

S32G VEHICLE NETWORK PROCESSING REFERENCE DESIGN BOARD



Reference for service-oriented gateway and domain control applications, including high-performance processing, networking, safety and security

OVERVIEW

The S32G-VNP-RDB is a compact, integrated reference design board featuring the S32G vehicle network processor. With its high-performance computing capacity and rich input/output (I/O), this board can provide reference for a variety of typical automotive applications such as central gateway, domain controller, and high-performance vehicle compute nodes. It offers high levels of compute, real-time network performance, multi-Gigabit packet acceleration and security for new automotive applications.

TECHNICAL HIGHLIGHTS:

1. Multiple network interfaces—features 16 CAN/CAN FD and 14 Ethernet ports
2. Supports low-power mode and multiple wake-up sources
3. ISO 26262 support by using safety components and architecture
4. Uses automotive-qualified connectors

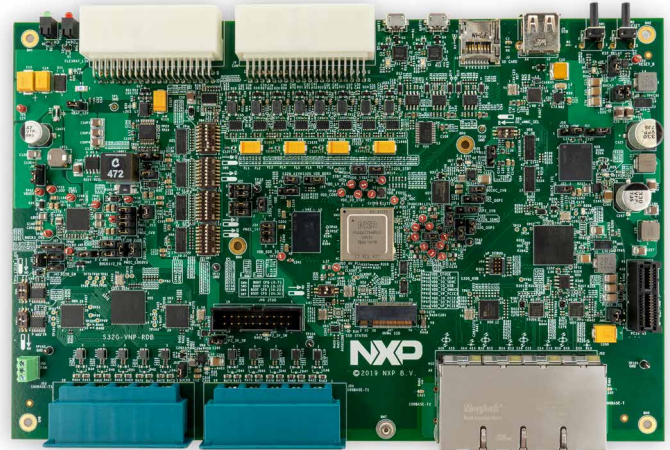
S32G274A PROCESSOR SPECIFICATIONS

Core	4x Arm® Cortex®-A53 cores with Arm Neon™ + 3x Arm Cortex-M7 Lockstep Cores + Network Acceleration		
Memory	8 MB system RAM, 32 KB standby SRAM, DDR4/LPDDR4 DRAM I/F QuadSPI NOR Flash I/F, eMMC/SDXC NAND Flash I/F		
Communications	CAN/CAN FD, LIN, FlexRay, DSPI, I ² C, PCIe 3.0, USB 2.0		
Ethernet Networks	1-Gbit MAC, 2.5-Gbit MAC(PFE), 1-Gbit MAC(PFE), 1-Gbit MAC(PFE)		
Security	HSE, XRDC, eFuse, Lifecycle	Safety	2 x Safe DMA, FCCU and LBIST/MBIST
ADC/Timers	12-bit SAR ADC, FlexTimer, System Timer, Watch Timer		

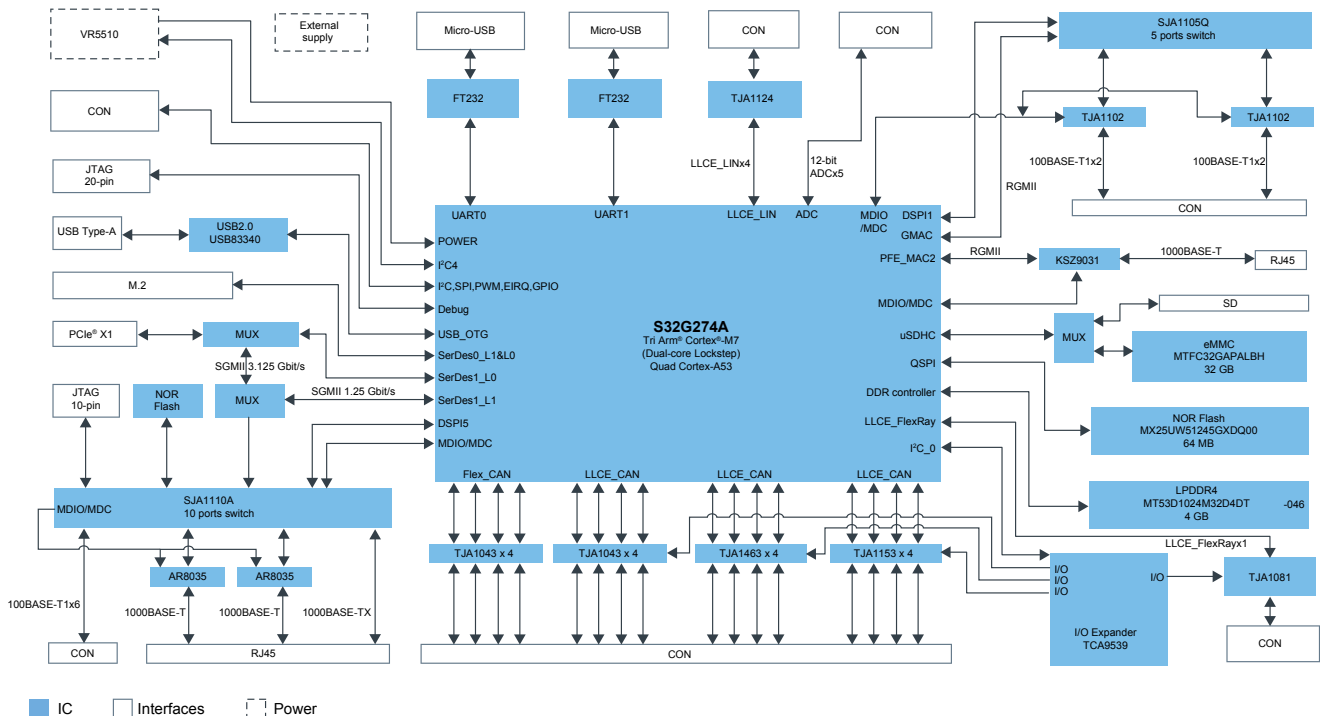
FEATURES

- Helps accelerate the development of next-generation central and service-oriented gateways
- Include Ethernet Packet Forwarding Engine (PFE) and Low Latency Communications Engine (LLCE)
- Hardware features:
 - 64 MB NOR flash
 - 32 GB eMMC NAND flash
 - 4 GB LPDDR4
 - 10 x 100BASE-T1 Ethernet
 - 3 x 1000BASE-T Ethernet
 - 1 x 100BASE-TX Ethernet
 - 16 x CAN/CAN FD
 - 4 x LIN
 - 1 x FlexRay
 - 1 x USB 2.0 port
 - 2 x PWM / 5 x ADC
 - 1 x PCIe X1 and M.2 slot (Key B – 2240 size)
- Functional Safety measures onboard:

- ASIL D S32G274A vehicle network processor
- ASIL D VR5510 power management IC
- ASIL A SJA1105Q and SJA110A Ethernet switches
- Fault management and reset logic circuits
- S32 Design Studio, Yocto, EB tresos
- Linux®, FreeRTOS™ and AUTOSAR® MCAL



S32G-VNP-RDB DIAGRAM



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