

## Safety-Critical Heterogeneous Multicore Development

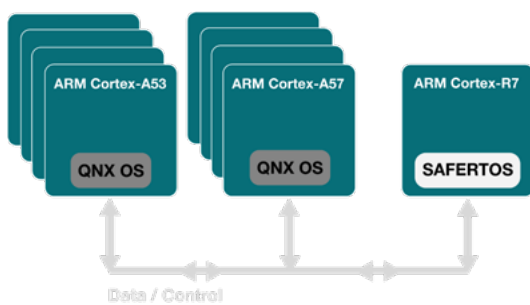
### WITTENSTEIN high integrity systems and Blackberry QNX Multicore Solution

WITTENSTEIN high integrity systems (WHIS) and Blackberry QNX now offer an embedded software platform solution to accelerate the development and deployment of safety certified and mission-critical applications on heterogeneous system-on-chip processors.

Evaluation software can be obtained under license from either BlackBerry QNX or WHIS by contacting your local sales representative.

The solution utilises Asymmetric Multi-Processing (AMP). AMP allows for the use of different cores, each dedicated to specific tasks within one System-On-Chip (SOC). In this particular solution, SAFERTOS® runs on an ARM Cortex-R separate to Blackberry QNX Neutrino OS running on an ARM Cortex-A. The solution includes inter-processor communication between QNX Neutrino and SAFERTOS.

The solution is referred to as heterogeneous multicore due to the use of different core architectures within a single application. Using different cores enables greater flexibility; the fully functional QNX Neutrino operating system can make use of the feature-rich larger ARM Cortex-A cores, whereas SAFERTOS with a smaller footprint can run on an ARM Cortex-R, creating a dedicated safety critical core.

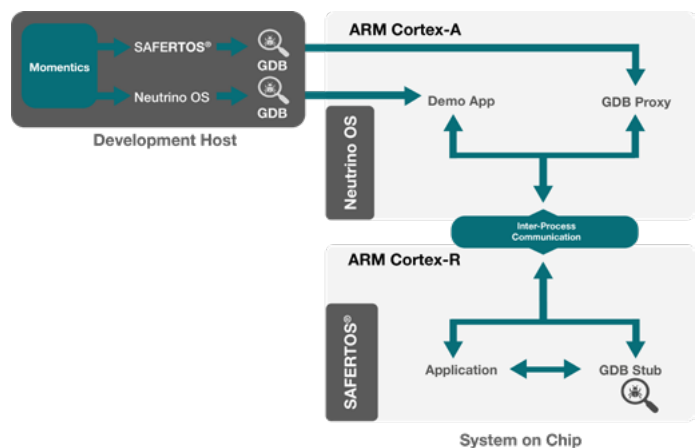


SAFERTOS is a pre-emptive, safety critical RTOS that delivers unprecedented levels of determinism and robustness to embedded systems, whilst using minimal resources. It's used internationally across a range of safety critical applications and is renowned for its high quality. SAFERTOS is available pre-certified to ISO 26262 ASIL D and IEC 61508 SIL 3. A key advantage of SAFERTOS is the upgrade path from FreeRTOS to SAFERTOS; prototype using FreeRTOS and convert to SAFERTOS at the start of formal development.

The QNX Neutrino® RTOS is a safe and secure 64-bit OS designed to enable the next-generation of mission-critical products for automotive, medical, transportation, military and industrial embedded systems. QNX Neutrino provides high performance and helps guard against system malfunctions, malware, and cyber attacks by implementing a multi-level, policy-driven security model that incorporates best-in-class security technology from BlackBerry.

The solution builds on the safety legacy of both the WHIS SAFERTOS and the QNX Neutrino operating system to reduce certification costs and risk while enabling development of highly reliable, mixed criticality systems. Extensions to the QNX Momentics Tool Suite provide development and debugging features for SAFERTOS tasks running on adjacent MPU cores within the SOC.

Developers can leverage one IDE and common tool suite based on open standards including Eclipse and GCC to speed up all phases of development. Example functionality includes the QNX Momentics debugger that allows developers to concurrently debug multiple applications coded in C and C++ across heterogeneous ARM cores.



WITTENSTEIN high integrity systems

Worldwide Sales and Support  
 Americas: +1 408 625 4712  
 ROTW: +44 1275 395 600  
 Email: [sales@highintegritysystems.com](mailto:sales@highintegritysystems.com)  
 Web: [www.highintegritysystems.com](http://www.highintegritysystems.com)

