The Embedded Office ‘Safety Platform’

Case Study

Arm Functional Safety Partner
Design Services

Application Areas

- Automotive
- Industrial
- Railway
- Medical
- Aerospace

Links

- Embedded Office
- Arm Functional Safety Partnership Program

Goal

Embedded Office help companies to reduce the development costs and time for regulatory approval of their safety-critical products.

Challenge

Rising end-customer expectations in communication and security features lead to a continuously growing complexity of safety-critical products. The safety-critical products require a rising number of non-safety functionality and standard software components like protocols and security algorithms. Reusing existing software components with different safety capabilities for a safety-critical product within a single microcontroller or processor is essential to stay within the project budget.

Solution

The Embedded Office “Safety Platform” is a term that describes software combined with services in the field of safety product development.

The Safety Platform consists of essential software, which customers can equip with various modules depending on their specific project:

- RTOS with memory protection to separate different safety capabilities
- Measures for increasing the diagnostic coverage of the microcontroller
  - Logical and temporal program flow control
  - End-to-end protected communication
  - Integration or development of self-tests
- Certifiable low-level device driver layer (interrupts, clock handling, digital I/O, UART)
- Complete support of multi-core in different shapes
- Integration of middleware (TCP/IP, FS, USB)
- Always possible: project-specific extensions and adaptations of existing components

Embedded Office support all microcontrollers and processors used in embedded systems. If Embedded Office pre-certify the entire platform, the customer will receive a safety manual that already takes the used modules into account (for example, they harmonize all safety manuals for the used pre-certified components).

The customer will always receive the complete source code and on-site training, which they use to discuss the specific project requirements in a workshop. Embedded Office want to make sure that their customers engineers have comprehensive know-how about the platform.

For beginners, Embedded Office offer so-called “Safety Mentoring”. This Safety Mentoring is a service that allows them to implement the necessary development processes for the customer’s company within a project.

They standby for advice, promote understanding at the management level and, if appropriate, also conduct training.

Benefits

- Clients can start immediately with the development of the product-specific software part of the safety-critical product.
- A dedicated safety expert takes care of the client’s product development to guarantee the goals of the applicable safety standard.
- Clients can take the pressure off their team by outsourcing software development activities for safety-critical products.
- Client-specific tailoring and long-term support of all software components is possible
- Consulting during the selection of 3rd party software components (including software provided under the Arm Functional Safety Partnership Program) for integration into safety platform
- Training and Workshops for software architecture in safety-critical products
- Expert advice in setting up a development environment and tool selection for safety-critical software development
- Support and assistance when transferring a safety platform to a new microcontroller or processor

How does Embedded Office support Arm technology?

1. Embedded Office support all Arm microcontroller and processors up to Cortex-A53
2. Embedded Office support the Arm Compiler 6 in all versions
3. For increasing the diagnostic coverage of the microcontroller, they often use the provided Software Test Library out of the Arm Safety Ready Portfolio