MAIN FEATURES

- Supports the S32K148 MCU with LQFP-144 or LQFP-176 pin package (default mounted with LQFP-144 package)
  - S32K is a scalable family of AEC-Q100 qualified, 32-bit Arm® Cortex®-M4F and Cortex-M0+ based MCUs targeted for general purpose automotive and high-reliability industrial applications
  - Scalability – hardware and software compatible families with multiple performance, memory and feature options
  - Integration – ISO CAN FD, CSEc hardware security, ASIL B ISO 26262 functional safety, ultra-low power performance
  - Complimentary, production-grade Software Development Kit (SDK) and S32 Design Studio IDE
  - AUTOSAR and MCAL support, third-party ecosystem support
- Integrated SBC UJA1132 with 2 LIN physical layers and 1 CAN physical layer
- Integrated communication interfaces
  - 3x CAN with CAN-FD
  - 3x UART(2 reused as LIN via SBC-UJA113x)
  - 1x 100M-base TX1 automotive ethernet via TJA1101
  - 1x I²S audio codec extend with SGTL500 and support AVB evaluation
- Integrated 8 MB QSPI NOR Flash memory (MX25L6433F )
- Provides T-BOX function module plugin interfaces:
  - 1 UART BLE module
  - 1 UART GPS module
  - 1 UART 4G communication module
- 2x user buttons inputs
- 2x touch sensor inputs
- 1x RGB LED
- 1x Potentiometer
- 1x 3-axi accelerometer (MMA8452Q) via I²C
- 1x stand-alone RTC chip (PCA85063)
- A 23-pin ECU connector, routing external I/O signals including:
  - 2x ADC input channels
  - 2x HS PWM output channels
  - 2x PWM input capture channels
  - 3x CAN bus
  - 2x LIN bus
  - 1x 100M-base TX1 automotive Ethernet
Compatible with S32K148EVB:
- Arduino™ UNO footprint-compatible with expansion “shield” support
- Able to run all demo projects of SDK for S32K148 without any modification
- Voltage supply options for 3.3 V or 5 V
- BLE, GPS and 3G/4G select independent module and connects with S32K148 via UART
- Add an external QSPI Nor-Flash, standalone RTC and 3-axis Accelerator for T-Box functions
- Extend a 100M-base TX1 automotive ethernet via TJA1101 for both T-Box connection and AVB evaluation (plus a I²S audio Codec )
- SBC provides 5/3.3 V power supply for S32K148 and other onboard modules as well as expends 1 CAN and 2 LIN bus

Select TJA1044 with SO-8 and TJA1043 with HVSON14 package to make it compatible with NXP TJA115x secure CAN transceiver
Use a 23-pin ECU connector to route all CAN/LIN/ENET bus and extend 2x HS output, 2x PWM input capture and 2x analog input, enable it to work as a GP-ECU

S32K148-T-BOX REFERENCE DESIGN BOARD SOFTWARE PACKAGE
- The S32K148-T-BOX reference design board software package is based on the S32K SDK and is developed to accelerate customer’s application prototype verification code development
- With the BSP layer, the software package provides a set of easy-to-use API for application layer use
- The software package includes:
  - S32K148-T-BOX SDK processor expert configuration
  - The GPS/BLE/4G communication/audio Codec modules driver API and test codes
  - CAN/LIN/UART/I²C communication driver API and test codes
  - FreeRTOS and LwIP based ENET TCP/IP stack and demo project
  - The BSP test project
  - The T-BOX reference design demo project
  - Detailed user manual

Figure 1. S32K148 T-BOX_GP-ECU RDB
Figure 2. S32K148 T-BOX_GP-ECU RDB System Block Diagram

Figure 3. S32K148 T-BOX_GP-ECU Reference Design Board Software Architecture
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www.nxp.com/S32K148-T-BOX

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