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b-plus develops “ProAI MDI” measurement interface

One interface for all sensors: The new „ProAI Measurement Data Interface“ (ProAI MDI) from b-plus enables raw data from ZF ProAI, a central server platform of the automotive supplier ZF Friedrichshafen AG, to be decoupled, without loss and time stamped, from all sensors in the vehicle during the development. The implemented MDS (Measurement Data Services) already deals with the complex extraction of the control unit internals. All data is securely output via an integrated 10 Gbit ethernet interface.

Die The centralisation and fusion of data is key for the functions of new algorithms in the future autonomous vehicle. The ZF ProAI from automotive supplier ZF is a flexible, modular and scalable domain ECU for various levels of automated driving throughout autonomous driving. b-plus created an extension for the development of functions on platforms specifically for AI-compatible computing platforms. This enables the acquisition of the measurement data via a measurement technology system and thus supports the storage of high-resolution raw data in the vehicle, which are decisive for the various development and testing tasks of an ECU. This ensures further real-world development of new algorithms in the vehicle with the help of high-resolution real-time data.

Adapted hardware add-on for the extraction of measurement data

Data from sensors, vehicle interfaces and from internal processes of the ZF ProAI can be recorded with the help of MDI (Measurement Data Interface). These data are used for verification and simulation purposes in the subsequent steps, for example software in the loop and hardware in the loop. For this purpose, MDI collects the data from various ECU interfaces and forwards it to a recording system (BRICK from b-plus) via a common interface (2x10 GbE data downstream) for data acquisition. The ProAI MDI is based on the measurement technology MDILink from b-plus, which serves as a platform for the decoupling of unaltered measurement data from the vehicle.

Seamless access to ECU internals

In addition to the decoupling of data streams in the hardware, it was necessary to route data from internal processes in the operating system of the central computer outwards. This creates the necessary transparency to observe process run times and state of the operating system during validation or statistics on functions close to the raw data stream. For this purpose, the MDS (Measurement Data Services) was implemented. MDS reduces the complex extraction of such data and offers a safe and easy way to keep a close watch on the domain ECU for development. MDS are embedded in the respective functions in the ECU code and forwards this internal ECU data to the measurement technology for analysis via a secure protocol. There, it can be evaluated parallel to the raw data, so that developers receive a fast 360° data overview of the entire platform and can focus on function development.

Vehicle manufacturers can immediately start the development of application functions with the solution tailored to the ProAI platform from ZF.

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Related links:

MDILink – Adapter for decoupling measuring data

https://www.b-plus.com/en/produkte/messdaten-adapter/mdilink

Measurement platform - BRICKplus

https://www.b-plus.com/en/products/measurement-platform/brickplus

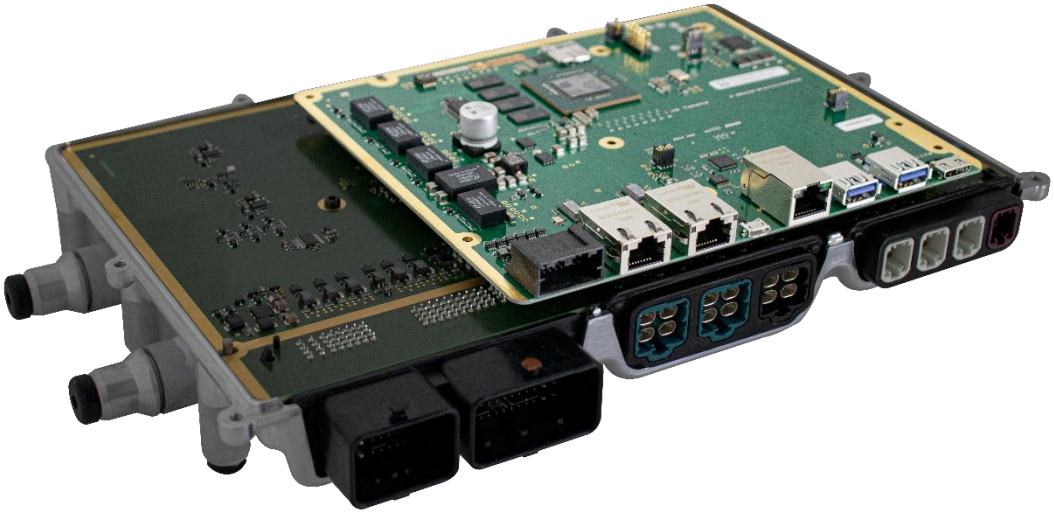

Figure 1: MDI hardware on the ZF ProAI RoboThink

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About b-plus GmbH:

With more than 220 employees at its locations in Deggendorf, Regensburg and Lindau (as of April 2020), b-plus is a mid-tier, internationally leading technology company in the automotive industry, as well as in the field of automation of mobile machines.

b-plus supports its global customers with software and hardware solutions, for applications such as automated and autonomous driving, as well as in the area of vehicle sensors. b-plus is a pioneer, technology driver and engineering partner for the development, the testing and the validation of ECUs and ADAS. In 2019, the Bavarian State Ministry for Economic Affairs, Regional Development and Energy awarded the company with the prestigious “Bayerns Best 50” for being one of the 50 fastest growing mid-tier companies in Bavaria.