



We are the link
between the real and
the digital world.

Automotive LED Lighting Solutions

Infiniteon's virtual show 2020



Infineon offering for Automotive LED lighting



Energy Efficiency










Safety



Connectivity



Security

Dependable Power supply	Dependable Networks	Advanced Driver Assistance	Intuitive Sensing	Individual Convenience	Audio	5G/ BLE/ WiFi	Data Integrity	Privacy	
<ul style="list-style-type: none">› MOSFETs› Automotive Power ICs› System Basis Chips› Transceivers› Power Supply ICs	<ul style="list-style-type: none">› Automotive Microcontrollers› Radar ICs› Pressure, Magnetic, Capacitive & RF sensors	<ul style="list-style-type: none">› RF switches› MEMS microphones› Image/ ToF Camera› ESD and surge protection› Automotive F-RAM, SRAM, NOR-Flash	<ul style="list-style-type: none">› Audio Amplifier ICs› GPS / GLONASS / COMPASS LNA› USB controllers› WiFi + Bluetooth	<ul style="list-style-type: none">› Automotive Security (V2X, Access, Payment etc.)› Embedded SIM for mobile communication› IoT security (MCUs w. HSM, protected memories)					
									

Infineon system offer: example of a full LED headlamp

Automotive Power ICs

LED drivers: LITIX™ Power / Power Flex

Power MOSFETs: OptiMOS™

System Basis Chips (SBC): Lite SBC

PMICs: OPTIREG™

Linear supplies: OPTIREG™

Motor Drivers: TLE4209G

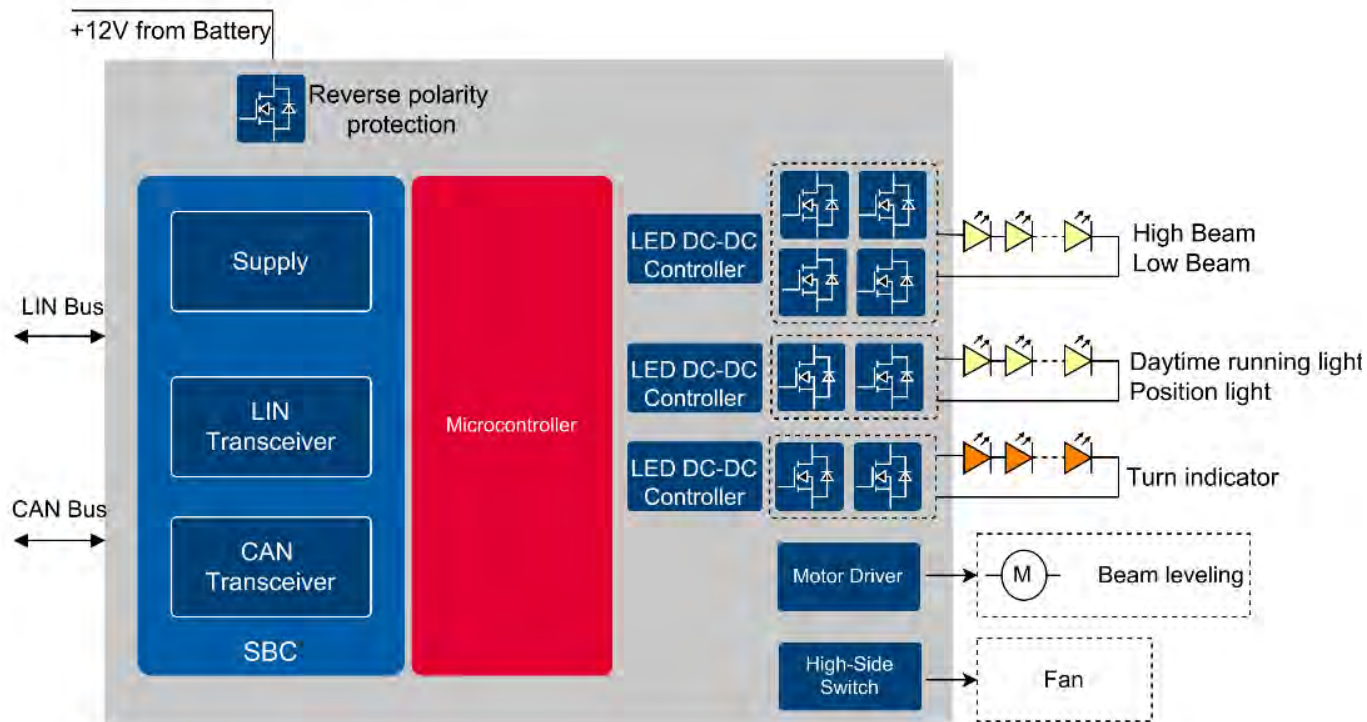
High-side switches: PROFET™ +2 12V

Automotive Microcontrollers

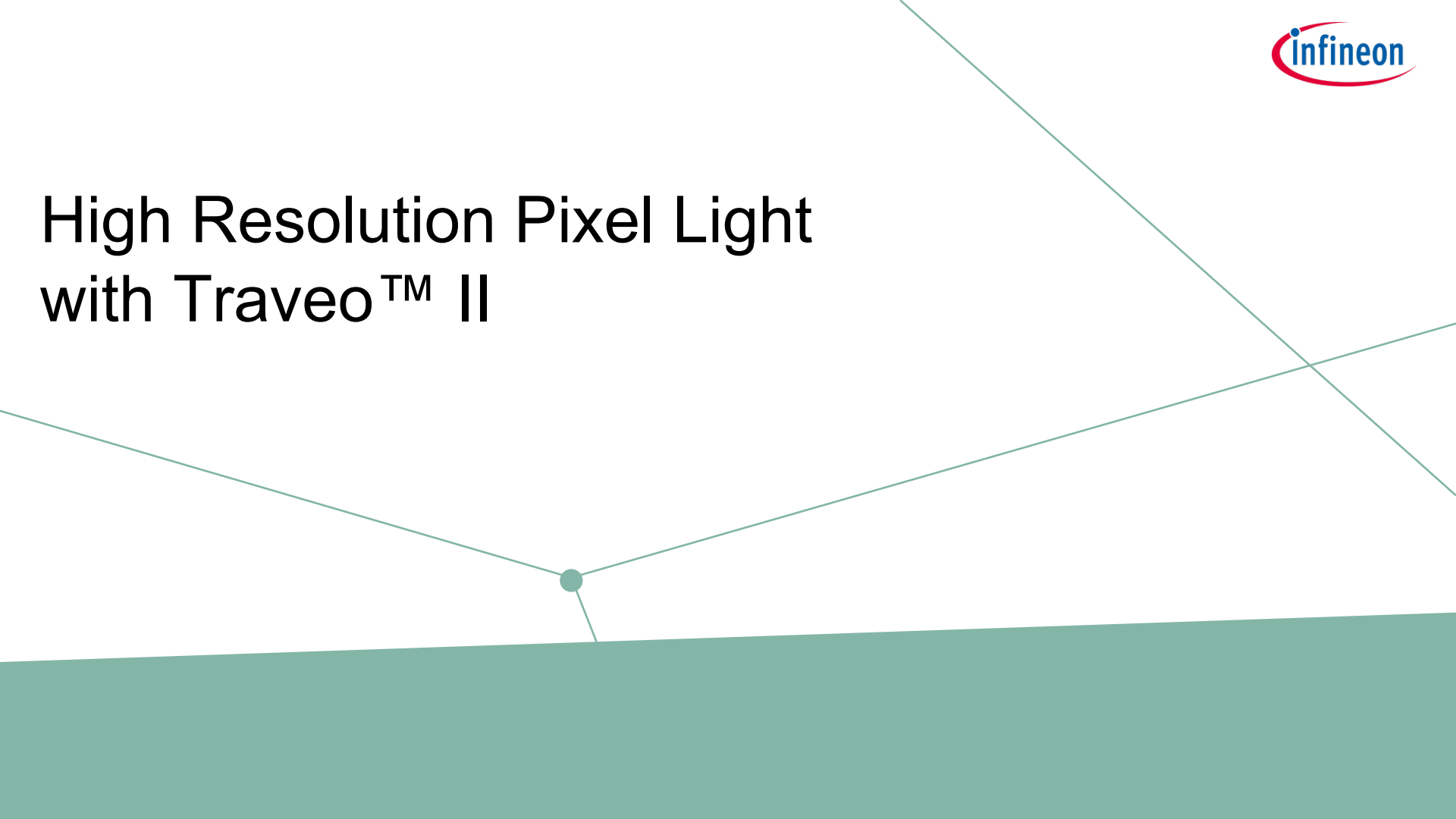
Traveo™ II-B

Connectivity ICs

Automotive Transceiver



High Resolution Pixel Light with Traveo™ II



HD Lighting – Motivation and what's about Graphics?

Goals

- › Improving Safety and Comfort
- › Unique light distribution and new front light design options

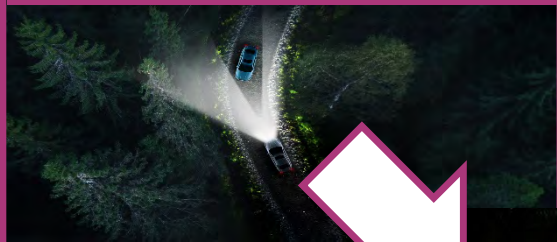
Use Cases

- › Information projection to the road
- › Dynamic light beam forming depending on driving situation and environment
- › Glare-free high beam with vertical segments
- › Driver assistance with the interaction between light sources, cameras, digital image processing and headlamp systems



