



IP TechDay
We enable possibilities

The future of CAN

Transition from CAN FD to CAN XL

Giovanni Genna – Director of Strategy & Product Marketing

Edmund Zhang – Senior Principal System Engineer & Network Architect

NXP Vehicle Networking Transceivers | Value Proposition

Innovation

Driving innovation in vehicle networking since 25 years

Quality

High quality performance level with strong focus on EMC

System & Application

Major contributor in standardizing new technologies

Supply

World-wide manufacturing footprint, with dual source and quad source across the product portfolio

NXP Vehicle Networking Transceivers | Portfolio overview

CAN



Market leaders and Innovators in CAN, since the beginning. The benchmark in quality, expertise and portfolio

 **Standard CAN FD Transceivers** – TJA104x/TJA105x/TJA144x

 **Partial Networking** – TJA1145A
NEW: Next-gen Partial Networking (+ SIC) – TJA1445/(TJA1465)

 **CAN SIC Transceivers** – TJA146x

 **Secure CAN Transceivers** – TJA115x


 **Isolated CAN transceiver** – TJx1052i


 **Planning: CAN XL transceiver** – TJA14xx

LIN



Single and Multi-channel LIN transceivers and SBCs

 **Single to Quad** – TJA102x and TJA1124

 **LIN Mini-SBCs** – TJA1028 and TJA1128

 **SPI to QuadLIN controller** – SJA1124

FLEXRAY



 **FlexRay transceivers + Active Star Couplers** – TJA108xG

10BASE-T1S



 **NEW: 10BASE-T1S PMD transceiver** – TJA1410

SBC

UJA107xA family

250mA LDO supply; 3.3V/5V MCU; HS CAN and LIN





UJA116xA family

100mA/250mA LDO; 3.3V or 5V MCU; CAN FD + PN

UJA113xA

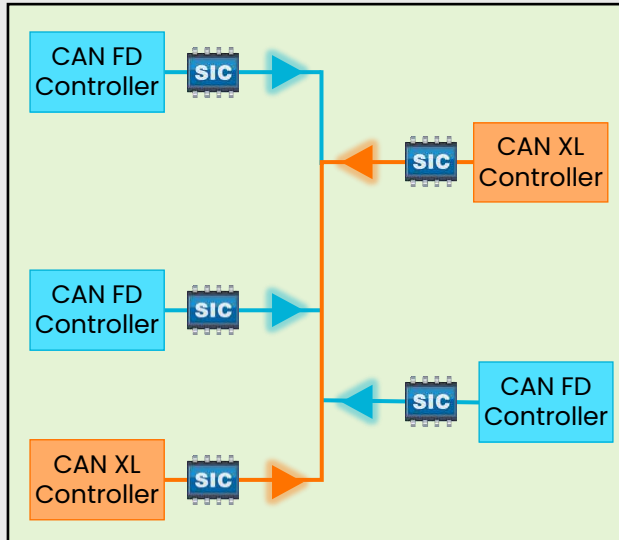
500mA LDO supply; 3.3V or 5V MCU; CAN FD + PN and LIN

Evolution to CAN XL | CAN FD → CAN SIC → CAN XL

	CAN FD	CAN SIC	CAN XL „SIC“	CAN XL „Fast“	
Protocol	CAN FD	CAN FD	CAN XL	CAN XL	Flexibility & Cost
Transceiver					
Bandwidth	up to 2 Mbps	up to 8 Mbps	up to 8 Mbps	up to 20 Mbps	Speed
Frame Size	64 Byte	64 Byte	2048 Byte	2048 Byte	SDV
IP Communication	-	-	Yes	Yes	
Partial Networking	Yes	Yes	Yes	-	Power
Protocol co-existence	-	-	CAN FD	CAN FD	Compatibility & mixed networks
Alternatives	-	10BT1s FlexRay	10BT1s 100BT1	(10BT1s) 100BT1	

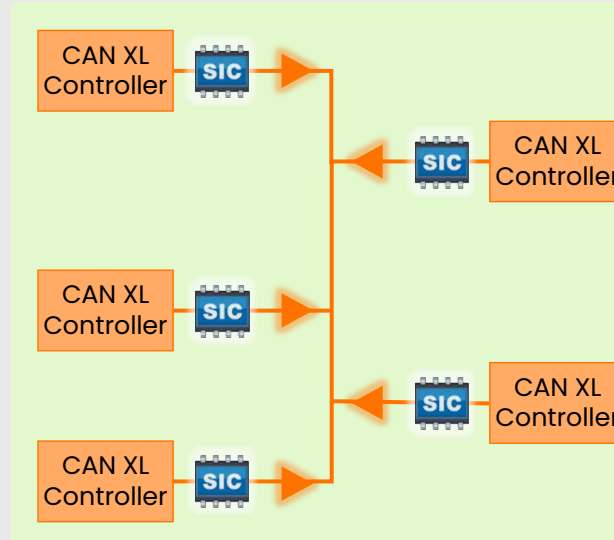
Evolution to CAN XL | Transitioning from CAN FD to CAN XL

