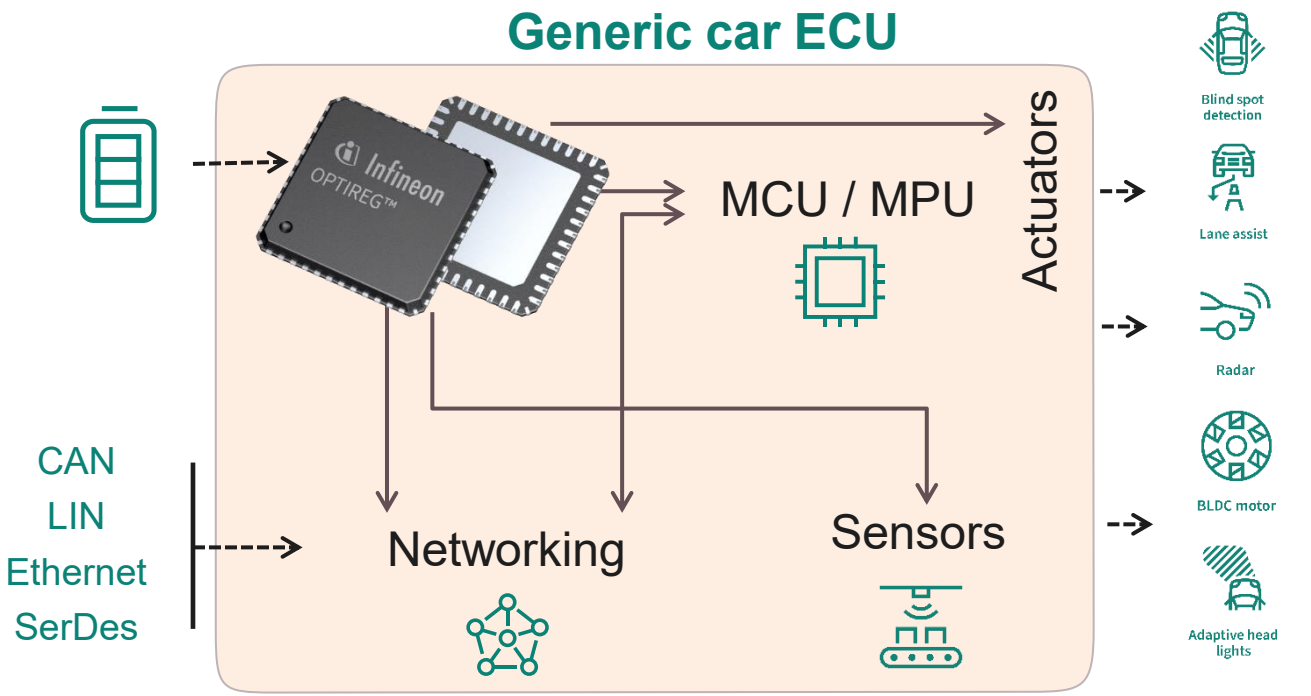


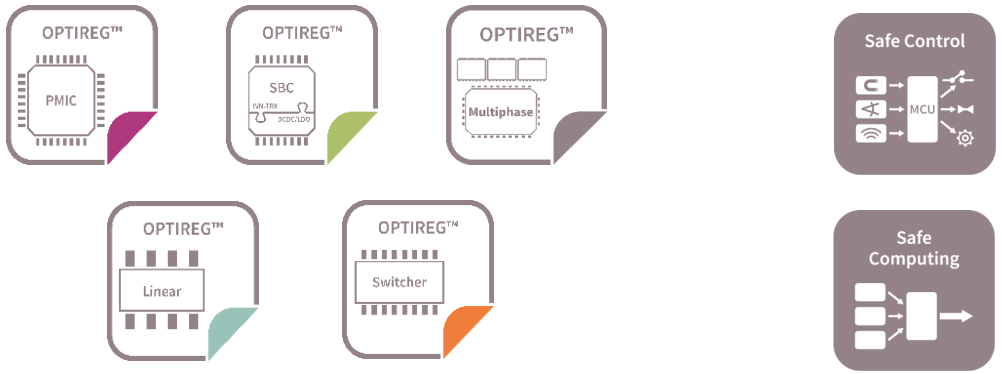
OPTIREG™ Power supply for AURIX™ TC4

