

8 Reasons to use a Pre-Certified Safety RTOS

With the increasing growth of regulation, and certification bodies accepting systems made up from pre-certified blocks, there is an increasing demand for pre-certified software components. The following 8 benefits of using a pre-certified safety RTOS are based on SAFERTOS, an IEC 61508 SIL 3 RTOS used in embedded systems

1 Determinism

SAFERTOS is designed to deliver extremely high levels of determinism. Features frequently found in commercial grade RTOS's that affect deterministic behaviour have been removed, such as dynamic memory allocation.

2 Robustness

SAFERTOS uses a robust implementation, designed to comply with the most rigorous international design standards. A deterministic design, self-verification features, parameter validation and stack checking routines all contribute to ensure SAFERTOS performs as expected.

3 Spatial Separation of Tasks

SAFERTOS supports the definition and manipulation of MPU regions on a per task basis. This feature provides the tools that allow developers to add a degree of spatial separation between tasks, which used effectively, can help prevent tasks directly making unintentional or accidental access to incorrect memory regions.

4 Ease of Product Certification

The process of certifying SAFERTOS in a product is simple and straightforward. All that is required is to follow the clear, concise instructions found within the safety manual on how to install, integrate and use SAFERTOS within an application, and submit the resulting evidence to your auditors.

5 Designed to your Specific Compiler and Processor

SAFERTOS is delivered configured for your specific compiler and processor combination; this ensures no re-testing is required, and your path to certifying an application built on SAFERTOS is smooth and hassle free.

6 Lowers Risk

In many safety critical applications, the RTOS is the most critical component. The RTOS not only schedules the functionality of the software, it also schedules the operation of Safety Monitors and Safety Functions. Using a trusted component at the heart of your design shortens development schedules and de-risks the product certification process.

7 Quality Assurance

SAFERTOS is delivered with full source code and a Design Assurance Pack (DAP). The DAP contains every Design and Verification artefact created for your specific SAFERTOS port, and provides complete transparency over the full Design Life Cycle. WHIS is also ISO 9001 certified.

8 Proven

SAFERTOS has been independently certified many times on numerous platforms to IEC 61508-3 SIL 3, the highest possible SIL level for a software only component and ISO 26262 ASIL D.

8 Reasons to use an RTOS from WITTENSTEIN

Experts in embedded RTOS and Middleware technology with a specialization in safety certified software. Supplying advanced RTOS and Middleware components across a broad range of market sectors and applications, from basic embedded designs, up to complex safety systems demanding the highest levels of certification.

1 Comprehensive Product Range

The WHIS RTOS ecosystem consists of:

- **OPENRTOS:** A commercial license for the FreeRTOS kernel, the market leading RTOS.
- **SAFERTOS:** A pre-certified safety RTOS supporting 34 different processor architectures, 18 different tool chains, and numerous International Safety Standards.

2 Huge User Base

FreeRTOS was downloaded every 120 seconds (on average) during 2017.

FreeRTOS was top in class in every EETimes embedded systems survey from 2011-2017 in two areas: RTOS currently used, and RTOS considered for the next project.

3 Strong Product Philosophy

WHIS RTOS and Middleware products are designed to have a small memory footprint, be easy to use, robust and responsive.

4 Compelling Features

WHIS RTOS include features that answer today's processing needs. WHIS offer multicore support, enhanced security options, ultra-low power mode as well as other efficiency boosting features.

5 Analysis Tools

WHIS provides a range of development tools for use with our RTOS product range. These tools are invaluable for troubleshooting, optimization, or for analyzing performance, ensuring that individual tasks are working in harmony together.

6 Training, Consultancy and Support

Our consultancy services are designed to support our customers, allowing us to share our knowledge and experience to help optimise the final design, improve the design processes and smooth the route to certification. Alternatively increase your development proficiency by attending one of our comprehensive training courses.

7 Flexible Licensing

We aim to provide customers with the license model that best suits their needs, supported by a transparent pricing policy. Our standard licensing model uses a royalty free, perpetual license.

8 Part of a Stable and Mature Corporation

WITTENSTEIN high integrity systems is part of the WITTENSTEIN Group, a global technology company established in 1948, with locations in 45 countries, and employing in excess of 2300 employees.