MARVELL® SECURE AUTOMOTIVE SWITCH

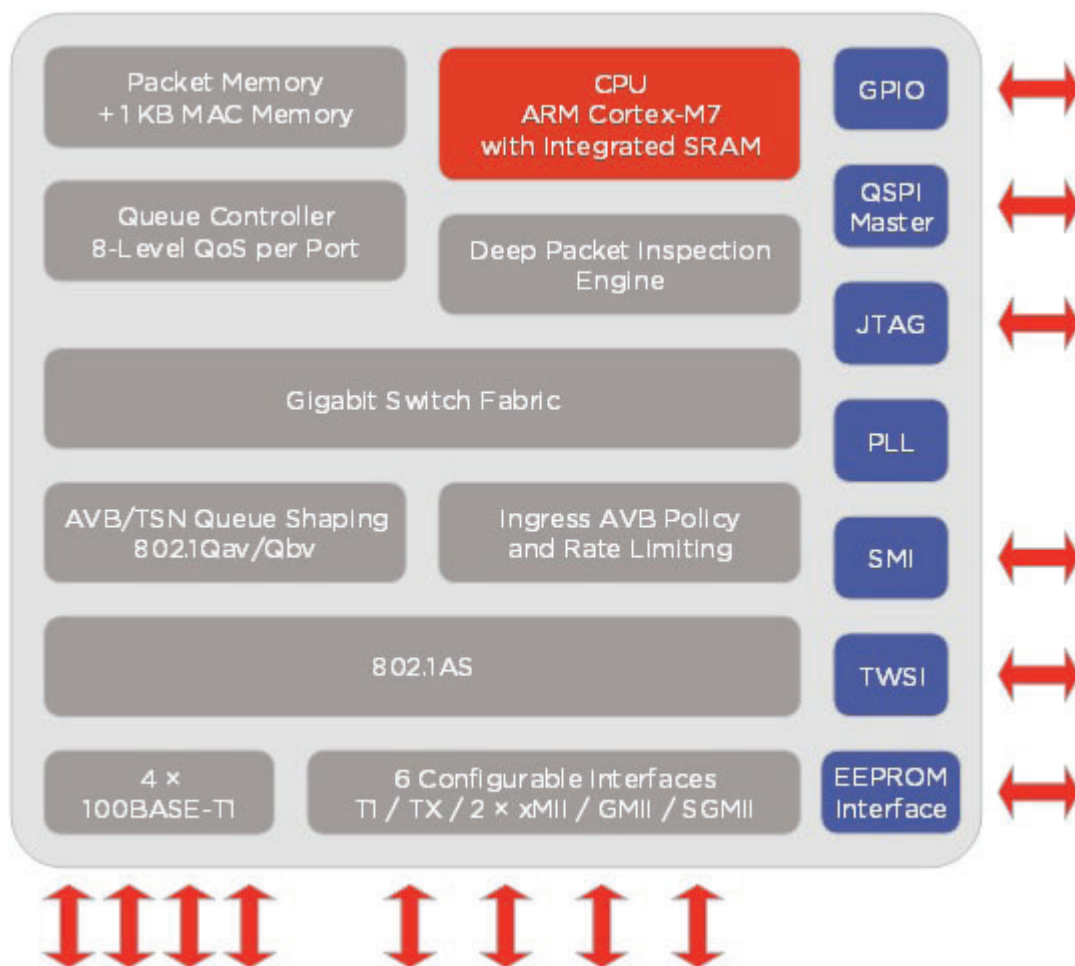Secure 8-port Automotive Ethernet Switch with Deep Packet Inspection (DPI)

PRODUCT OVERVIEW

Marvell's second generation secure automotive Ethernet switch, 88Q5050, is an 8-port Ethernet gigabit capacity switch that is fully compliant with IEEE802.3 automotive standard and utilizes advanced security features to guard against hacking and denial of service (DoS) attacks.

The 8-port Ethernet switch offers 4 fixed IEEE 100BASE-T1 ports, and a configurable selection of an additional 4 ports from 1x IEEE 100BASE-T1 port, 1x IEEE 100BASE-TX, 2x MII/RMII/RGMII ports, 1 GMII port, and 1 SGMII port. The switch offers local and remote management capabilities, providing easy access and configuration of the device.

This switch employs the highest hardware security features that are designed at the root source of Marvell's secure automotive Ethernet Switch to prevent malicious attacks or compromises to the data streamed in the vehicle. This advanced switch employs deep packet inspection (DPI) techniques and Trusted Boot functionality to deliver industries most secure automotive Ethernet switch. The switch supports both blacklisting and whitelisting addresses on all its Ethernet ports to further enhance its security.

BLOCK DIAGRAM

Marvell 88Q5050 Secure Automotive Switch

KEY FEATURES AND BENEFITS

FEATURES	BENEFITS
Processor	• Integrated ARM Cortex-M7 CPU, 250MHz

IO Interfaces	• 4 IEEE 100BASE-T1
	• Additional 4 ports configured from:
	  • 1 IEEE 100BASE-T1 port
	  • 1 IEEE 100BASE-TX
	  • 2 MII/RMII/RGMII ports
	  • 1 GMII port
	  • 1 SGMII port
	• 2 SMI
	  • Master interface to connect to external PHYs or additional switches
	  • Slave interface to manage the switch
	• Configurable GPIOs
	• QSPI with configurable frequencies (19.2MHz-83.3MHz)
	• TWSI Master interface
	• JTAG

Package Characteristics	• 88Q5050 : 128-pin LQFP package, 0.5 mm pitch, 14mmx20mm • 88Q5054: 228-pin BGA package , 0.8mm pitch , 13mmx13mm
EEPROM	• Slave interface with loader to configure the switch (32Kb-512kb)

KEY FEATURES

- Integrated ARM Cortex-M7 CPU, 250MHz
- AEC-Q100 Grade 2 qualified
- Advanced automotive security features, including deep packet inspection and Trusted Boot functionality
- Extremely low power consumption for automotive 100BASE-T1 PHY cores
- Fast configuration and CPU boot times

TARGET APPLICATIONS

Current Applications:

- Gateway
- In-Vehicle Infotainment
- Advanced Driver Assistance Systems (ADAS)

Future Applications:

- Autonomous Driving