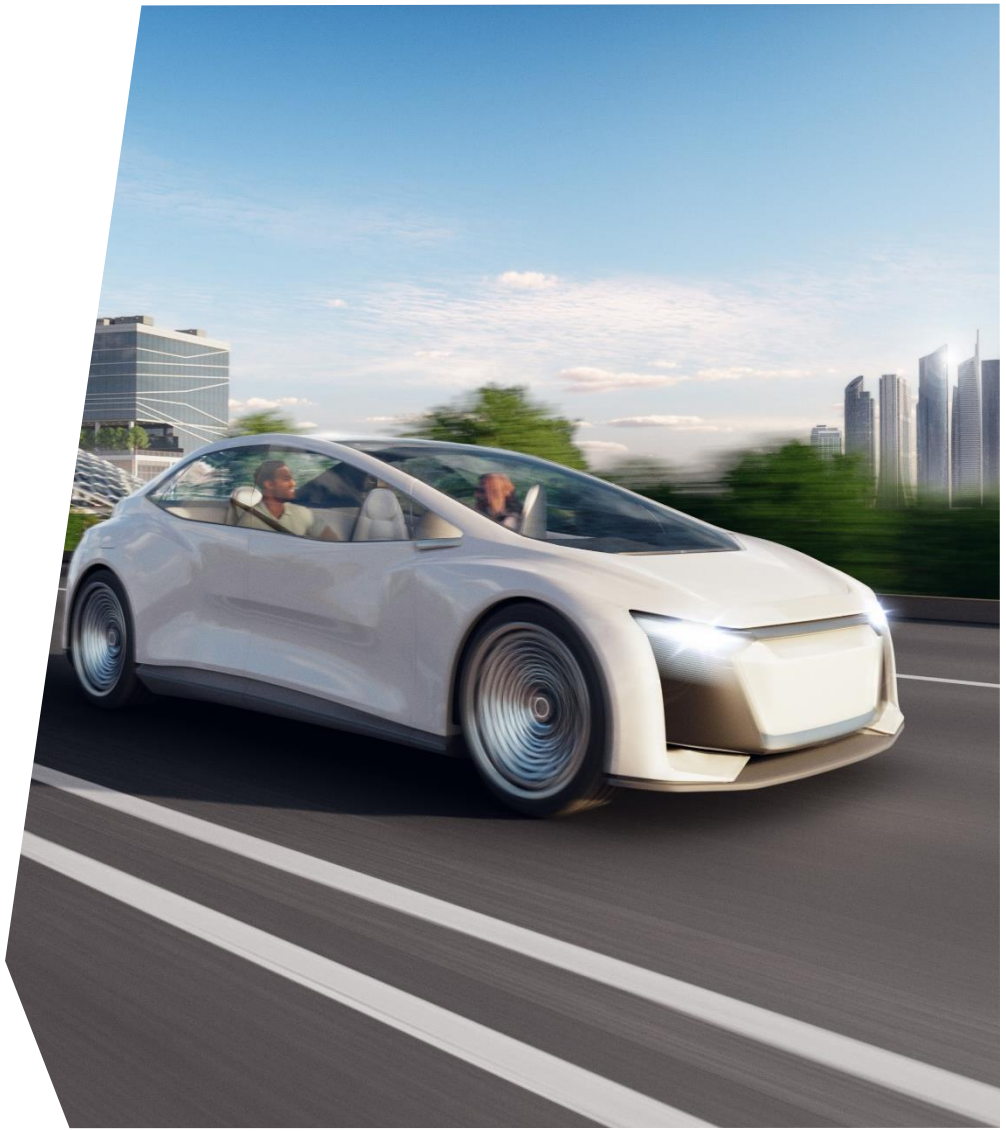
ATV SP APS
Q3 26

Restricted

Power Supply is a key function in every automotive electronic control unit (ECU)





