ENGINEERING & LCM SERVICES

Stand-alone and cost-efficient engineering and R&D consulting services for rail traffic signalling, train information and train control management systems

Systematic product development and maintenance activities focus on engineering as they not only design software and hardware solutions, but also provide both internal and external support. Tasks range from embedded software development, FPGA design, hardware development and root cause analysis to production engineering.

Life cycle management (LCM) services focus on the process from market launch, or completion of a marketable product, to its removal from the market. This includes, e.g., the analysis of the customer's product portfolio as well as creating a product life cycle extension plan.

OUR OFFERING

Engineering & Life Cycle Management Services

duagon engineering services provide engineering and R&D consulting services for rail traffic signalling (SIL0 up to SIL4), train information and train control management systems (TCMS). Our services include system integration e.g. design-in and application developments. Additionally, we support customers with their product developments such as the architecture, software design and development, as well as the final adaption and configuration of the products. We can set up the entire railway signaling installation.

duagon life cycle management (LCM) services provides support for the operation and maintenance of embedded hardware throughout the entire life cycle. Whether it is consulting on obsolescence management, support with life cycle extension, or cyber security services, we bring our knowledge to every product phase.

System Integration Services

Our software competence includes the provision of controller applications, OS setup and maintenance (LINUX/ QNX), software porting on our hardware and processor virtualization (Multi OS solutions).

Active Obsolescence Management

We start with a proactive life cycle analysis of the product portfolio (design life status), including the long-term availability of the products (risk indication). Then, to minimize the risk of unexpected obsolescence, we include a plan of obsolescence-driven redesigns, as well as additional services such as stock keeping, for example.

Life Cycle Extension

To extend the service life of products, we offer a life cycle extension plan based on customer specific expectations. Our offer includes proof of manufacturability for EOL (end-of-life) products and we also take over the production of EOL products. Additionally, we offer last-time-buy stock management by storing components (and test systems) with long-term availability. Proactive redesign and escrow services, including the collection of all requested information, for example.

Material Compliance Reporting

To get transparency of the product components, we offer an analysis of RoHS and REACH and detailed reporting such as status and expiration data for every single component. Additionally, we inform our customers of the recyclability rate on product level, fire and smoke certificates (FCIL file creation), counterfeit risk prevention. We offer an analysis of risk percentage and number of counterfeit reports from suppliers. We provide reliability data on component level (RAM services), including MTBF, FIT rate, life expectation calculations and component obsolescence risk analysis.

Fix Level Services

To keep our customers informed about any technical changes of our products, we offer different fix levels for them (from 0-3). Depending on the fix level, they are informed about changes with varying degrees of detail. From fix level 2, the customer also has a say in available modifications, to offer the best possible solution to meet their specific needs.

Cyber Security Services

We offer cyber security services for our products in the customer context with the required security level according to IEC 62443.

The standard is achieved by using certified security processes in engineering and production and adding hardware and software security features to our products.

This can be an out-of-the-box unique, certificate-based identification using a TPM or the integrated software features of our software packages. Basic, extended and advanced security feature packages are offered for a growing number of standard software products.

Services offered with security enabled products are TRA (Threat and Risk Analysis), PEN testing and security updates.
Vulnerability monitoring is implemented to constantly monitor the security status of the product's hardware and software components.

APPLICATION EXAMPLE

Technology Update for Barcelona Local Train Rodalies

duagon's engineering services team was assigned with the development, implementation and testing of Rodalies' CTC stations. For this purpose, an ATS (Automatic Train Supervision) has been implemented, thus improving both train operation and safety.

This project was an ambitious one, since the development and implementation of ATS in 114 stations had to be carried out in just a year, including integrating every interlock from diverse technology specialists.

YOUR APPLICATION - OUR COMPETENCE

The duagon advantage

Complete service – reliable embedded electronic products and software, with integration and life cycle services.

- At duagon, our customers have the advantage of having everything they need for their secure application supplied by a single supplier. By having secure hardware products and software features all under one roof, our customers have one single point of contact working with them from the very beginning of their project, through to continued support once the system is running.
- For various train-borne communication network applications including network/zone separation, protocol translation and train backbone communication, duagon is your leading partner for reliable and secure data communication. Our systems are complemented by engineering services and high-quality application software support to provide the broadest range of train-borne communication protocols and key features like cyber security, virtualization and safe computing.
- duagon boards and systems are not only modular, customizable and secure but also developed to meet requirements such as temperature ranges between -40°C and +85°C through convection or conduction cooling, shock, vibration, chemical influence or the option of coating against humidity.
- duagon is certified according to ISO 9001 and ISO 14001, plus EN/AS 9100 (aerospace) and IRIS (railways) and provides systems according to ISO 7637-2 (road traffic) requirements.
- We carry out the preliminary qualifications in our own environmental test lab (temperature, shock, vibration, humidity), high-voltage and EMC chambers. We are accredited by DAkkS, according to DIN EN ISO 17025:2018 for EMC, environmental simulation tests and safety of electrical equipment.

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