Mixed CAN FD and CAN XL "SIC"



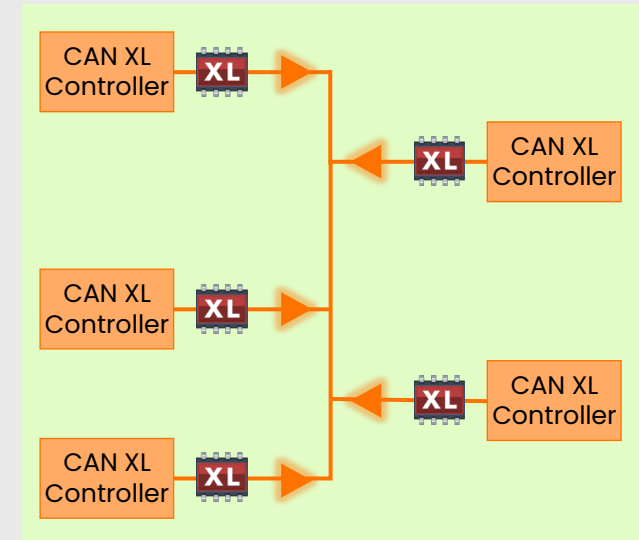
- Full network can communicate **CAN FD**
- Few may communicate CAN XL, then CAN FD nodes idle
- Up to **8Mbps** with CAN SIC transceivers

CAN XL "SIC"



- CAN XL controllers and CAN SIC transceivers
- Full **CAN XL** protocol & frame communication
- Up to **8Mbps** with CAN SIC transceivers



CAN XL "FAST"



- CAN XL controllers and CAN XL transceivers for full CAN XL experience
- **CAN XL frame size**, speed up to **20Mbps**

Note: the direction of the arrows is just an example; communication can be in both directions.

CAN XL System Solution | NXP Hosts and Transceivers

	CAN XL „SIC“	CAN XL „Fast“
Protocol	CAN XL	CAN XL
Transceiver		
Announced NXP CAN XL Host	S32E MCU targeting propulsion S32Z MCU targeting zonal controller	
NXP Transceiver	Released: TJA1462/63 In Dev: TJA1465/66 (PN CAN SIC)	Available: “Albi 2.0” test chip Planned: TJAxX CAN XL PHY

NXP CAN XL Solution & Demo



CAN XL – NXP Evaluation | CAN XL Test Chip “Albi 2.0”

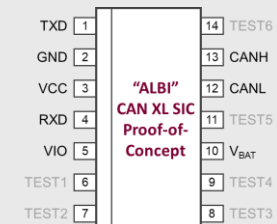


NXP first to offer CAN XL Concept silicon to the market

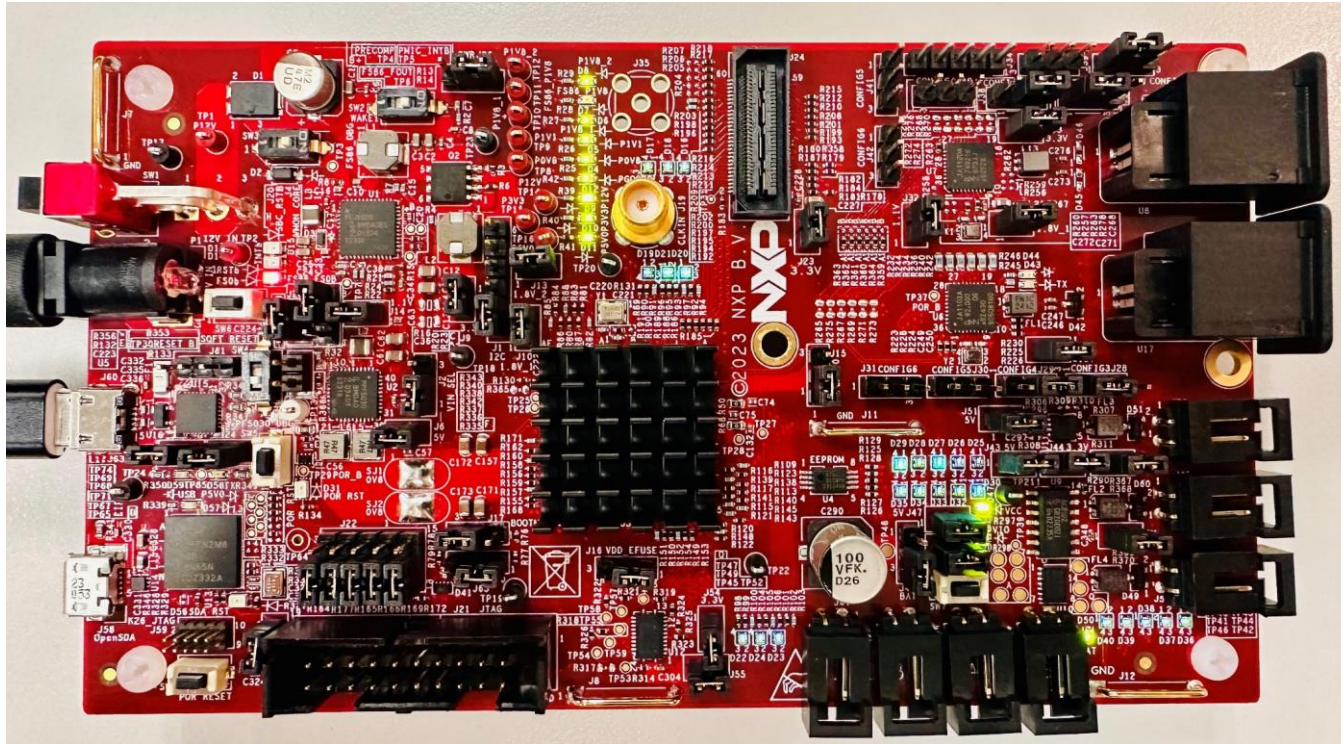
- “Albi 2.0” CAN XL concept silicon
- BOSCH’s CAN XL controller IP on FPGA
- Proven operation up to 20Mbps with 2048 Byte payload in multi-drop network
- Meet latest version IBEE transceiver-level emission spec (internal measurement)
- Designed for network evaluation, topology investigation and test ECUs