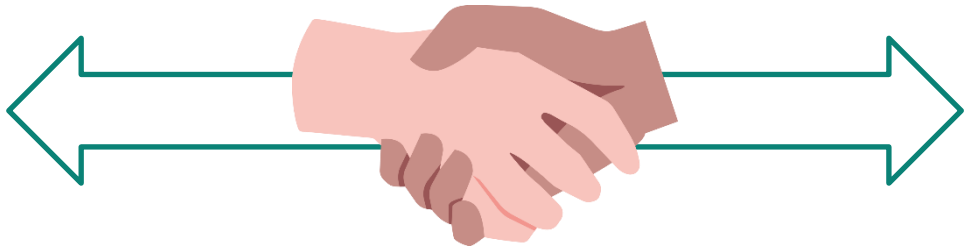


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AURIX™ & TRAVEO ™ microcontroller & OPTIREG™ teaming up for functional safety in automotive applications

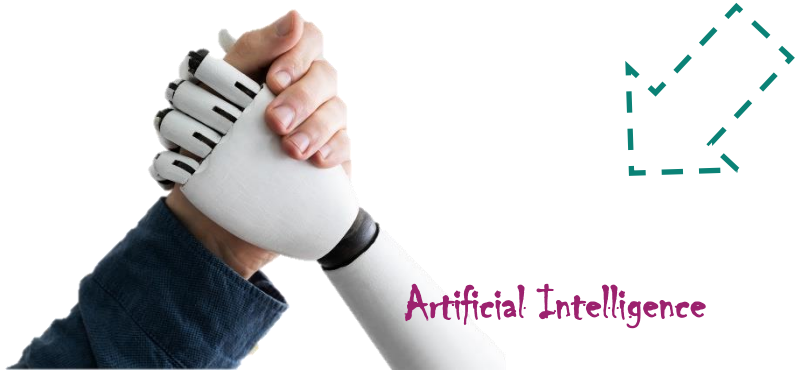


Brains





Brawn



Safety/ ADAS

Sensor fusion · Radar · Camera · Lidar

Conventional powertrain

Engine management · Double clutch transmission · Transfer case · Belt starter generator

Electric drive train

48 V · BMS · Traction inverter · On-board charger

Body

Body control module · Telematics gateway

Chassis

Electric power steering · ESP · 48V Suspension · Brake booster · Electric parking brake

