AUTOMOTIVE GERMANY
ENGINEERING AND PRODUCTS FOR ELECTRONICS & SOFTWARE & MECHANICS
Offering innovative, individual, sustainable, and safe mobility is a big challenge the automotive industry is currently facing. The development departments are working at full stretch. The focus is on topics from driver assistance systems to automated driving, connectivity, telematics, lightweight design, and electromobility.

The transformation in thinking about mobility appears above all in more demanding system development, the rising number of integrated electronic control units, the increase in computing capacity and design reliability, as well as the processing of new materials. For our customers, this requires efficient management of innovations, complexity, variants, and costs. Synergies need to be created by defining standardized platforms that promote the reuse of components, foster the integration of industry standards, and launch new functions.

“We promote and expand upon our customers’ technological edge with our creativity, innovation and motivation. We will continue to offer comprehensive and efficient solutions for the challenges posed by the mega-trends of our age. This means that we are one of the most important development partners for our customers in the realization of complex electronic and mechanical systems.”

Jürgen Meyer
Director Automotive Division
We develop automotive electronics, software, and mechanics for our customers. We are open to new challenges and opportunities in our industry, and we efficiently address these as part of our development projects.

In addition, we offer consulting in the areas of safety-critical systems, driver assistance systems, and electromobility. We also support our customers with product engineering services at a fixed price in order to realize our shared goal: To shape the mobility of the future.

GUIDELINES
Innovative – Responsible – Efficient

ELECTRONIC SYSTEMS – they are our guiding light
SOFTWARE – how we offer individuality
MECHANICS – how we guarantee stability
CUSTOMER SATISFACTION – it’s what motivates us

OUR SERVICES FOR YOUR PROJECT
Customer-Oriented – Reliable – Multinational

We like to work with our customers on-site and make use of the interdisciplinary expertise of our Competence Centers. Furthermore, we assume responsibility for development packages and serial production management.

OUR SERVICES:
- Safety & Systems Engineering
- Design of Components and Component Groups
- Stress Engineering and Numerical Validation
- Development of ECU Hardware Prototypes including Small Series Production
- Model-based Development of ECU Functions
- AUTOSAR & Virtual Integration
- Integration and Operation of Test Systems
- Engineering of Tools & Test Systems
- Model & Code Quality Assessments
- Supplier and Quality Management
SAFETY & SYSTEMS ENGINEERING

The Competence Center for Safety & Systems Engineering bundles cross-regional technology expertise, process know-how and product understanding for comprehensive consulting and realization in the field of highly complex, safety-critical systems. Interdisciplinary teams with methodological expertise and many years of practical experience ensure the successful completion of tasks. The focus of our team experience, gained across numerous OEM and TIER1 projects, is on networked driver assistance systems, e-mobility, and chassis functions.

REQUIREMENTS ENGINEERING & VALIDATION

The Competence Center for Requirements Engineering and Validation provides support for the optimization and structure of specification-bound processes and interfaces. Our experts use special methods and tools to create and improve upon your system specifications. Our powerful variant management concepts enable significant time and cost savings in specification-based development activities. In particular, any subsequent validation activities will benefit from the increased quality of your development documents.

DESIGN OF COMPONENTS AND COMPONENT GROUPS

We combine engineering know-how with industry competence and support our customers from their conceptual ideas right through to serial production. We focus on the design of components and component groups in the critical field of the engines and peripherals. Additional core competencies are the development of body parts, lightweight design, and the definition and implementation of repair concepts. We guarantee economical solutions through optimal resource utilization, powerful IT infrastructure, and intelligent processes.

STRESS ENGINEERING & DESIGN

Stress engineering and simulation serve to validate designs in terms of static loads, vibration, and crash loads. This facilitates appropriate and efficient analysis without having to build expensive prototypes. Our stress engineering & simulation experts support our customers in the early stage of development in order to attain an optimized design from a cost-benefit perspective.
**DEVELOPMENT OF HARDWARE PROTOTYPES INCLUDING SMALL SERIES PRODUCTION**

We deliver your electronic control units. From specification requirements to certified, deliverable controllers, we independently develop prototypes, small series and series production controllers, and provide ECU production together with our partners. Using our test system toolbox, we develop project-specific test systems and test benches, and also offer complete controller certification including environmental and EMC testing.

**MODEL-BASED DEVELOPMENT OF ECU FUNCTIONS**

The specification, development, and validation of ECU functions are one of our specialties. We have many years of experience in areas such as powertrain, chassis, body, telematics/infotainment, and driver assistance, and we integrate this experience into the development of new and innovative functions. Thanks to our pioneering years in model-based development, we can offer a structured approach from the model right through to the production code. For developments that engage teams at multiple locations, we offer web-based, ISO 27001 compliant configuration management with a Nightly Build option to guarantee information security.