Albi2.0 has proven full CAN XL performance

- Benchmark CAN XL performance in CiA Plugfests
- Successful CAN XL test network in driving Daimler three-axle passenger Bus (14.5Mbps @ 60m of cable)
- Widespread adoption for CAN XL demos and initial network validation



CAN XL – NXP Evaluation | S32Z2-based Prototype Demo



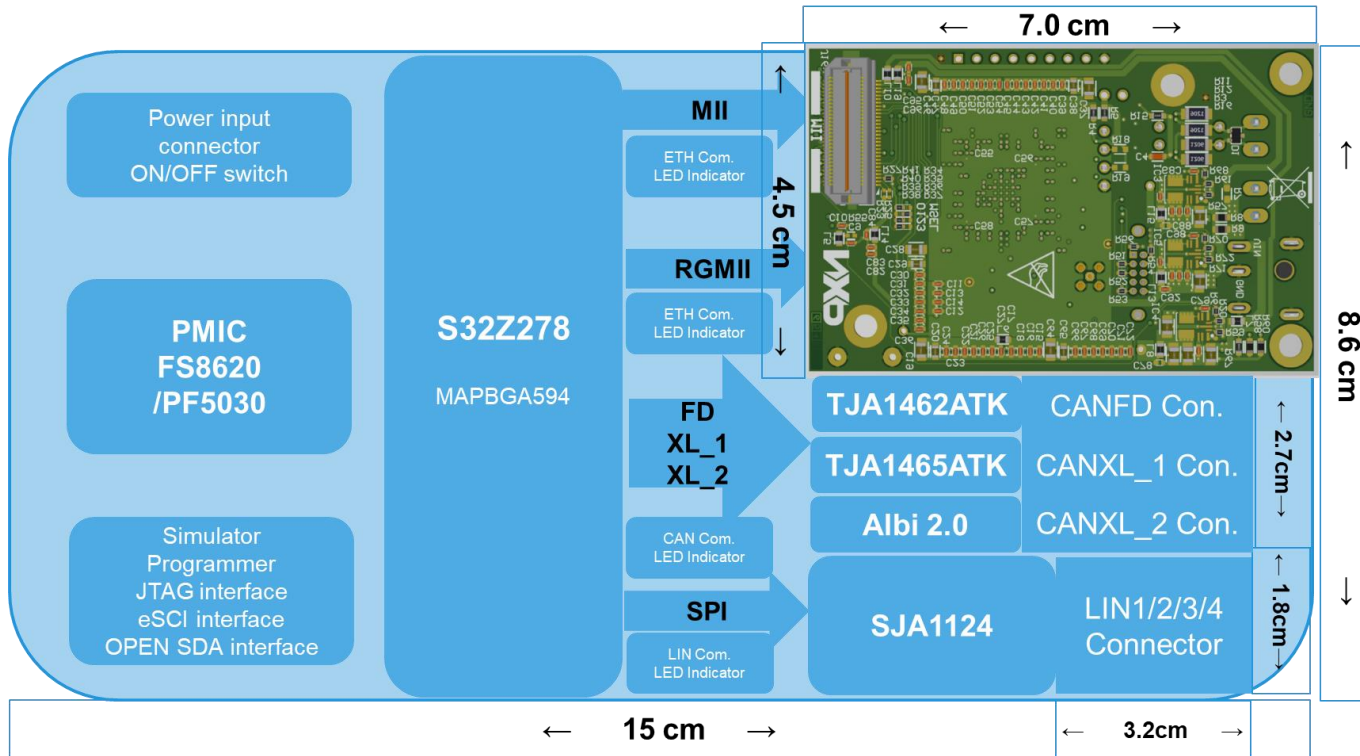
Multi-technology Demo

- CAN XL “SIC” (8Mbps)
- 10BASE-T1S (10Mbps)
- CAN XL “Fast” (20Mbps)

Goal: Compare and validate new communication technologies

- Single board for all protocols
- Based on NXP S32Z2 MCU
- 1x CAN FD
- 2x CAN XL
- 1x 10BASE-T1S MII Interface

CAN XL – NXP Evaluation | S32Z2-based Prototype Demo



Multi-technology Demo