PMIC · SBC

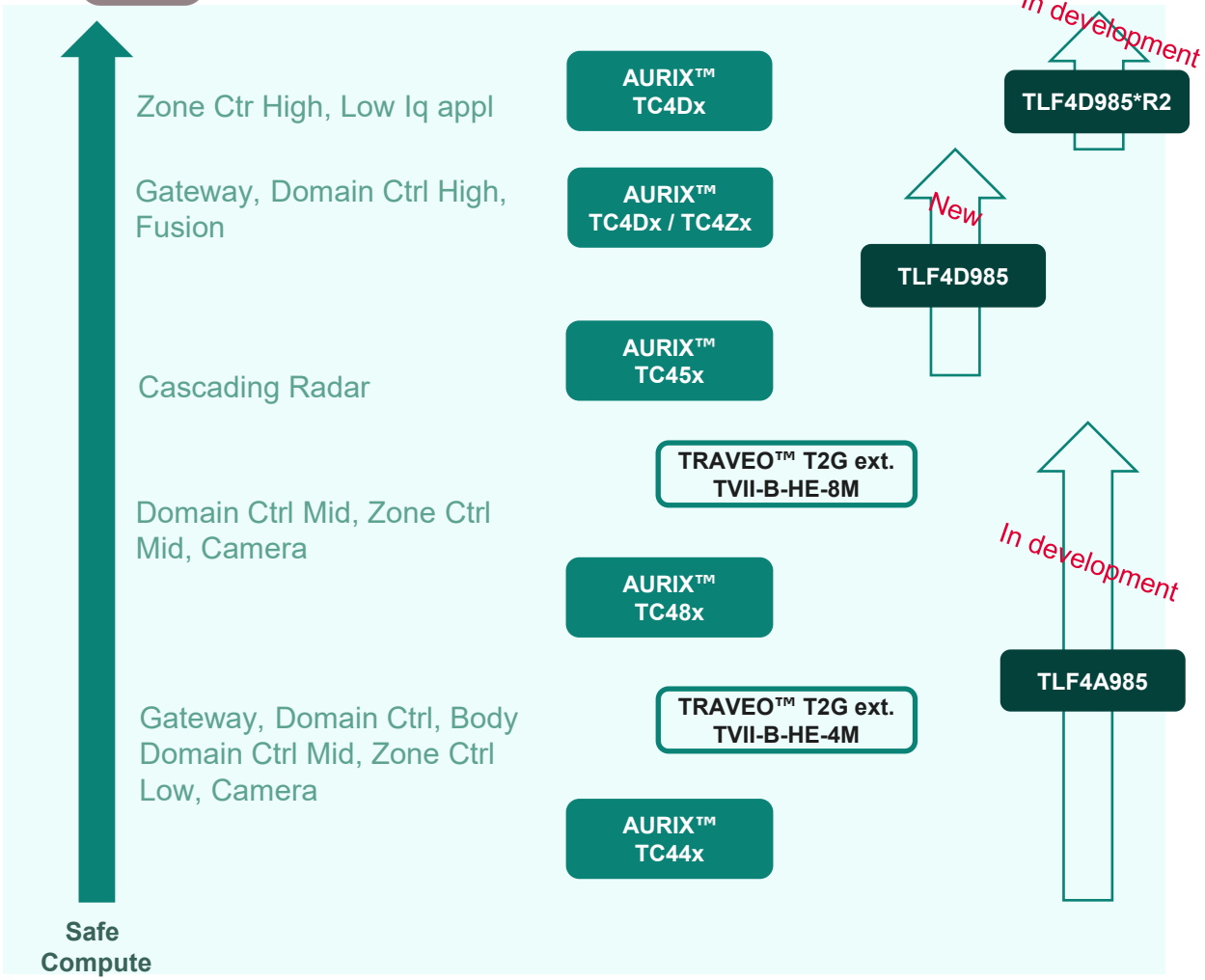
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