

# Efficient Remote Tests without Test Bench Conversion

dSPACE test bench with multiplexer for serial testing of three control units connected in parallel



**Client:** Control unit developer

**Industry:** Automotive

**Region:** Germany

**Challenge:**

Complex manual test bench conversions led to delays, error susceptibility, and inefficient testing processes.

**Solution:**

Development of a dSpace test bench with multiplexer for serial tests without conversion.

**Key Benefits:**

- Increased Efficiency
- Remote testing without test bench conversion
- Higher degree of automation
- Simplified tests and adjustment
- Faster development

## Challenge

### Time-consuming and error-prone test bench conversions

Changing control units/devices under test (DuTs) on the customer's ETAS labcars required complex setup procedures, which were a potential source of errors and led to delays due to blocked test benches. In addition, the validation process was complicated by the fact that maintenance and adjustment responsibilities were located abroad. Furthermore, the complex testing and analysis tools meant that only a low degree of automation was possible.

## Solution

### Development of a test bench with multiplexer for serial testing

We developed a dSpace test bench, a multiplexer, and simulation models to enable the parallel connection of three brake control units. This allows serial tests to be performed with three different control units on one test bench without the need for on-site conversions. The solution offers the customer a modern and intuitive dSpace test environment. In addition, full internal access to the simulation model is enabled, allowing adjustments and enhancements to be made more quickly in-house.

## Results

### Remote testing of parallel-connected control units without conversion

The solution enables switching between the parallel-connected control units with just one click. The elimination of setup times significantly improved development efficiency and enabled serial remote testing. Development and test adjustments can be carried out more quickly, and the ease of use has increased the acceptance of HiL testing. In the long term, this solution enables an increase in the degree of automation, test quality, and performance.