PRODUCT BRIEF

BRIGHTLANE™ 88Q5192 secure managed switch

16-port automotive Ethernet switch with integrated 1000BASE-T1 PHYs and MACsec

BRIGHTLANE™ third generation secure automotive Ethernet switch, 88Q5192, is a 16-port switch with integrated 1000BASE-T1, 100BASE-T1, and 10BASE-T1S PHYs fully compliant to the applicable IEEE 802.3 standards.

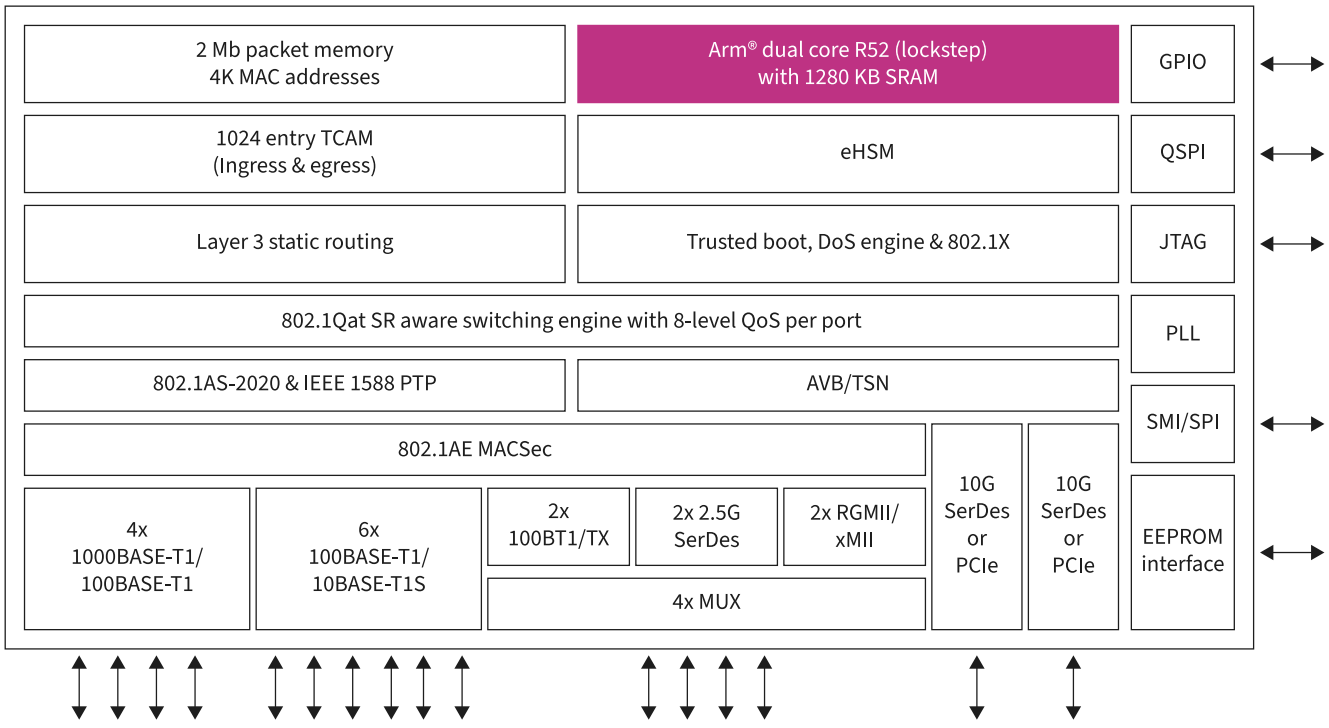
The 16-port switch offers 12 integrated PHYs, 4x supporting dual speed 1000/100BASE-T1, 6x supporting dual speed 100/10BASE-T1(S), and 2x supporting 100BASE-T1/TX. Additional interfaces supported include 2x multi-speed 10 Gb SerDes (10G/5G/2.5G/1 Gbps), 2x multi-speed 2.5 Gb SerDes (2.5G/1 Gbps), 2x RGMII/MII/RMII, and 2x PCIe Gen3 x1 interface.

The port interface options offer flexible configurations for connectivity to external devices, such as 2.5/5/10GBASE-T1 PHYs, or uplinks to host SoCs. This makes the device ideal for In Vehicle Networking (IVN) applications, such as Advanced Driver Assist Systems (ADAS), zonal control modules, and central gateways.

This switch includes a high-performance dual core Arm® R52 CPU that operates in lockstep, with dedicated on-chip memory to support Time Sensitive Networking (TSN) protocols such as Precision Time Protocol (PTP) and security firewall to protect from external malicious attacks.

The switch includes many advanced security features including 802.1AE MACsec to provide link security to prevent man-in-themiddle attacks, Denial of Service (DoS) engine, TCAM for Deep Packet Inspection (DPI), and trusted boot functionality to secure the vehicle network. It also includes an embedded hardware security module to enhance device security by supporting secure and encrypted boot and managing advanced security features such as MACsec.

Block diagram



PRODUCT BRIEF

Key features

Features	Benefits
Processor	– Integrated dual core Arm® R52 CPU operating in lockstep
Security	– 802.1AE MACsec – Embedded Hardware Security Module (eHSM) – Secure boot and encrypted boot support
Switch port interfaces	– 4x 1000BASE-T1/100BASE-T1 PHYs – 6x 100BASE-T1/10BASE-T1S PHYs – 2x 100BASE-T1/100BASE-TX PHY – 2x RGMII/MII/RMII – 2x multi-speed SerDes (2.5G/1 Gbps) – 2x multi-speed SerDes (10G/5G/2.5G/1 Gbps) – 2x PCIe Gen 3 x1 supporting Single Root I/O Virtualization (SR-IOV)
I/O interfaces	– Configurable GPIO – JTAG interface for debugging – SMI/SPI interface for configuration – QSPI with configurable frequencies (19.2–83.3 MHz)
Time Sensitive Networking (TSN) support	– 802.1AS-2020 – 802.1Qat / Qav / Qbu / Qbv / Qci / Qcr – 802.1CB
Automotive qualified	– AEC-Q100 – Automotive grade 2 (-40 to +105°C)
Package characteristics	– 19 mm x 19 mm, 478 pin TFBGA, 0.8 mm pitch

Target applications

– Zonal control module
– Central gateway
– In-vehicle infotainment
– Advanced Driver Assistance Systems (ADAS)
– Body domain controller

Published by
Infineon Technologies AG
Am Campeon 1-15, 85579 Neubiberg
Germany

Public

Date: 08/2025

Scan QR code and explore offering
www.infineon.com