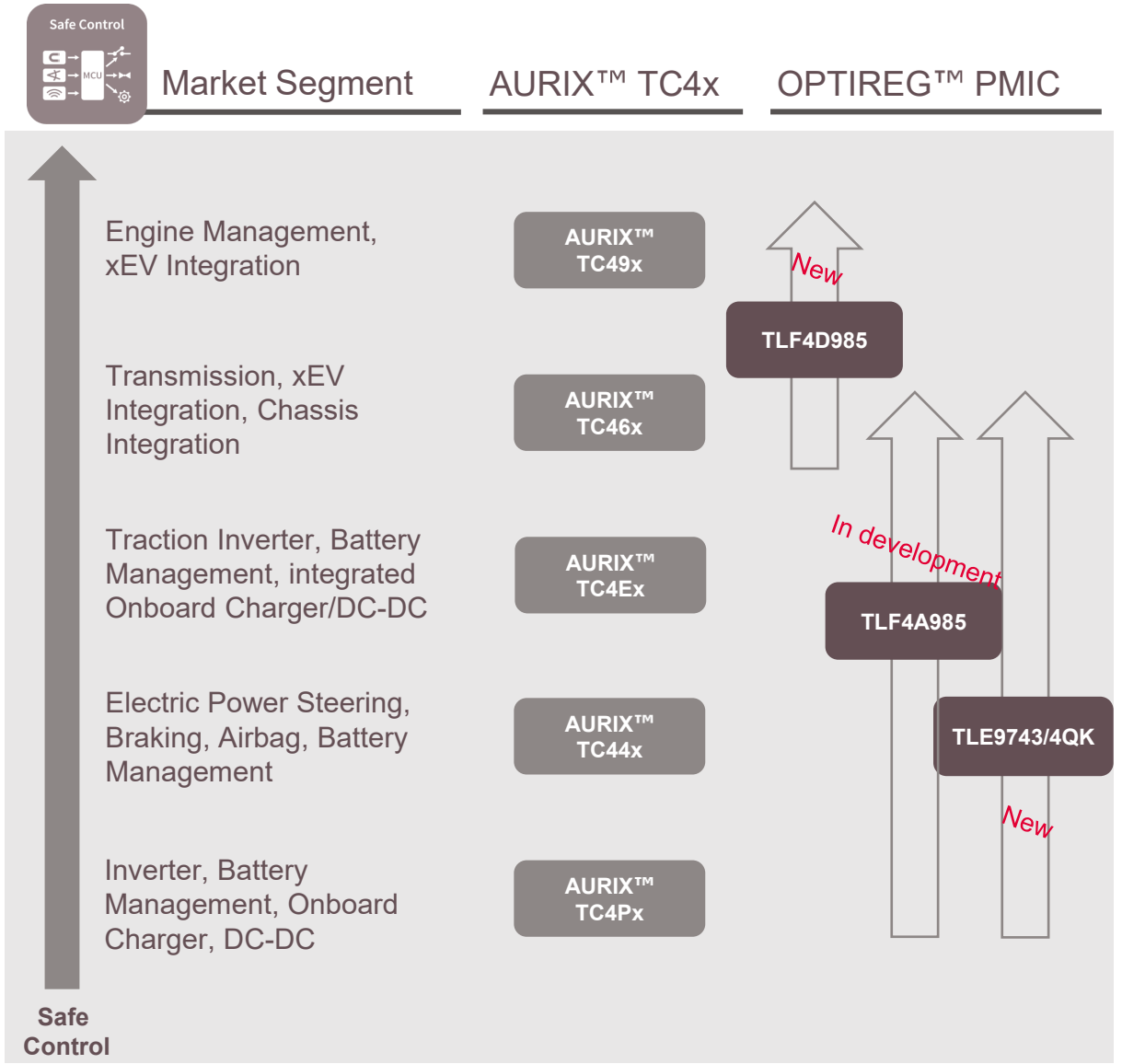
New OPTIREG™ PMIC TLF4x family offers unique advantages alongside AURIX™ TC4x family

