Toradex and QNX Address Industrial Robot Safety Amidst ISO 10218 Standard Updates

Horw, Luzern Aug 18, 2025 (Issuewire.com**)** - As industrial automation enters the collaborative era of Industry 5.0, ensuring the safety of human-robot interaction is more critical than ever. Toradex, a leader in embedded computing solutions, today announced its collaboration with QNX, a division of BlackBerry Limited, to help manufacturers meet the stringent requirements of the updated ISO 10218 standard for industrial robotics safety.

In dynamic, high-risk environments, ranging from smart factories to unmanned systems and autonomous mobile robots (AMRs) operating in public spaces, safety is a foundational requirement. While automation drives productivity, recent real-world incidents highlight the urgent need for embedded functional safety (FuSa) at every stage of design and development.

The newly revised ISO 10218-1 and 10218-2 standards introduce more rigorous frameworks for safety, including comprehensive risk assessments, stricter verification of safety functions, improved protocols for human-robot collaboration, and integrated cybersecurity measures. Compliance requires achieving IEC 61508 SIL 3 rating, validating the system's safety integrity from architecture through deployment.

Key Takeaways from the Toradex and QNX Collaboration

- **Investment into QNX® SDP 8.0 support:** To deliver embedded innovation with unmatched reliability, seamless integration, and real-time performance.
- **ISO 10218 Compliance, Simplified:** Certifiable software and hardware minimize risk and reduce time to market.
- **Microkernel Architecture Advantage:** QNX® OS for Safety provides fault isolation, high determinism, and robust security.
- **Hardware Platform Flexibility:** QNX is working with Toradex across scalable hardware, from lower to higher-end chips like the Verdin iMX95, with pin-to-pin compatibility. Support can extend to additional form-factors, like the Toradex SMARC.
- **Hardware-Software Synergy:** Toradex System on Modules (SoMs) offer high reliability, configurability, and industrial-readiness. A perfect fit for QNX's real-time OS.
- **Built for Industry 5.0:** Designed for true human-machine collaboration, not just coexistence.
- **Engineered for Safety-Critical Systems:** The offering from Toradex using QNX software meets the demanding needs of industrial robotics and enables the next-generation of safety-critical environments.
- **Accelerated Certification:** Ready-to-use QNX Board Support Packages (BSPs) for Toradex hardware streamline development and functional safety certification.
- **Long-Term Reliability:** Industrial-grade components and long-term support ensure a stable platform for mission-critical deployments.

Toradex hardware supported by QNX software as of today, are:

- Verdin iMX8M Plus (QNX® SDP 8.0 and 7.1)
- Apalis iMX8 (QNX® SDP 8.0, 7.1 and 7.0)
- Colibri iMX8X (QNX® SDP 7.1 and 7.0)
- Apalis iMX6 (QNX® SDP 7.0)

With further upcoming support in development for the Verdin iMX95.

"*Robotics safety isn't just a compliance checkbox, it's a core enabler of innovation*," said **Grant Courville**, SVP Products and Strategy, at QNX. "*With our QNX OS for Safety and this collaboration with Toradex, we're offering a certifiable platform that allows manufacturers to accelerate development while maintaining the highest safety standards. Together, we're building a foundation of trust for the next generation of collaborative robotics.*"

QNX® OS for Safety and QNX® Hypervisor for Safety, both certified to IEC 61508 SIL 3, feature a microkernel-based architecture purpose-built for real-time, fault-tolerant applications. This approach isolates safety-critical components, enhances system predictability, and directly supports compliance with updated ISO 10218 standards.

"*Robot safety can no longer be bolted on after deployment*," added **Daniel Lang**, CMO at Toradex." *By combining QNX's safety-certified RTOS with our scalable and reliable hardware, we deliver a robust platform that enables manufacturers to develop certifiable robotic and unmanned systems more rapidly and efficiently*."

Webinar: Achieving ISO 10218 Compliance with Toradex and QNX
Toradex and QNX recently hosted a joint webinar, Achieving ISO 10218 Compliance in Industrial Robotics with Toradex and QNX: Enhancing Safety and Performance, focusing on the practical implications of the updated ISO 10218 standard for industrial robotics. The session included expert perspectives on how to navigate new safety requirements, with a specific look at the role of software

architecture, functional safety certification, and hardware-software integration.

The on-demand recording is available for those who couldn't attend live. It provides an overview of the evolving safety landscape and explores how manufacturers can build systems that are both high-performing and compliant from the ground up.

Watch now: https://www.youtube.com/watch?v=ZWJJ3cKLGGc

As robotics continue to expand into human-centric spaces, embedding safety by design is not just a best practice - it's a necessity. The Toradex-QNX collaboration sets a new benchmark for scalable, certifiable, and future-ready robotic systems that support the safe and seamless integration of automation into the real world.

About Toradex:

Toradex specializes in embedded hardware and software, offering Arm®-based System on Modules (SoMs) and customized Single Board Computers (SBCs); and industrial-grade software such as Torizon, an easy-to-use open-source industrial Linux platform.

Toradex's offerings are an ideal fit in applications such as healthcare, transportation, industrial automation, test & measurement and smart city. Its easy-to-use, commercial off-the-shelf embedded computing SoMs are pin-compatible thereby offering scalability. They also come with free premium support and long-term product availability. Through innovation, Toradex performs market-leading integration of hardware, software and services to reduce complexity, time-to-market, risk and costs for its customers.

Founded in 2003 and headquartered in Horw, Switzerland, the company's network stretches across the globe with offices in the U.S., China, India, Japan and Brazil. For more information, please visit https://www.toradex.com/.

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