ADTJA1101-RMII

TJA1101 Adapter Card

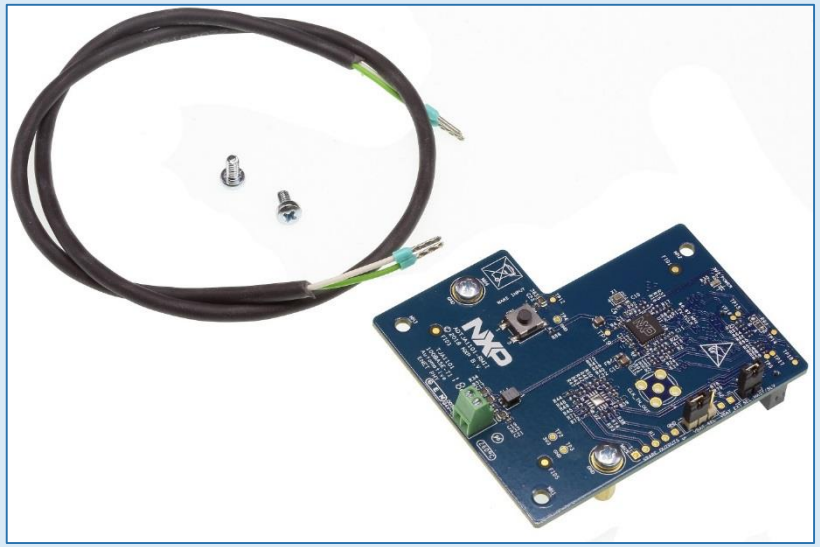
User Guide

September 2018

ADTJA1101-RMII – Getting started

Components in the box:

- Board: ADTJA1101-RMII
- Cable: 0.5m of jacketed Unshielded Twisted Pair (UTP), automotive grade



Get additional documentation for

- ADTJA1101-RMII
  - Gerber
  - Schematics / BoM
- TJA1101
  - Datasheet
  - Application Hints
  - Etc…

from NXP's document repository

→ www.docstore.nxp.com

- Register (NDA required) / Login
- Navigate:
  - Products → In-Vehicle Networking → Automotive Ethernet → ADTJA1101-RMII

