Quad-Port SerDes for ASA Motion Link

AVL1402XX

Preproduction

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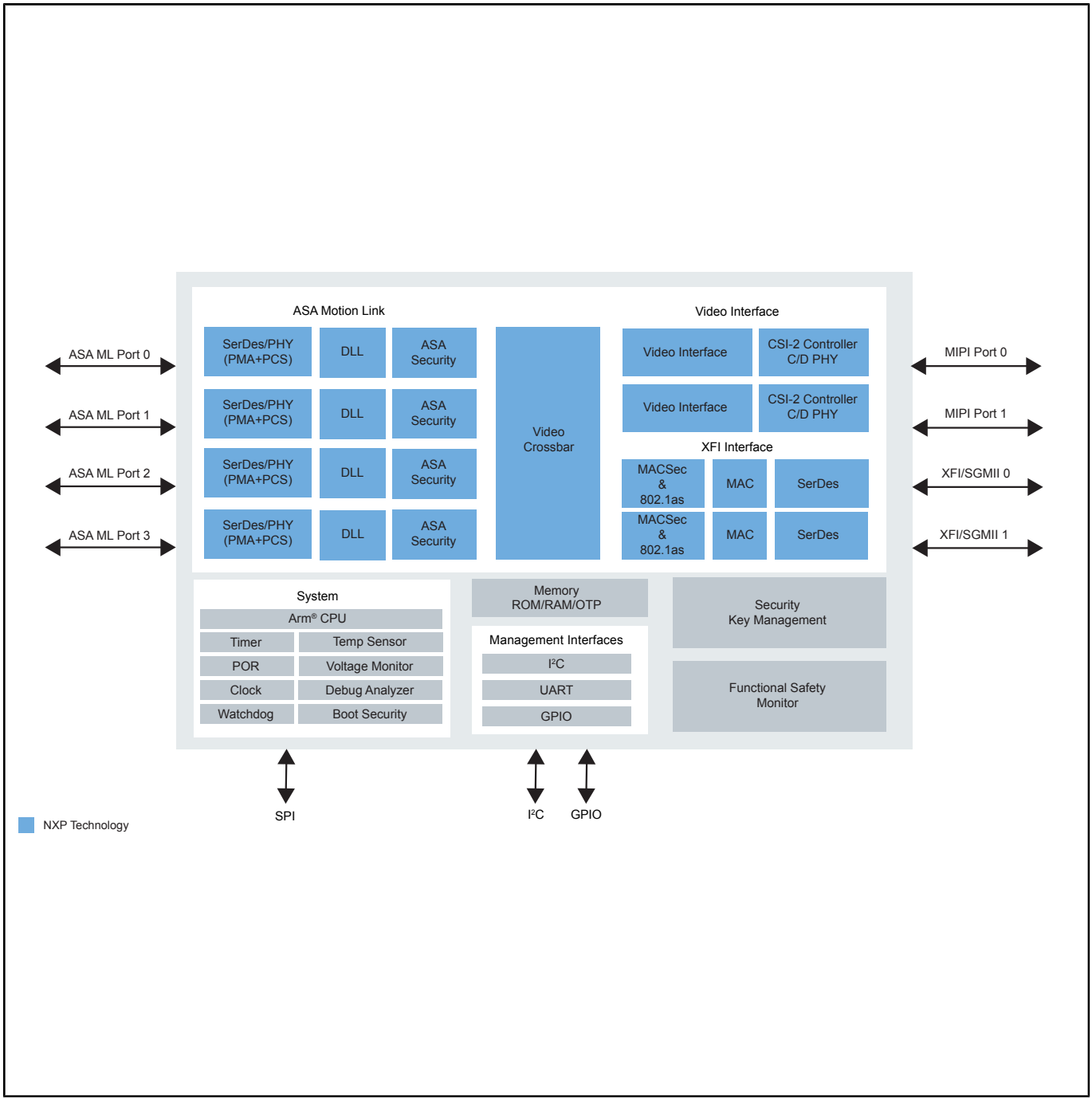
The AVL1402XX family of quad-port serializer/deserializer (SerDes) provides an Automotive SerDes Alliance (ASA) Motion Link—compliant solution to securely distribute video and sensor data within Automotive Advanced Driver Assistance Systems (ADAS) systems.

A pair of AVL1402XX devices supports multi-gigabit connections for high-resolution camera, lidar and radar sensors used in safety-critical ADAS and autonomous driving systems. It does so by converting the high-speed video from the Mobile Industry Processor Interface Alliance (MIPI) Camera Serial Interface-2 (CSI-2) interface and data from the control interfaces to an ASA Motion Link interface and vice versa.

Each of the four ASA ports on these devices can be configured in firmware either as a transmitter (serializer mode) or a receiver (deserializer mode), enabling several use cases with a single SerDes device. Each ASA port on the AVL1402XX chipsets can support line rates from 2 Gbit/s - 16 Gbit/s (Speed Grades 1/2/3/4/5) over a single low-cost 50 Ω Coax or 100 Ω shielded twisted pair (STP) cable. The ASA Motion Link physical layer (PHY) is based on time-division duplexing (TDD), resulting in lower power consumption, implementation complexity and solution size.

The AVL1402XX family of SerDes devices supports the complete ASA security framework, including standardized interoperable link-based security as well as a 3-level Key Exchange Entity to ensure device/data authentication and protection across the automotive supply chain. These SerDes devices also include a suite of functional safety and diagnostic features that provide end-to-end link monitoring and reliability for safety-critical ADAS and autonomous driving applications.

Quad-Port SerDes for ASA Motion Link Block Diagram



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