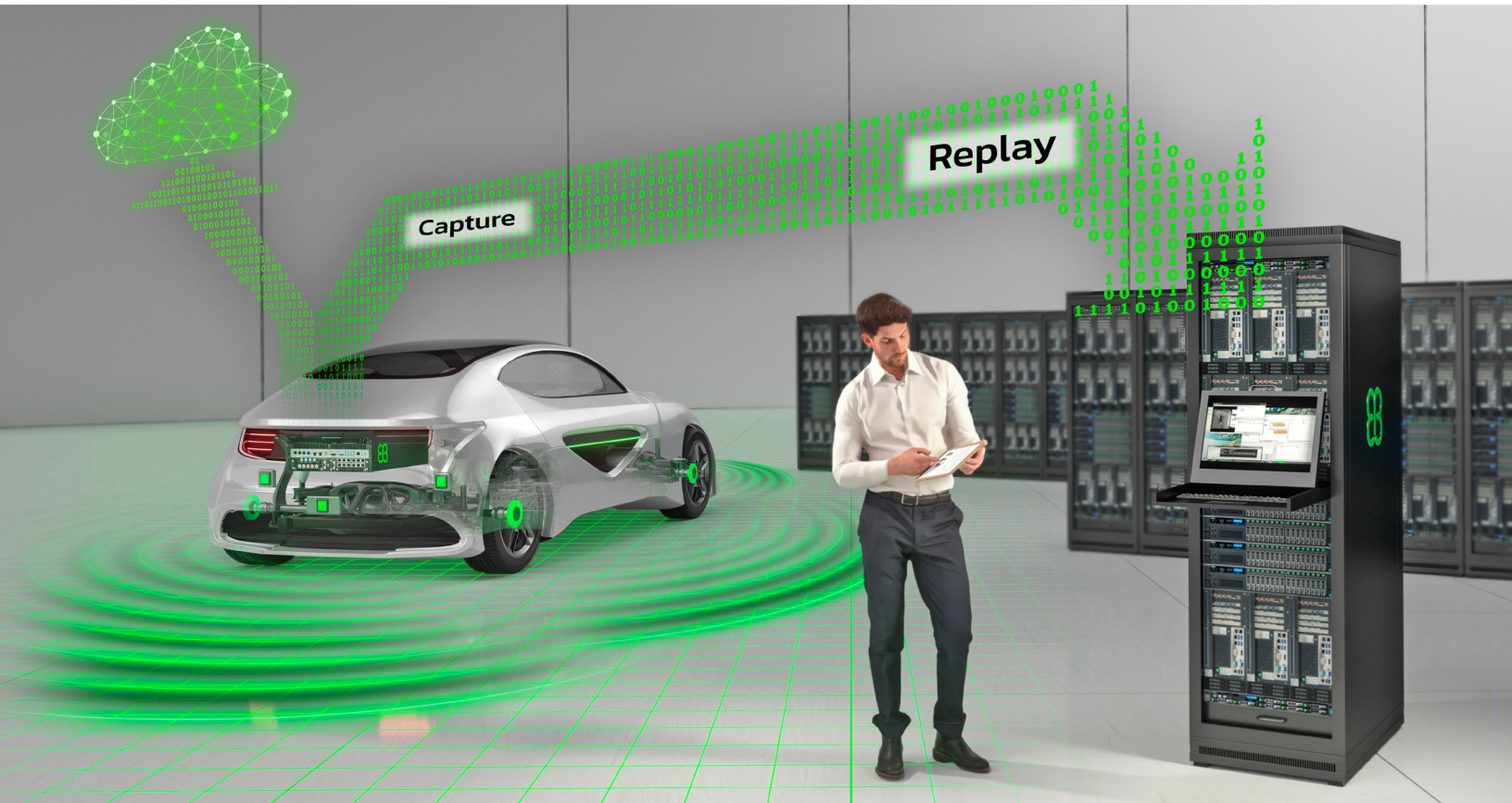
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EB Assist HiL solution

Custom validation solutions: HiL test solutions by Elektrobit
Preparing for volume production of automated vehicles includes millions of miles of real driving scene processing. Suitable server farms are needed to meet the required test coverage.