OPTIREG™ PMIC TLF4x Key features	Customer advantages
P2S development ensures fully digital and power **interoperability**	✓ Optimized Bill of Material ✓ Unique fit to TC4x ✓ Ease of use
Scalability over the entire AURIX™ portfolio	✓ Hardware & Software reuse ✓ Lower R&D effort
Right **application fit** with dedicated features for compute & control segments	✓ Smaller PCB size ✓ Optimized Bill of Material ✓ Centralized power management
ASIL D compliant safety features supporting system integrity	✓ Safe supply and safety MCU supervision with Safe state output reactions
Support AURIX ™ **Freedom from Interference**	✓ Support of multi-CPU and multi-threading systems ✓ Independent safe state handling capabilities

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Fully scalable & flexible PMIC power supply solution for AURIX™ TC4x & TRAVEO™T2G ext. family





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OPTIREG™ – PMICs for AURIX™ 3rd Gen. Microcontrollers and more
This is a product nomenclature guide not Legos = read not write

PMIC
OPTIREG™

TLF 4 D 9 8 5 QV A 01

Family Member

TLF PMIC

Microcontroller
PMIC gen for AURIX ™ up to TC4**x**
4D Upto TC4Dx
4A Upto TC48x
40 Upto TC42x
...

Digit #1 Feature set identifier
1..9 1..9
Digit #2 Number of differentiating Features
1..9 1..9
e.g. CHP, RSTP, hvsense, # wake sources, ext. rail supervision, low power mode
Digit #3 FuSa Feature Set
2 : Tailored FuSa
(VMON, FSP, WWD)
4 : 48V power net capable
5 : Standard ASIL D
(VMON, FSP, WWD, FWD, SMC)
6 : Enhanced ASIL D
/7 (VMON, FSP, WWD, FWD SMC, safety/phase disconnect/s)
9 : Active Safety (Safety Engine)

Package Class
QV VQFN 48 /56 Pin
QU TQFP 48 Pin
QK LQFP 64 Pin

Target MCU core Voltage
A 1.0V (AURx)
R 1.1V (R)
T 1.15V (TVII)

Differentiating voltage or config variants (MCU I/O, Peripheral, etc.) :
50 – 5V I/O
33 – 3V3 I/O
01 – 5V0 I/O & 3V3 Peri
02 – 3V3 I/O & 3V3 Peri
03 – 3V3 I/O & 1V8 Peri
..

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OPTIREG™ PMICs Application Fit for Automotive Applications





	High		Entry
Conventional Powertrain	AURIX™ TC49x + OPTIREG™ TLF4D985		AURIX™ TC46x + OPTIREG™ TLF4A985
Electrical Drive Train	AURIX™ TC49x + OPTIREG™ TLF4D985		AURIX™ TC46x / 4Ex / 4Px + OPTIREG™ TLF4A985 TLE9743/4QK
Chassis / Safety	AURIX™ TC46x / 44x + OPTIREG™ TLF4A985		AURIX™ TC36x / 33x + OPTIREG™ TLF35585 / 84
ADAS	AURIX™ TC4Dx/TC4Zx + OPTIREG™ TLF4D985		AURIX™ TC48x / 44x / 42x + OPTIREG™ TLF4A985
Body	AURIX™ TC4Dx/TC4Zx + OPTIREG™ TLF4D985		AURIX™ TC48x / 44x / 42x + OPTIREG™ TLF4A985

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Learn more about OPTIREG™ TLF4x PMICs for AURIX™ TC4x

PMIC

OPTIREG™

Product & Technical Material on myICP

- Product briefs
- Product Presentations
- Datasheets
- Application Notes
- Simulations models

TLF4x myICP*

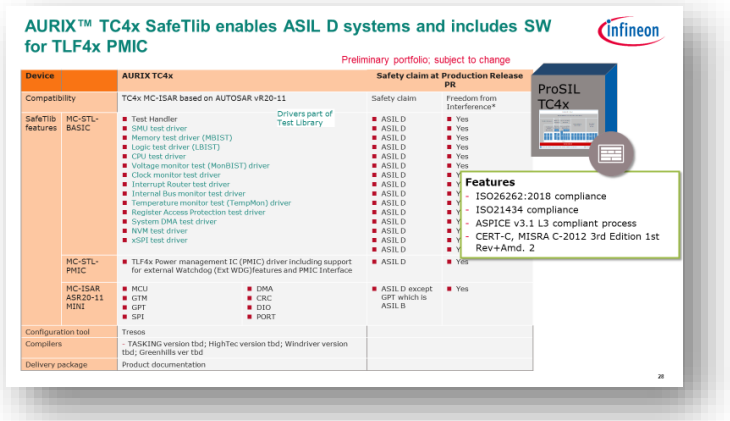
TLF4D985 myICP*

Evaluation Boards

- Evaluation boards
- Demo boards
- Reference designs
- Software support – Complex device driver (CDD)

TLF4D985 Eval Board

TC4Dx TriBoard



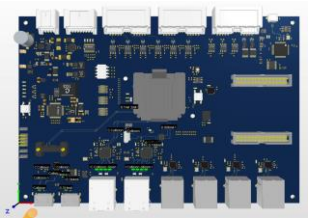
TLF4D985 Eval Board



AURIX TC4Dx TriBoard



TLF4Dx + TC4Dx Zone controller Board



* Accessible only for customers under NDA

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