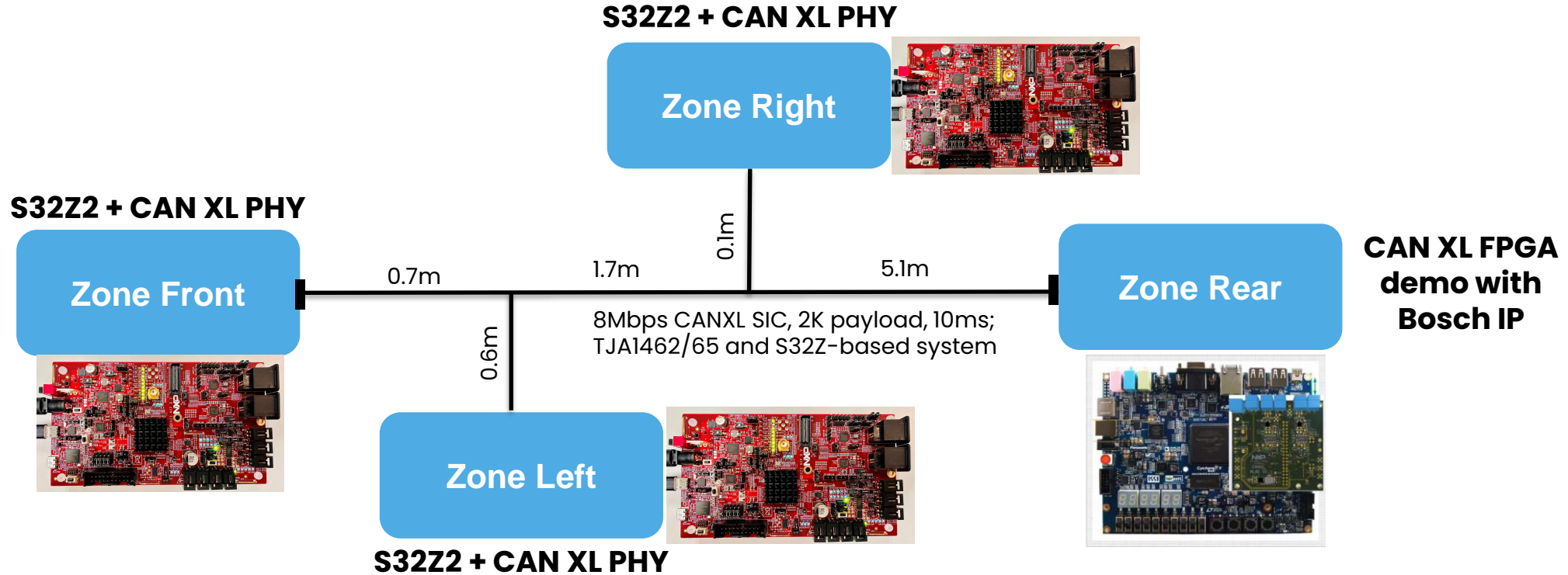
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CAN XL – NXP Evaluation | Demo @ Tech Day

Evaluation scheme: 8Mbps CAN XL "SIC", w/o fast mode, TJA1462/65



Conclusions

The evaluation of NXP CAN XL technology can start already “now”!

- CAN XL eval kit with “Albi2.0”
- NXP S32Z2-based prototype demo:
 - CAN XL controller S32Z2 + CAN SIC transceiver TJA146x
 - CAN XL controller S32Z2 + CAN XL transceiver test chip “Albi 2.0”

NXP CAN XL transceivers release expected in 2028

- Release schedule depends on market demand and customer engagement

NXP support

- Topology simulation
- Evaluation support based on NXP demonstrators



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