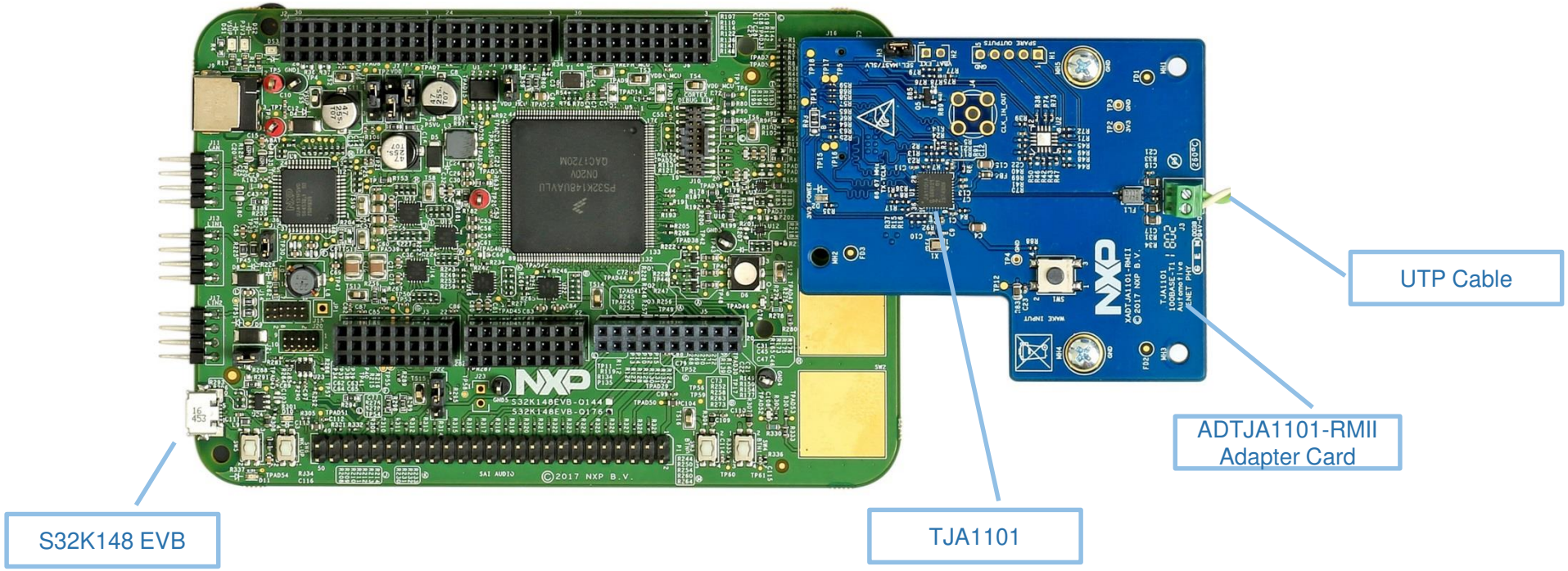
SABRE Connector

- SABRE = Smart Application Blueprint for Rapid Engineering

- Accelerate your time to market with our premiere series of market-focused development systems based on application controllers: Smart Application Blueprint for Rapid Engineering (SABRE). SABRE platforms deliver the advanced technology features required for next-generation automotive systems.

ADTJA1101-RMII – Application

- The ADTJA1101-RMII is a daughter card carrying NXP's TJA1101 100BASE-T1 Ethernet PHY
- It adapts to micro controller development boards with SABRE connector, e.g. S32K148EVB
- The full TJA110x driver set is supported by the S32K148EVB SDK.



How to connect the SABRE enabled Boards

S32K148 EVB

SABRE Connector (J1)