**AUTOSAR & VIRTUAL INTEGRATION**

The AUTOSAR & Virtual Integration team consists of highly-skilled engineers with many years of experience. The independence of the Competence Center from any AUTOSAR tool chain / basic software interests gives us the freedom of offering our customers fully optimized solutions for developing ECU software. We ensure a seamless development process thanks to our efforts in the area of OEM-to-TIER1 interfacing. We use the latest tools and methods of virtual integration for early validation of systems and components, striving to provide highest-quality software.

**INTEGRATION AND OPERATION OF TEST SYSTEMS**

We integrate software and hardware and focus on solutions, especially in challenging areas such as the interface between OEM and TIER1. To do this, we specify test systems, put these into service, and also conduct testing during development and serial production. Our standard tasks include flashing and calibrating electronic control units, as well as evaluating diagnosis information. In the field of mechanics, we specialize in testing fuel systems and their components.
AUTOMOTIVE GERMANY

The Software Quality Competence Center bundles our activities in the area of technical software quality assurance. This includes dynamic processes such as software testing, as well as static processes such as error detection and quality evaluation. Compliance with standards for embedded systems is examined along with proven quality criteria for assessing reliability, maintainability, and reusability. Our experts' tasks range from flaws analysis during development through to determining error sources during serial production startup, right through to full-scale quality assurance for software development projects.

Seamless and timely processes while simultaneously meeting quality standards are the be-all and end-all of vehicle development. We coordinate tasks and scheduling between OEM and TIER1, we handle validation and error management, and ultimately ensure higher product quality. Our experts optimize products and production processes during the industrialization stage, and after SOP we ensure continuous improvement in line with market conditions.

LEADING THROUGH KNOWLEDGE
Experienced – Interdisciplinary – Highly Skilled

COMPETENCE CENTER

Staying ahead of the pack in terms of international competition is a strategic goal of our customers. We have concentrated our experience and in-depth technical knowledge into Competence Centers in order to provide our customers with specific development support and advice from our highly qualified staff. Our Competence Centers provide expertise to the on-site teams to jointly address the complex tasks at hand.

EDUCATION

Our employees – with all their skills, motivation, contributions, and sustained dedication – are our most valuable asset. We offer an award-winning trainee program for continuing and further education, enabling the training of experts in a broad range of subjects under the leadership of our senior engineers.

TRAINING

We offer our customers and employees qualified and practical training sessions and workshops on topics related to ECU development. All of our trainers have proven practical experience, which they bring to bear in their training programs. We purposefully build up know-how and communicate how the development process can be optimized using standards, special methods, and tools.

MODEL & CODE QUALITY ASSESSMENTS

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SUPPLIER AND QUALITY MANAGEMENT

Seamless and timely processes while simultaneously meeting quality standards are the be-all and end-all of vehicle development. We coordinate tasks and scheduling between OEM and TIER1, we handle validation and error management, and ultimately ensure higher product quality. Our experts optimize products and production processes during the industrialization stage, and after SOP we ensure continuous improvement in line with market conditions.
ENGINEERING OF TOOLS & TEST SYSTEMS

Products

Our own in-house developments provide evidence of our engineering expertise. We offer a range of innovative tools for increasing efficiency throughout the development process, from model-based specification and development to automatic test case generation right through to automated test execution. With our strong product basis, we provide our customers with full-scale testing and integration systems, from design and setup through to operation and services.

All our products are adapted to the specific requirements of the automotive industry. Compliance with industry standards ensures flawless integration with existing tool landscapes.

SOFTWARE SOLUTIONS

Systematic Test Development
Test case generation for equivalence classes and boundary value tests, combination tests, and statistical tests

Modular, High-Performance Test System
Test tool for automating software integration tests for models and software components, also for testing ECUs on the HiL test bench

Model-Based Specification and Variant Management
Tool for combining text- and model-based specifications with automatic generation of specification-based test cases and efficient mastery of a large range of variants

Specifications and Test Systems for Infotainment Applications
Model-based specification of functions and tests for infotainment systems with direct connection to common bus systems
COMPONENT AND INTEGRATION TEST BENCHES

We deliver complete test systems, from components to integration test benches, for the validation of innovative, safety-related ECU developments.

We offer our customers the greatest flexibility with our know-how, our modular system concept, and the use of open industry standards.

On the basis of our products, we develop custom-tailored test systems, especially for mechatronic tasks such as electronic steering, specific tasks in the field of driver assistance – for example, simultaneous testing of radar and camera functions – and for testing high-voltage electronic components.

OUR SERVICE PHILOSOPHY
Flexible – Competent – Goal-oriented

We like to work with our local independent teams at the customer’s location, taking charge of packages put together for development or serial production management.

We support the rollout of OEM software developments on various TIER 1 platforms. We provide TIER 1 support for OEM processes and tools and handle coordination and integration tasks at the interface.

As a global solutions provider, we convey automotive know-how to new market entrants while bridging any potential intercultural and language-related barriers, thereby contributing to the changing face of the automotive market.
A NEW PATH TO GROWTH