Elektrobit offers expertise to customize HiL test solutions through hardware or the cloud to meet your needs in ADASIS (Advanced Driver Assistance Systems Interface Specifications). Test the functions, system integration, and communication of ECUs in a simulated environment, processing real driving scene data-in-the-loop to validate your ECUs and their functionality.
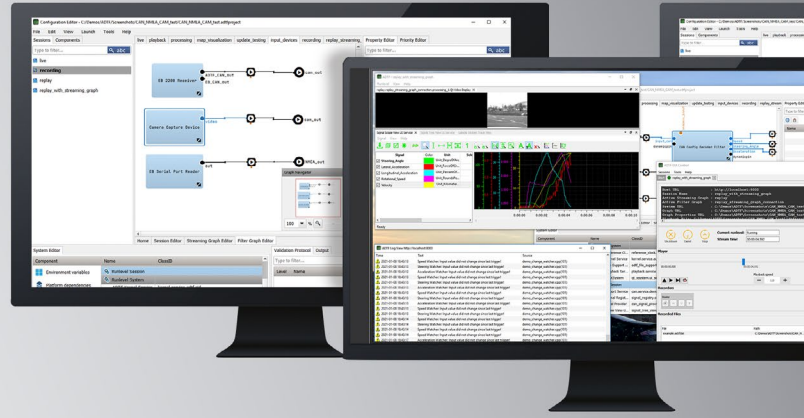

Features

- Includes end-to-end validation tools such as the EB Assist ADTF software suite for driving scene recording, replaying data and managing workflow of HiL stations
- High-precision and time synced data logging using high-performance CPUs
- RAM configurable and compatible with CAN, FlexRay, Ethernet, Video, GPS or Audio using proven-in-use hardware and software products

Benefits

- Save costs and time with efficient seamless test integration and validate ECU behavior in a customized simulated environment **under realistic conditions**
- Shorten time to market despite more complex vehicle network architectures
- Smoothly scale from one high-capacity solution to HiL server farms of 200+ test stations
- Reinject sensor data into ECUs to simulate functions and measure KPIs

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EB Assist ADTF3

Flexible and extendable set of modules for various needs and use cases

In EB Assist, ADTF and its toolboxes are designed for distributed systems and multiple parallel recordings. This helps you set up complex test scenarios in relieving heavily loaded systems.

Features:
Capture and Replay
- Capture and synchronize data from multiple sensor sources

Develop
- Write your own code, test, debug and visualize outcome with SDK
- C++ API allows unlimited extensions

Test and Validate
- Set up specific triggers and schedules using high-precision timestamping

Benefits:
- Capture, visualize, validate and test in one framework, avoiding use of multiple platforms
- Experience intuitive and improved data handling that supports a wide range of applications and use cases
- Cooperate with external project teams across the globe
- Distribute workload to multiple computers and optimize performance of each
- Distribute records to capture high amount of sensor and bus data at once
- Save time by simplifying complexity
- Receive extensive support and training

EB Assist ADTF3 is supported by a consortium of premium OEMs and used by more than 50 automotive companies.

EB Assist Device Toolbox
- Supports automotive buses (CAN, CANFD, Flexray, Ethernet)
- Device support for Vector® Driver Library
- Webcam support
- Signal processing and visualization support

EB Assist Standard Toolbox
Enhanced with partner solutions
- Includes Kvaser® CAN Device connection