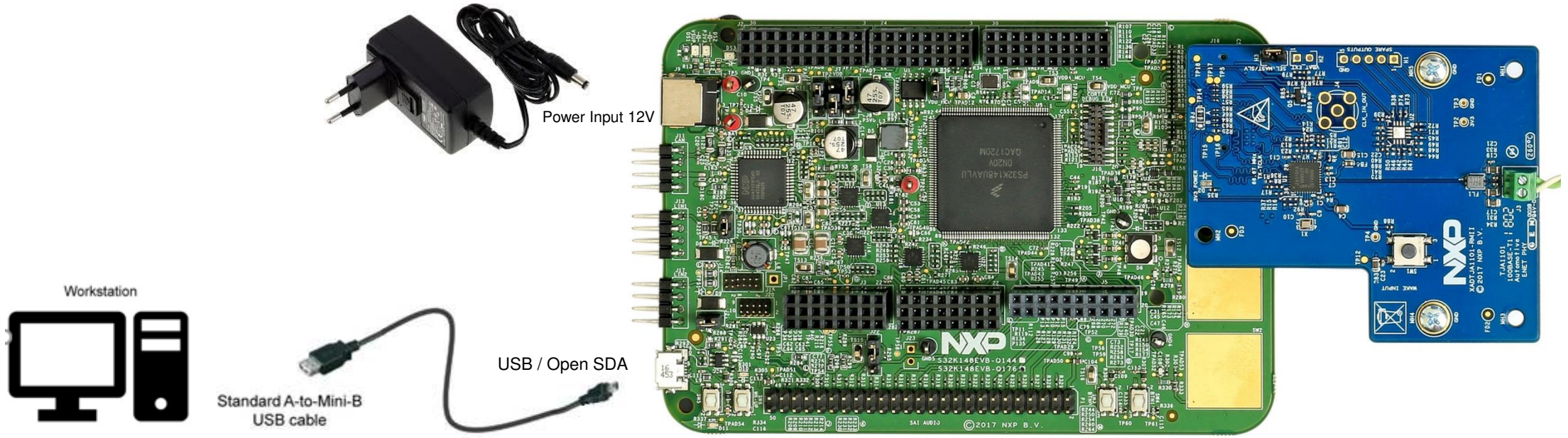
ADTJA1101-RMII Adapter Card

ADTJA1101-RMII Power Up

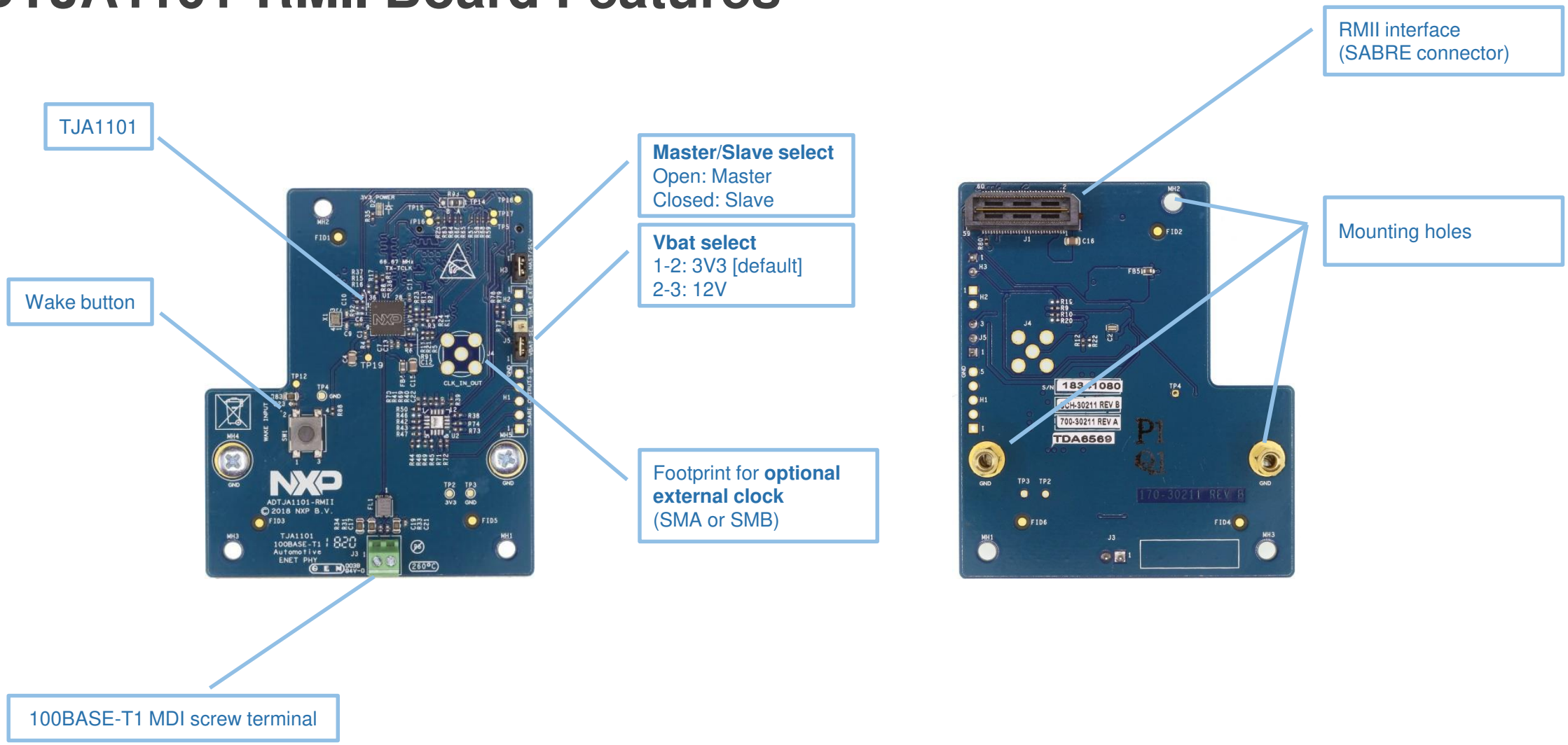
Power input options:

- Power Input 12V
- USB / Open SDA

For Jumper Settings please refer to S32K148EVB Quick Start Guide

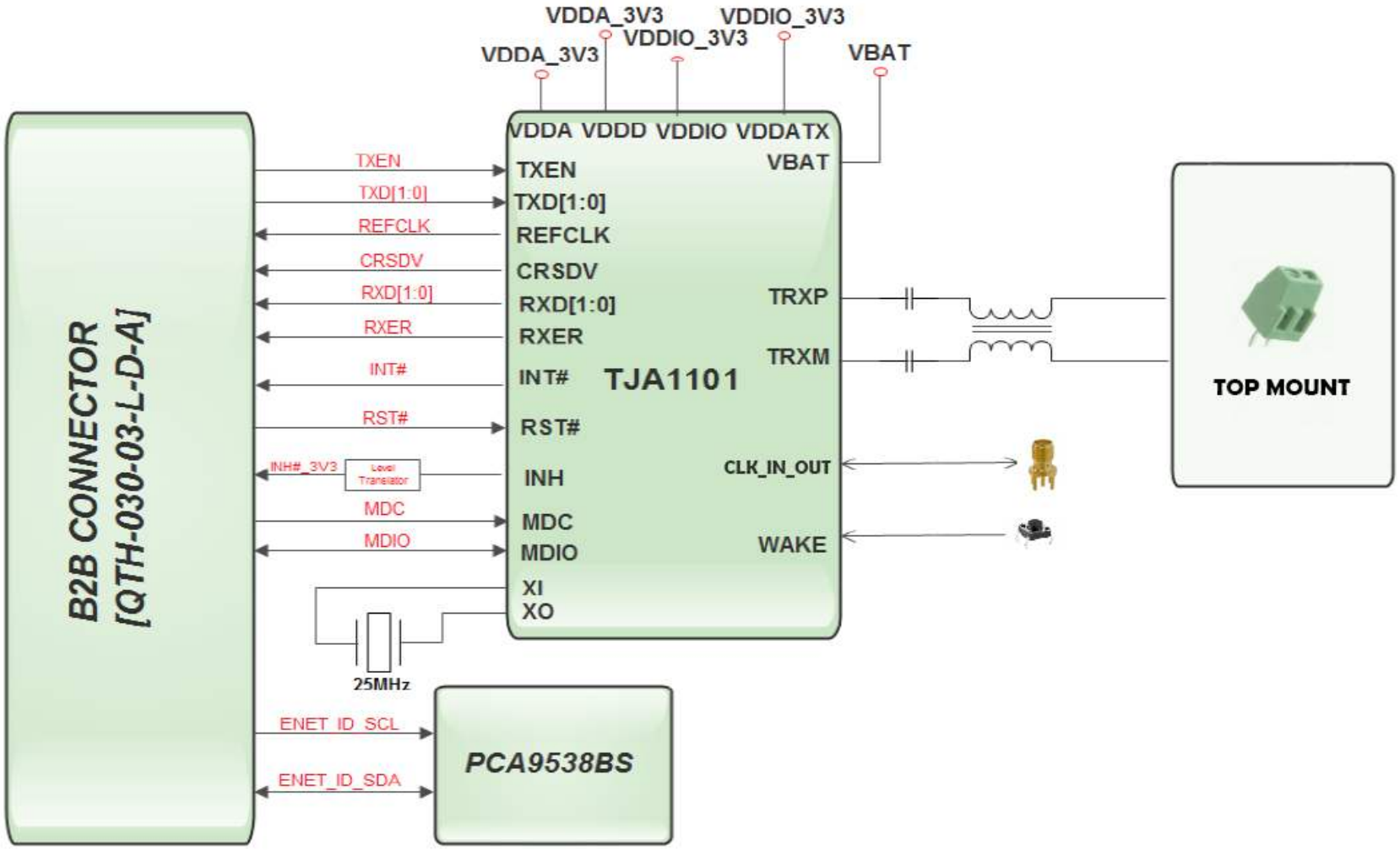


ADTJA1101-RMII Board Features



For configuration options of TJA1101 → please refer to product data sheet

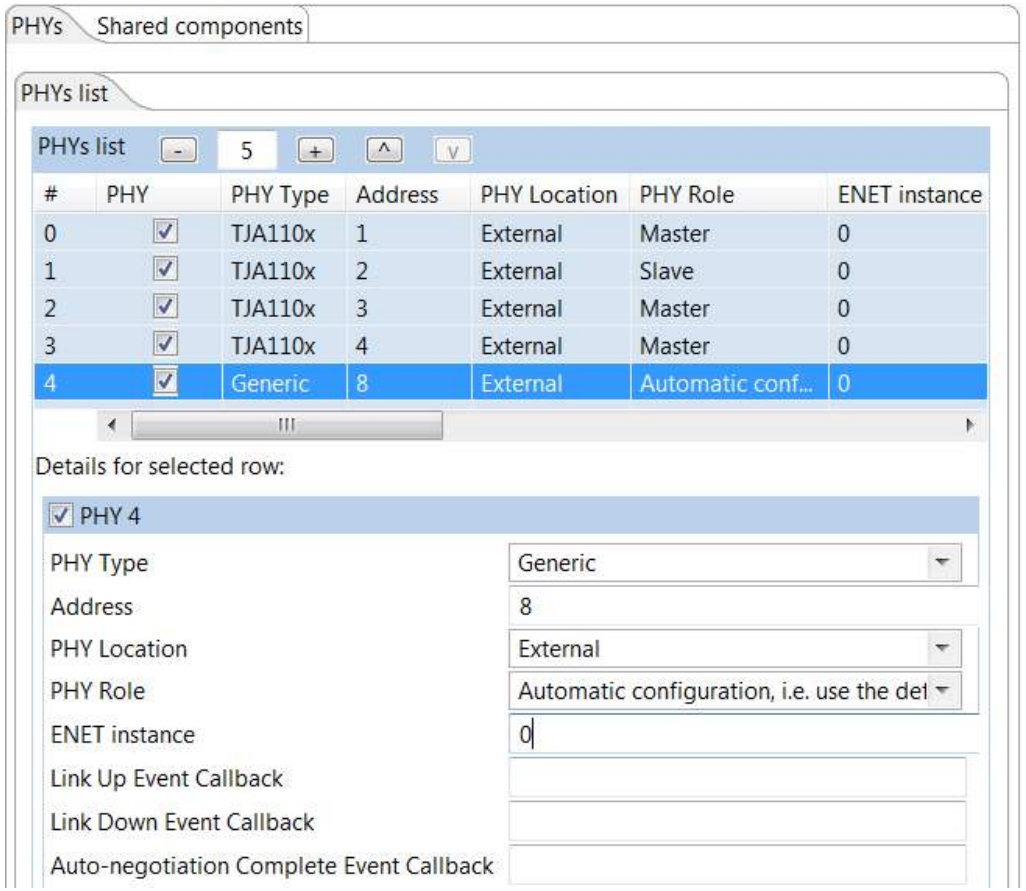
ADTJA1101-RMII Block Diagram



TJA110x driver pre-integration with S32K SDK

- Production grade driver support is pre-integrated with SDKs for NXP microcontrollers
- GUI configuration support in S32 Design Studio IDE
  → see screenshot
- Supports TJA1100, TJA1101 and TJA1102(S)
  – Support for generic PHY devices using IEEE registers
- Currently supported by:
  - S32K SDK v0.8.6
  - MPC574x SDK v0.9.0
  - i.MX8 SDK (planned)
- Download S32K SDK

