

PRODUCT BRIEF

QNX Car Platform for Infotainment



The QNX CAR Platform for Infotainment is a comprehensive full-featured software stack that enables automakers to rapidly bring to market secure, compelling infotainment systems (also known as head units) with leading automotive technologies. This platform integrates the latest BlackBerry QNX operating system and middleware technologies with best of breed third-party offerings for navigation, voice recognition, and smartphone connectivity on all major automotive grade hardware. The platform is built with flexible and extensible frameworks making it easy to add new features, and substitute third-party technologies to satisfy different regional preferences. Built-in software update capabilities enable OEMs to push out new content or firmware to their fleet in a secure and timely manner. Whether building entry, mid-level or high-end infotainment systems, the QNX CAR Platform saves development effort, reducing time-to-market from years to months.

Overview

Full-featured infotainment systems are now part of automotive mainstream for all vehicle class segments, from entry-level to luxury. More consumers' vehicle purchasing decisions are based on a user experience that keeps them connected, providing a seamless extension to their daily routines and lifestyle while in their cars. With every new generation of infotainment system there comes new capabilities and a rise in software complexity.

The QNX CAR Platform has evolved to keep pace with leading advancements in infotainment, including 3D navigation integration, speech and natural language capabilities, smartphone connectivity protocols, best-in-class in-cabin acoustics, and secure over-the-air software updates. The platform offers a turnkey solution that significantly reduces development effort, as challenging integration issues such as fast boot, last mode settings, and audio management are already solved.

Additionally, as with any system that provides external connectivity, careful consideration must be given to avoid infotainment security design flaws and vulnerabilities, as an exploit could affect other systems that interact with the head unit. Key security capabilities have been introduced as part of QNX® Neutrino® OS to thwart attacks. These features include use of a self-verifying filesystem to deny access to files that have changed unexpectedly, filesystem encryption for protecting sensitive or private data, and fine-grain control of system privileges so that processes cannot unintentionally interfere or communicate with one another.

With the QNX CAR Platform, automakers can build discrete head units, or consolidated cockpit modules. These modules can be based on a single high-powered processor and use QNX virtualization technology to host the QNX CAR based infotainment system and other sub-systems such as a digital cluster, and head-up display

The Benefits

- Accelerated development cycle with a complete pre-integrated stack built on the most reliable and secure automotive OS
- Adaptable frameworks for easy integration of new features and substitution of third-party technology to satisfy regional preferences
- Support for all leading automotive-grade platforms
- Flexible deployment options: adopt QNX CAR Platform technology wholesale or piecemeal

