

NXP BMS SOLUTION

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BMS Team, AA China
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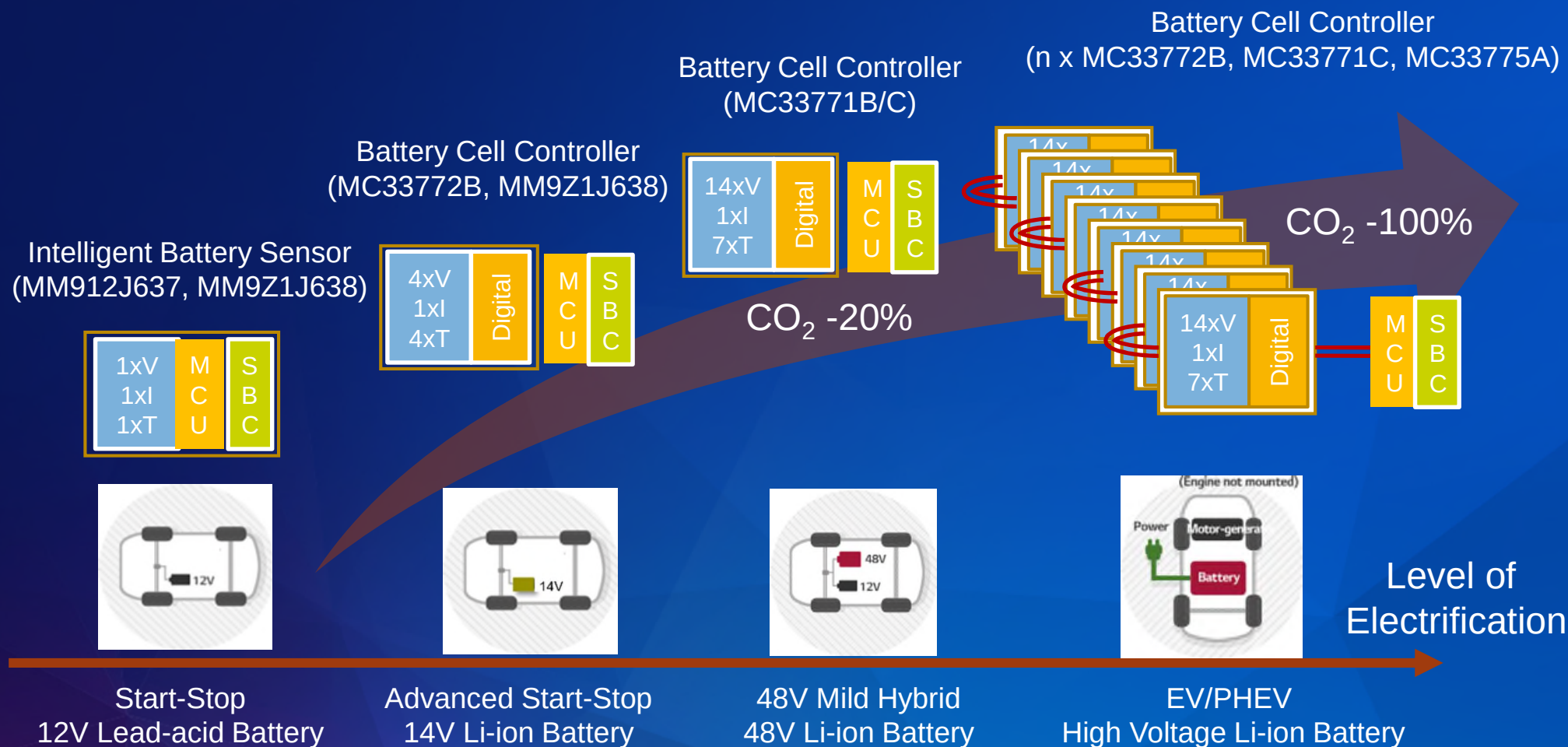
COMPANY CONFIDENTIAL



SECURE CONNECTIONS FOR A SMARTER WORLD

NXP's Scalable Battery Management Portfolio

For all Automotive Applications – Maximum Hardware and Software Reuse



NXP HVBMS Solution Roadmap (designed by BMS China)

2018

2019

2020

BMU Rev1.0

- Loopback/multiple daisy-chain
- CAN interface
- AutoSAR & non-AutoSAR

MPC5744P, MPC5746R + FS65xx
MC40XS6500 (12V, 4-chan)
MC33664 x2/3
TJA1042



BMU Rev2.0 (published)

- **Domain Controller: BMU+VCU**
- loopback daisy-chain
- CAN-FD
- FuSa: SafetyLib, AutoSAR CDD

MPC5775B + FS65xx
MC35XS3400 (12V, 4-chan HS)
MCZ33996 (16-chan, LS in VCU)
MC33CD1030 (MSDI)
TJA1145 (CAN-FD)
TJA1052i (isolated CAN-FD)
PCA85063A (RTC)



