

# OrangeBox 2.0 automotive Connectivity Domain Controller (CDC) development platform

Enhanced cybersecurity protection using AI and post-quantum cryptography

OrangeBox 2.0 is the second generation of NXP's automotive-grade development platform designed to facilitate secure automotive communication between the vehicle's gateway and its wired and wireless technologies. The upgraded platform brings a 4x increase in CPU performance compared to the previous generation and incorporates new features, including AI acceleration, post-quantum cryptography and software-defined networking, to help secure the vehicle against the cyberattacks of today and tomorrow, supporting the transition to software-defined vehicles (SDVs).

## OrangeBox 2.0

- Consolidates wireless and wired connectivity solutions within a vehicle, including V2X, secure car access, radio and Wi-Fi technologies, into a single connectivity domain controller.
- Drives the secure digital transformation of vehicles by enabling a consistent AI driven state-of-the-art security solution within the centralized domain-based architecture.
- Simplifies access to integrated connectivity technologies through one software platform to reduce costs and streamline development.

## Technical Highlights

- Integrates a wide range of wireless technologies from V2X, Wi-Fi 6/6E, Bluetooth 5.3, broadcast radio to secure car access with Ultra-Wideband (UWB) and Bluetooth Low Energy (BLE) with Channel Sounding.



- A single, security enhanced, modular system that provides a unified interface between the vehicle, with all of its wired and wireless technologies, and the outside world.
- 5G cellular and high precision GPS connectivity provided via 3rd party solutions.
- The flexibility to adapt to regional requirements for cellular connectivity and V2X and keep up with changing technologies. This accelerates time-to-market, reduces complexity and provides a flexible development platform ready for application deployment.
- Helps to identify and manage the RF co-existence challenges when dealing with multiple wireless technologies simultaneously.
- Ideal for development, evaluation and proof of concept demonstrations powered by NXP hardware and software.
- The OrangeBox platform integrates seamlessly with NXP's GoldBox vehicle networking platform and the central vehicle gateway, enabling other automotive systems to easily leverage wireless connectivity.

Fact Sheet OrangeBox 2.0

Features

- Processing
  - i.MX 94 4 x Arm® Cortex®-A55 cores; 2 x Cortex-M7 cores; 2 x Cortex-M33 cores; NXP eIQ® Neutron NPU
- Memory
  - 6 GB LPDDR5
  - 32 GB eMMC
  - 64 MB serial NOR
- Wireless Communications
  - Wi-Fi 6/6E and Bluetooth 5.3
  - 5G Cellular (optional)
  - DSRC V2X (optional)
  - BLE/UWB Secure Access (optional)
  - Precision Global Positioning (GNSS)
  - Radio Tuner (optional)
- Networking
  - 2 x 2.5 Gbps; 3 x 1 Gbps Ethernet
  - 2 x CAN-FD

- Safety and Security
  - EdgeLock® Secure Enclave; Prime Cryptography Accelerator
  - Functional Safety Island (ISO26262 ASIL-B)
  - External Secure element

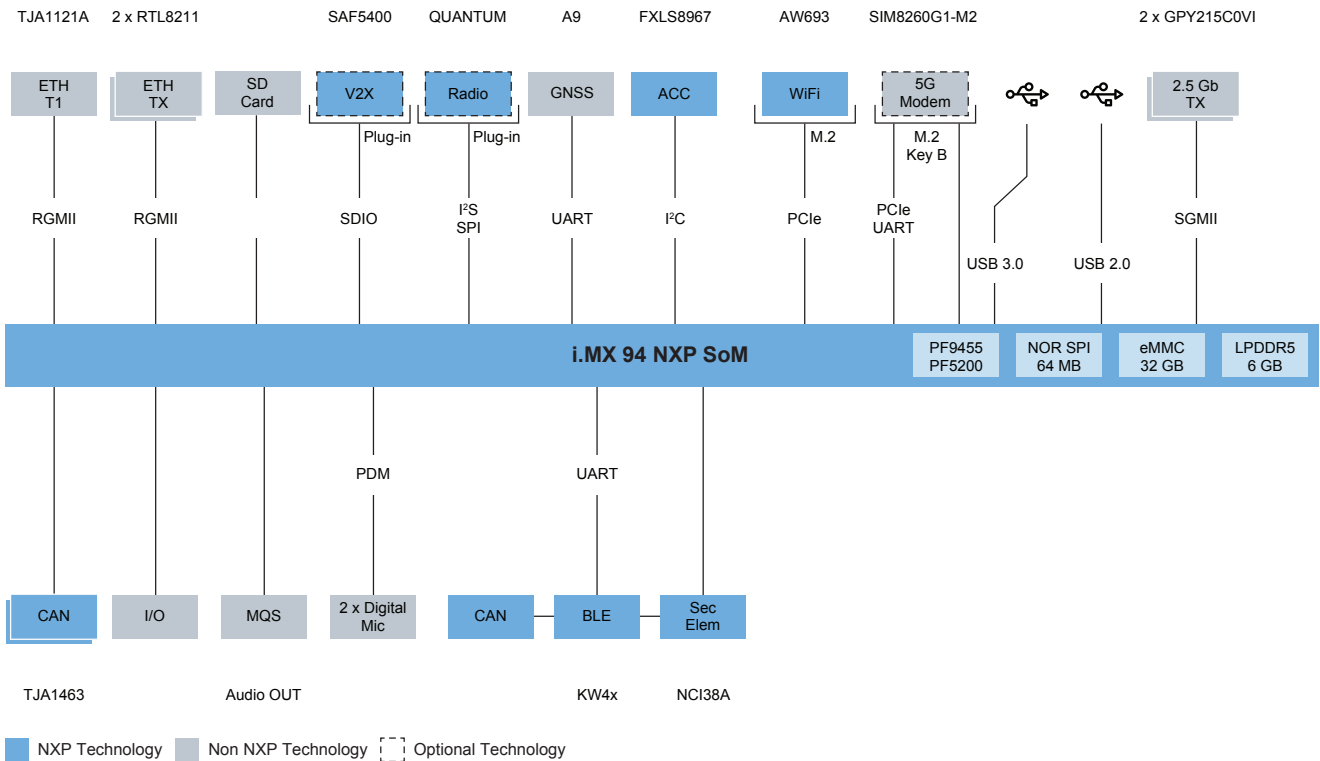
OrangeBox 2.0



Software and Tools

Hardware design files, software tools and board support packages (BSPs) are available from NXP to use as a reference for starting designs.

OrangeBox 2.0 Block Diagram



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Document Number: ORANGEB2FS REV 0