Features at-a-Glance

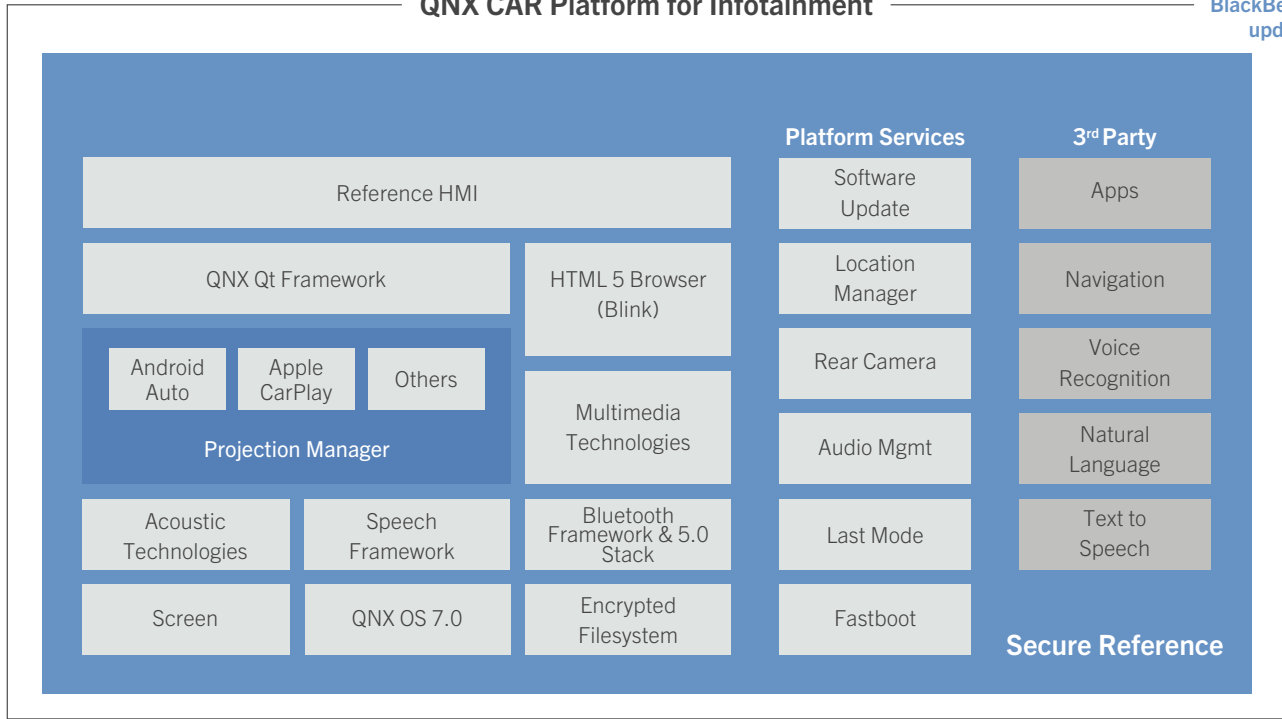
- Full-featured reference HMI using Qt 5
- Support for multi-vendor, multi-domain voice control with speech recognition and natural language understanding
- Leading smartphone connectivity protocols including Apple CarPlay and Android Auto
- HTML5 apps or content rendered with an integrated Blink-based browser; Android apps supported via QNX Hypervisor
- Hands-free calling with best-in-class acoustics for echo-cancellation, noise reduction
- Dual-mode Bluetooth 5.0 stack with classic and low energy profiles enabled for all automotive use cases
- Multimedia playback for extensive audio, and hardware accelerated video formats and playlists
- Media discovery, and browsing from different sources including local filesystem, USB device, iOS device, Bluetooth phone, Android phone via MTP
- Highly-configurable audio management for routing highest priority audio paths (e.g. phone call over media)

- HERE navigation with multimodal destination entry and last mode support
- Interface legacy code via standard-based IPC plugins for DDS and Fast RTPS

- Support for OTA software updates with BlackBerry cloud based secure OTA service
- Reference security policy
- Rear view camera



QNX CAR Platform for Infotainment



SoC (x86, ARM)

3rd Party

QNX CAR Platform Components

The platform incorporates infotainment-specific platform services along with QNX middleware technology:

- QNX Multimedia Suite
- QNX Web Browser (based on Blink)
- QNX Acoustic Management Platform
- QNX Speech Framework
- QNX SDK for Smartphone Connectivity with Apple CarPlay and Android Auto plugins
- QNX SDK for Automotive Bluetooth Connectivity with integrated dual mode Bluetooth 5.0 stack
- BlackBerry OTA Platform for over-the-air software updates

Software Ecosystem Partners

- Speech recognition: Nuance, and open source options for cloud and embedded
- Natural language: QNX, Nuance, and open source options for cloud and embedded
- TTS: open source cloud and embedded options
- Navigation: HERE
- Bluetooth: Mindtree
- Smartphone connectivity: Apple, Google, and others
- HMI: The Qt Company

Hardware Ecosystem Vendors

Reference target images built for ARM and x-86 architectures based on:

- Intel
- NXP
- Qualcomm
- Renesas
- Texas Instruments

Several Bluetooth and Wi-Fi automotive grade chipsets are available including ones from Qualcomm, Marvell, Broadcom, and Texas Instruments.

Automotive Services

BlackBerry QNX has a dedicated team of engineers that specialize in automotive cockpit solution stacks to address customers' development challenges. Whether porting to a different hardware platform, integrating a new speech engine or UI technology, or helping to meet system KPIs, experienced BlackBerry QNX engineers become an extension of the customer's development team, focused on meeting production deadlines on time, and on spec.

About BlackBerry QNX

BlackBerry QNX, is a leading supplier of safe, secure, and trusted operating systems, development tools, and professional services for connected embedded systems. Global leaders such as Ford, Audi, Cisco, General Electric, Lockheed Martin, and Siemens depend on BlackBerry QNX technologies for their next generation of secure vehicle software platforms, network routers, medical devices, industrial automation systems, security and defense systems, and other mission and/or life-critical applications. This includes full software lifecycle management via secure over the air software updates. Founded in 1980, BlackBerry QNX is headquartered in Ottawa, Canada, with its products distributed in over 100 countries worldwide.

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