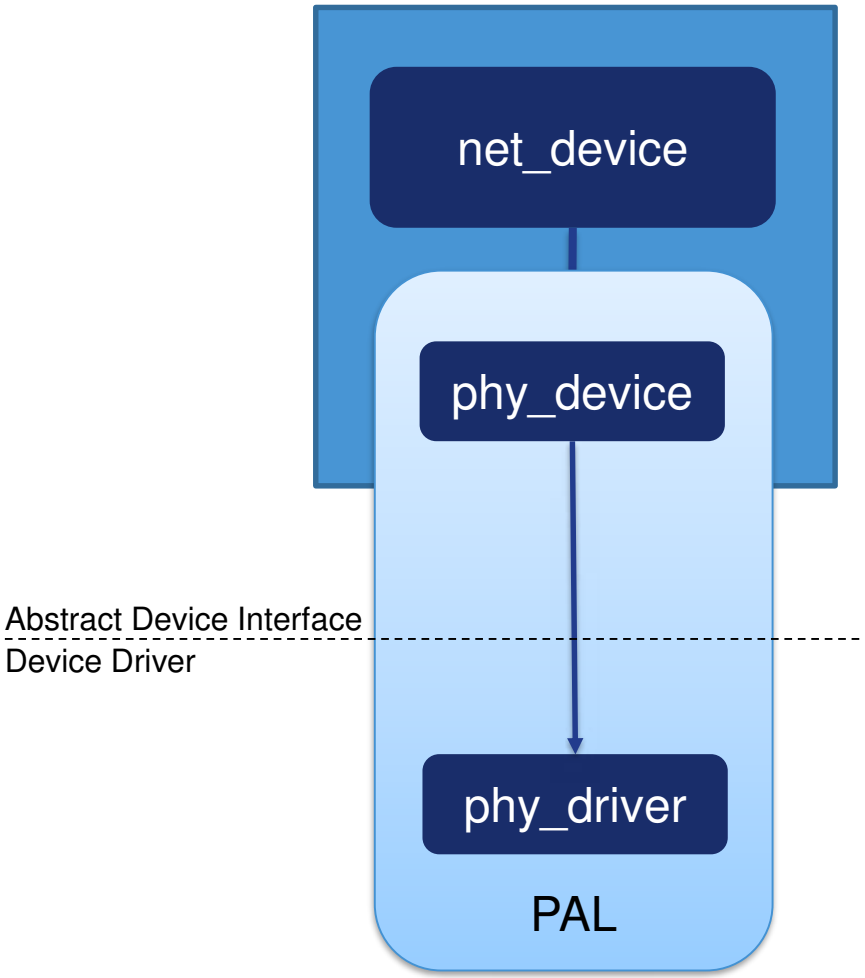
GUI Driver Configuration



Linux Driver for TJA110X

- Single Linux driver for TJA110x
- Integrates into Linux' PHY Abstraction Layer (PAL)
- Extended with automotive features
  - Support for Managed and Autonomous Mode
  - Master/Slave configuration
  - Cable Test
  - LED, Loopback and Test Modes
  - Sleep and Wakeup
- Implements polling of interrupt status register
  - Warning about and reaction to failure conditions

→ Download here
→ FAQ here



ADTJA1101-RMII Compatible Controller Boards

- S32K148EVB: S32K148 Evaluation Board
  - Low-cost evaluation platform and development system for quick application prototyping with the S32K148 MCU belonging to the S32K series of Ultra-Reliable Microcontrollers (MCUs).

- i.MX8 (board to be released soon)

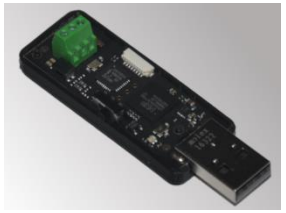
NXP Link Partner Boards for 100BASE-T1 System Setup

- SJA1105SMBEVM: Gateway Prototyping Platform
  - Enables early SW development for SJA1105P/Q/R/S Automotive Ethernet switch family and the TJA1102 Automotive Ethernet PHYs on a market-leading Automotive MPC5748xG MCU.

- SJA1105Q-EVB: Ethernet Switch & PHY Evaluation Board
  - An evaluation system that supports the SJA1105P/Q/R/S Automotive Ethernet switch family in conjunction with the TJA1102HN Ethernet PHY Transceiver.

- OM14500/TJA1101: 100BASE-T1 PHY Evaluation Board
  - Low-cost hardware development tool which supports the functional evaluation of the 100BASE-T1 PHY transceiver TJA1101.

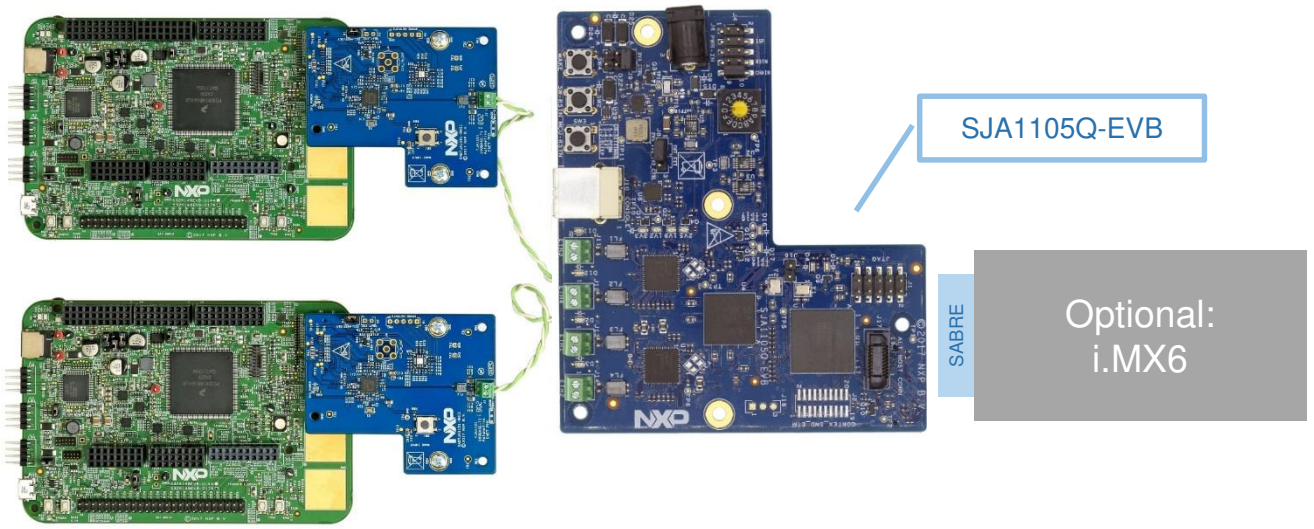
- FibreCode FC602 USB OABR Stick:
  - The FC602 USB OABR Stick functions as seamless media converter between a standard USB 2.0 interface and an automotive Ethernet network. On Windows and Linux host PCs the USB OABR Stick is detected as standard Ethernet device.