BMU Rev3.0/3.1

- **PDU arch: BMU+BJB**
- loopback daisy-chain
- HV monitoring, contactor control
- Insulation resistance detection
- CAN-FD
- FuSa: Safety Manager implementation

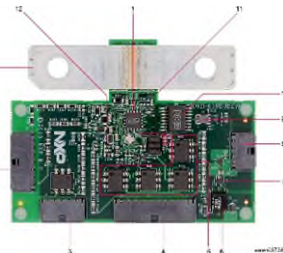
Rev3.0: MPC5775B + FS65xx
Rev3.1: S32K34x + FS2600 + MC33772C
MC22XS4200 (24V, 2-chan)
TJA1046 (42V, dual CAN-FD),
UJA1169 (SBC)



BJB Rev2.0 (published)

- **standalone** BJB
- ~1000V-HV / I / T measurement
- Insulation Res detect
- **ISO-CAN** Comm
- FuSa: QM

MM9Z1_638, TJA1052i



BJB Rev2.1 (published)

- **standalone** BJB
- HV / I / T measurement
- Insulation Res detect
- **ISO-CAN**
- FuSa: **ASIL-B**

MC33772B
S32K118 + FS4503



BJB Rev3.0

- No uC on board, **daisy-chain based**
- Fully **redundant** HV / I measurement
- Insulation detection integrated
- **TPL** communication
- **ASIL-C**

MC33772C x 2



CMU Rev1.0

- uC on board in **mixed arch**
- NXP TPL1, max 12node/24m
- transformer isolation
- FuSa: ASIL-C

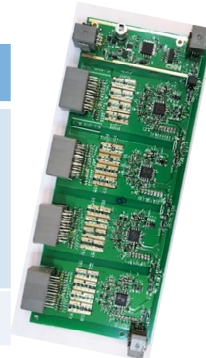
MC33771B, MC33772B



CMU Rev2.0 (published)

- **daisy-chain arch**, no uC on board
- TPL2, ~63 nodes, ~20m btw two nodes
- **Capa-iso in board**, Xformer btw brds
- FuSa: ASIL-C

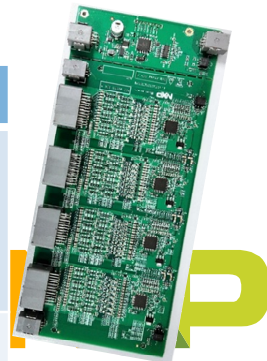
MC33771C, MC33772C



CMU Rev3.0

- daisy-chain arch
- NXP TPL3, max 62 nodes, 20m
- Capa-iso in board, Xformer btw brds
- **ASIL-D, redundant ADC**

MC33775

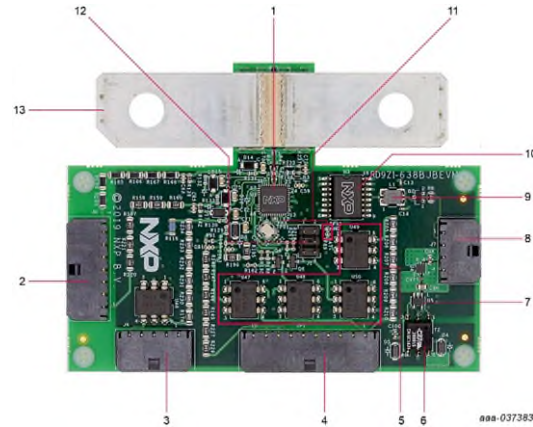


Customer Engagement with BJB Solution

2018

2019

2020



BJB Rev2.0 (published)

- ~1000V High Voltage measurement
- Temperature measurement
- I measurement, **optimized Shunt** selection
- **Insulation detection** integrated
- ISO-CAN Comm with BMU/VCU
- FuSa: QM

MM9Z1_638, TJA1052i

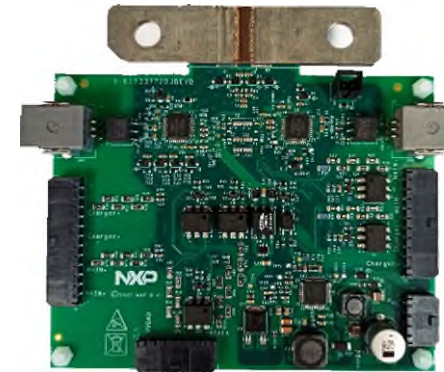


BJB Rev2.1 (published)

- High voltage, current and temperature measurement
- Insulation detection integrated
- ISO-CAN interface
- FuSa: **ASIL-B**

MC33772B

S32K118 + FS4503



BJB Rev3.0

- No uC on board, **daisy-chain based**
- Fully **redundant HV / I** measurement
- Insulation detection integrated
- **TPL** communication
- **ASIL-C**

MC33772C x 2



BMU (BMU+BJB) Rev3.0/3.1

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