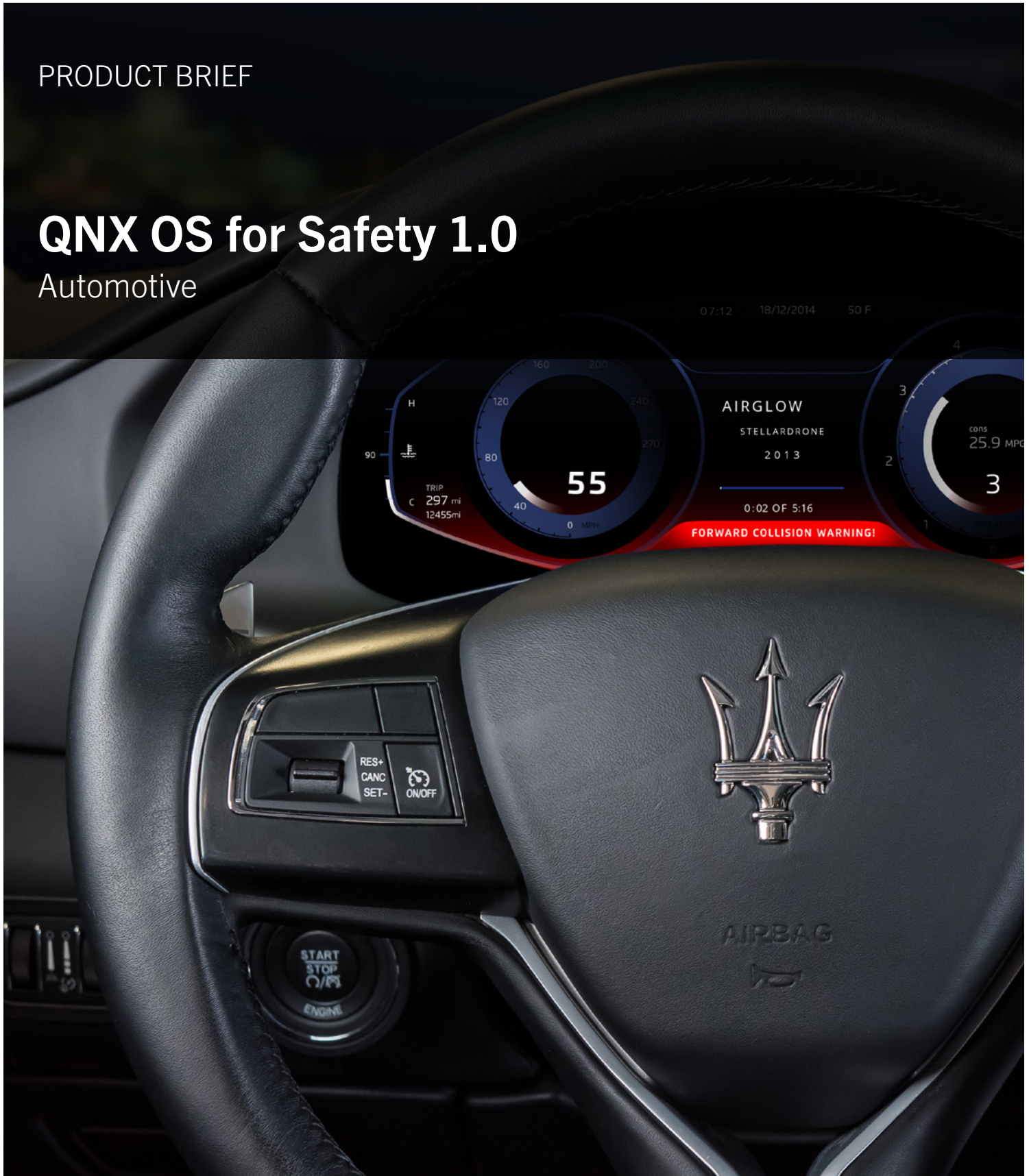


PRODUCT BRIEF

QNX OS for Safety 1.0

Automotive



The QNX® OS for Safety gives Tier 1 suppliers and automakers a reliable foundation for meeting the requirements of safety-critical automotive applications such as digital instrument clusters and advanced driver assist systems (ADAS). The product has been pre-assessed by a leading auditing firm, TÜV Rheinland, as a compliant item for use in systems up to ISO 26262 ASIL D.