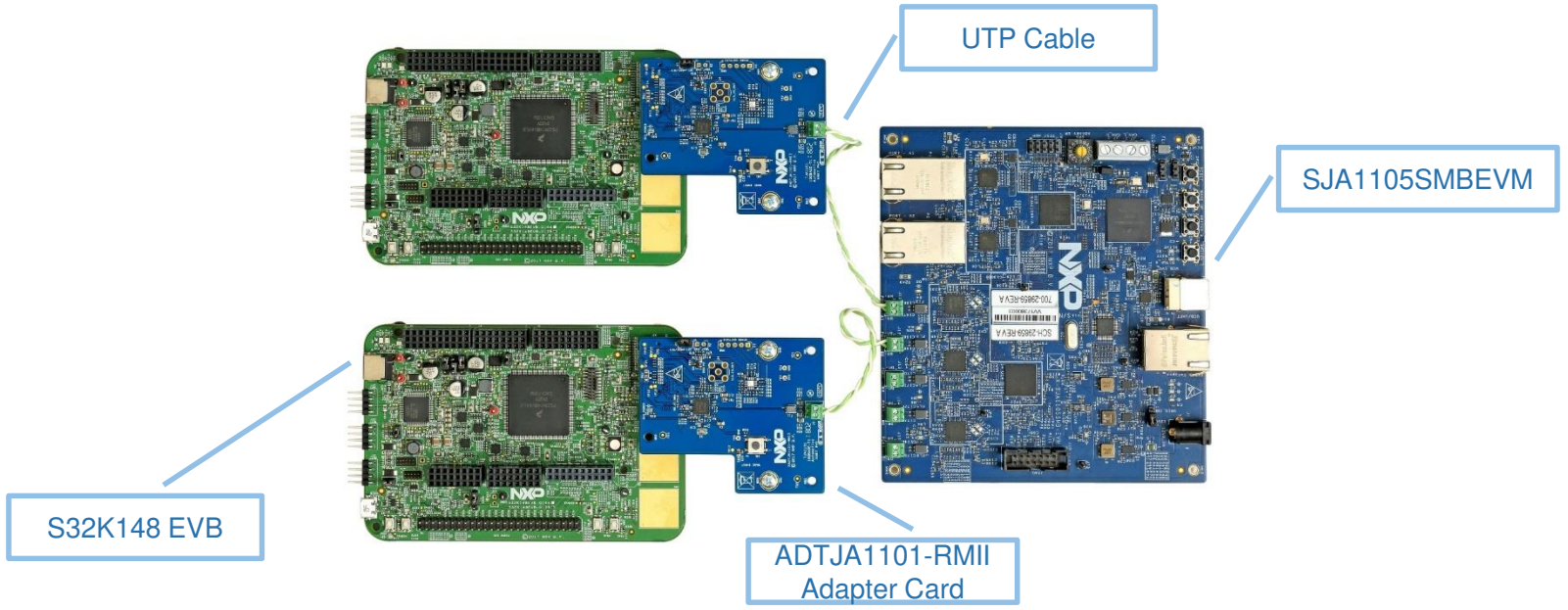
… ADTJA1101-RMII is generally interoperable to any other 100BASE-T1 link partner

ADTJA1101-RMII Connected System Examples

#1



#2



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