EB Assist Display Toolbox
Offers various visualization modules:
- 3D scene graph display
- 2D display
- Signal view plugins
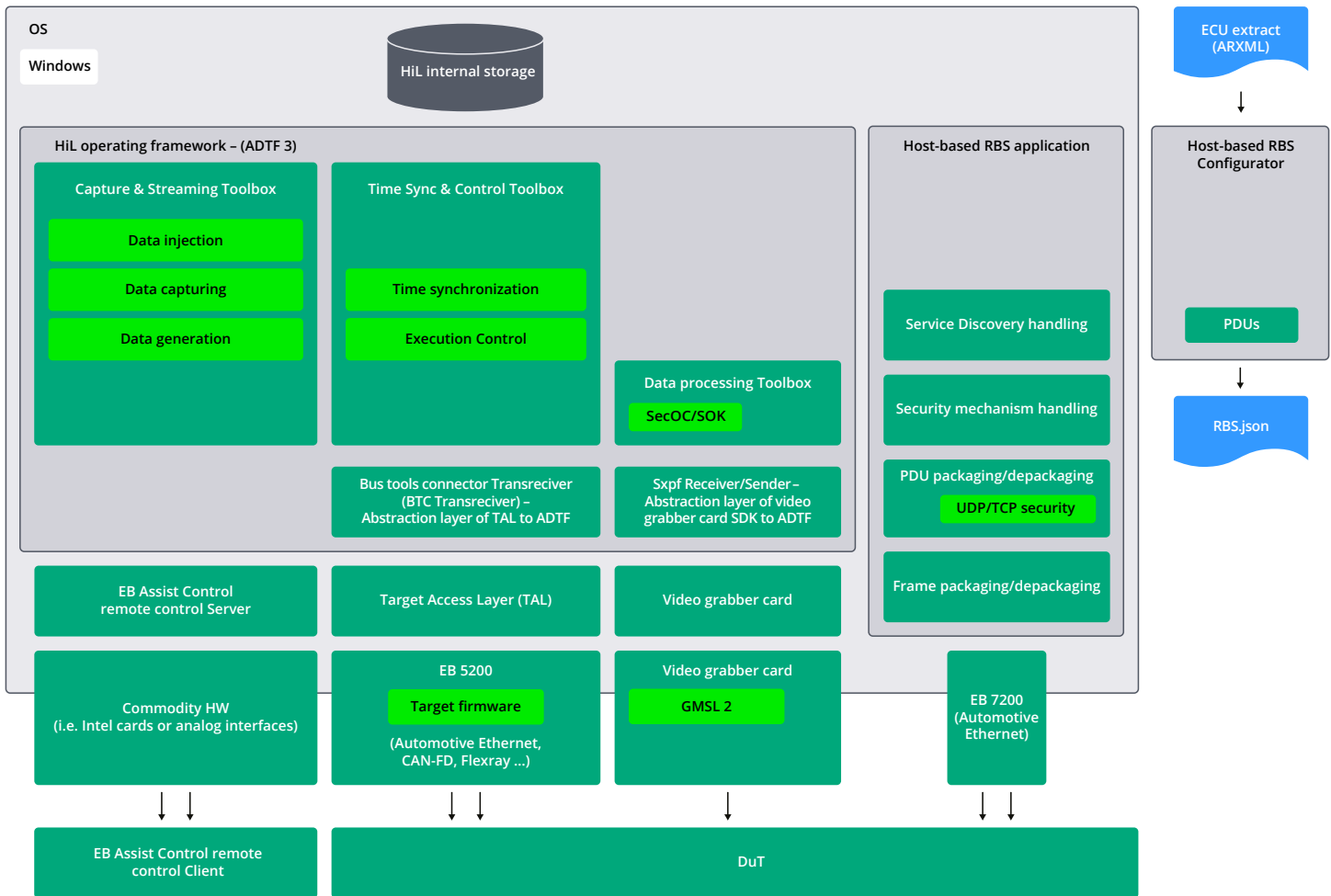- Additional demo plugins (object lists, point cloud, etc.)

EB Assist Calibration Toolbox
Supports XCP communication with an ECU via multiple filters for communication via CAN, FlexRay or Ethernet

XCP Master Filter
XCP Decode Filter
XCP Encode Filter
XCP Emulator Filter
XCP On CAN Filter
XCP On CAN FD Filter
XCP On FlexRay Filter
XCP On Ethernet Transmitter
XCP On Ethernet Receiver

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EB Assist solutions

HiL solution architecture

OS

Windows

HiL internal storage

ECU extract (ARXML)

HiL operating framework – (ADTF 3)

Capture & Streaming Toolbox

Data injection

Data capturing

Data generation

Time Sync & Control Toolbox

Time synchronization

Execution Control

Data processing Toolbox

SecOC/SOK

Bus tools connector Transreciver (BTC Transreciver) – Abstraction layer of TAL to ADTF

Sxpf Receiver/Sender – Abstraction layer of video grabber card SDK to ADTF

EB Assist Control remote control Server

Target Access Layer (TAL)

Video grabber card

Host-based RBS application

Service Discovery handling

Security mechanism handling

PDU packaging/depackaging

UDP/TCP security

Frame packaging/depackaging

Host-based RBS Configurator

PDUs

RBS.json

Commodity HW (i.e. Intel cards or analog interfaces)

EB 5200

Target firmware

(Automotive Ethernet, CAN-FD, Flexray …)

Video grabber card

GMSL 2

EB 7200 (Automotive Ethernet)

EB Assist Control remote control Client

DuT

Out of the box solution with reusable components

Reuse your already existing logger or HiL system while embedding a customized solution from Elektrobit.

Validate small to complex server ECUs (such as HPCs of newest ADAS vehicle architecture) with high precision time-triggered replay approach combined with a flexible software framework.

i **Toolboxes are all included and free of additional charge**