Standards-compliant for the Automotive market

The QNX OS for Safety is designed to meet the requirements of several emerging segments in the automotive market which have safety-critical characteristics (e.g., digital instrument clusters and ADAS). Since the finalization of ISO 26262 in 2010, demand has grown significantly for pre-certified or certifiable components to this standard. Increasingly, certification of automotive systems to ISO 26262, the leading international standard for automotive functional safety, is considered a necessary condition for declaring a safety system “state-of-the-art”. The QNX OS for Safety provides the certification pedigree that satisfies this demanding requirement.

Ideal foundation for safety-critical components

The QNX OS for Safety underwent stringent evaluation and testing by TÜV Rheinland, providing comprehensive assurance of a platform that truly meets the ISO 26262 compliance requirements. The target software, including QNX® Neutrino® microkernel and process manager (with multicore support and adaptive partitioning scheduler), and libc has been certified as a compliant element. The certification also includes the qualification of the toolchain – the C compiler, linker, and assembler that is an essential part of the QNX® Momentics® Tool Suite. Classified as TCL 3, the tool chain has been qualified to be compliant with the requirements for supporting tools according to ISO 26262 and IEC 61508. Using a pre-certified component, especially when the component is of key importance to the overall integrity of the system, can contribute to a greater level of safety and make overall system certification much easier.

Microkernel architecture for increased separation

The microkernel architecture inherent in the QNX Neutrino RTOS provides clean separation between safety-critical components, such as warning lights displays in digital instrument clusters, and non-safety critical components, such as information coming from the infotainment system, even while allowing both to share the same hardware. Each component remains isolated and executes in memory-protected user space. QNX adaptive partitioning further safeguards the operation of the safety-critical components by ensuring they are never starved of CPU cycles.

100% API compatible with QNX OS standard product

The QNX OS for Safety shares an identical API with the standard QNX Neutrino standard RTOS. This direct lineage opens up the opportunity to establish a single platform on which components of mixed criticality can co-exist and allows Tier 1s and automakers to maximize software re-use. It also minimizes the learning curve for the development team that typically accompanies certified products.

	Project without Certification Requirements	Project with Certification Requirements
Developer Head Count	12 people	18 people
Key Activities Duration (lapse in time)		
System Design	5 weeks	8 weeks
Detailed Design	3 weeks	5 weeks
Coding	4 weeks	5 weeks
Testing	6 weeks	12 weeks
Certification	–	20 weeks
Total Budget	\$1.2 M	\$3 M
Project Duration	8 months	24 months

Figure 1: The certification requirement can significantly increase the scope of a project, consuming more time and money.
Source: QNX data validated with customers.

Product package

- Binaries and header files for microkernel, process manager and libc
- Safety manual
- Installation and usage guide

Optional offerings:

- Hazard and risk analysis
- Safety case

Note: The QNX OS for Safety must be installed on top of an existing SDP 6.5 SP1 development seat (not included).

Hardware support

- ARMv7
- x86

Certifications

- IEC 61508:2010
- ISO 26262:2011
- Certified by TÜV Rheinland

Professional Services

Safety-focused training courses:

- Interpreting the Safety Manual
- Developing a Dependable Application

Professional services to assist with:

- System hazard and risk analysis
- Safety case construction
- On-site audit services
- Functional safety design consulting
- Certifiable BSPs

About QNX Software Systems

QNX Software Systems Limited, a subsidiary of BlackBerry, is a leading vendor of operating systems, development tools, and professional services for connected embedded systems. Global leaders such as Audi, Cisco, General Electric, Lockheed Martin, and Siemens depend on QNX technology for vehicle infotainment units, network routers, medical devices, industrial automation systems, security and defense systems, and other mission- or life-critical applications. Founded in 1980, QNX Software Systems Limited is headquartered in Ottawa, Canada; its products are distributed in more than 100 countries worldwide. [Visit www.qnx.com](http://www.qnx.com)

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