HD Lighting: Front Light Use Cases

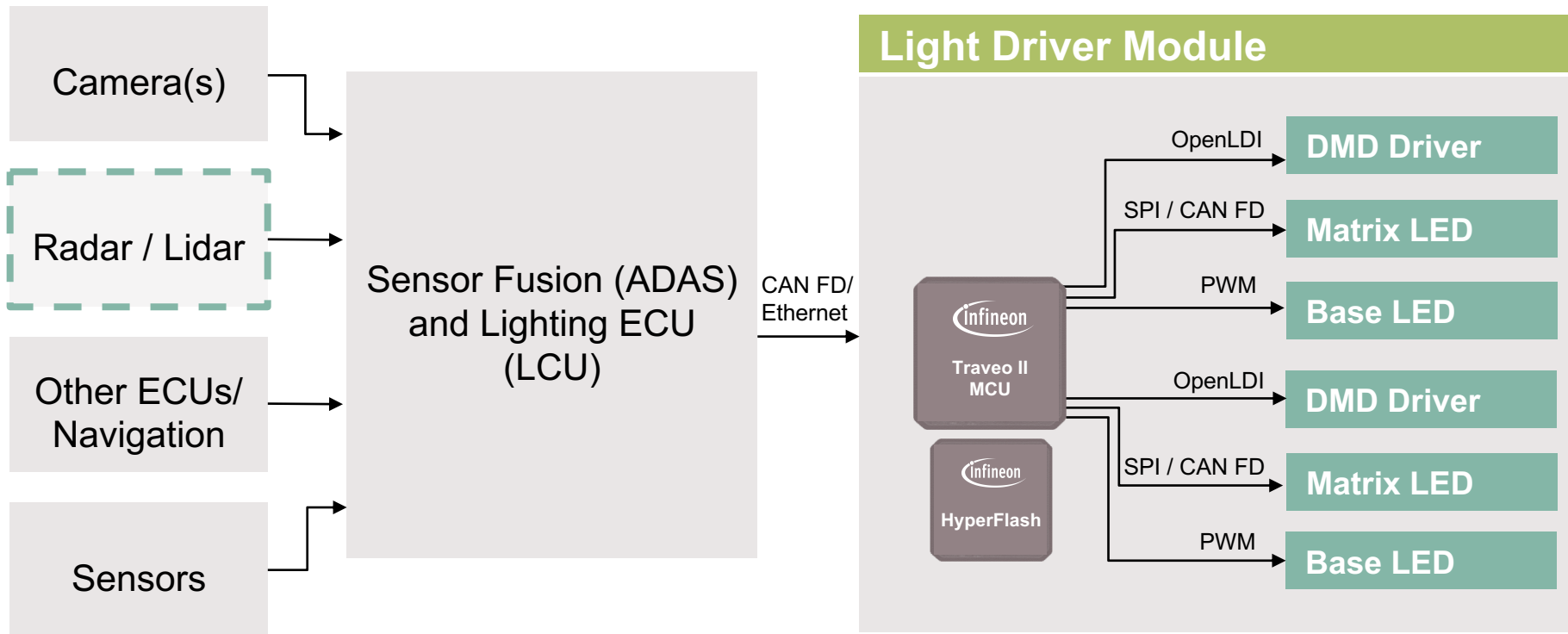
Dynamic Road Illumination



Information Projection



HD Lighting: Application Diagram



Scalability for Graphics

	Flash Memory Size	Pin Count						
		LQFP/TEQFP				BGA		
		144 Pin	176 Pin	208 Pin	216 Pin	272 Ball	327 Ball	500 Ball
Graphics MCU	6MB	High-End with Graphics					768KB 4MB	768KB 4MB
	4MB			512KB 2MB	512KB 2MB	512KB 2MB		
MCU	4MB		512KB -	512KB -	High-End			
	2MB	256KB -	256KB -					Entry
	1MB	256KB -	256KB -				Legend: RAM VRAM	

Cluster Platform


Size & Resolution



Dual 8" to 12 "
1920 x 1080



Dual 8" to 10.25"
1280 x 720



7.0" to 8.0"
1280 x 720



7.0"
800 x 480



3.5" to 4.2"
480 x 272



2.3" to 3.5"
320 x 240

Common SW

Same software offering as Body

- > MCAL¹
- > STL²
- > FEE³
- > HSMLib⁴

- ¹ MCAL: Microcontroller Abstraction Layer
- ² STL: Self-Test Library
- ³ FEE: Flash EEPROM Emulation
- ⁴ HSMLib: HSM Performance Library

Traveo II On-the-Fly & Line-based Graphics reduces memory footprint

Graphics Subsystem Key Features

Feature-rich Graphics Engine

- › 2D and 2.5D rendering
- › High Resolution
 - 720p with internal VRAM, >720p with LPDDR4 interface

Sophisticated Display Controller

- › Resolutions up to 2880x1080
- › Arbitrary warping for HUDs

Safety Features

- › Supports ISO 26262 compliance

Video Capture

- › RGB and MIPI-CSI2, two or four lanes with a resolution of up to 2880 x 1080

JPEG decoder

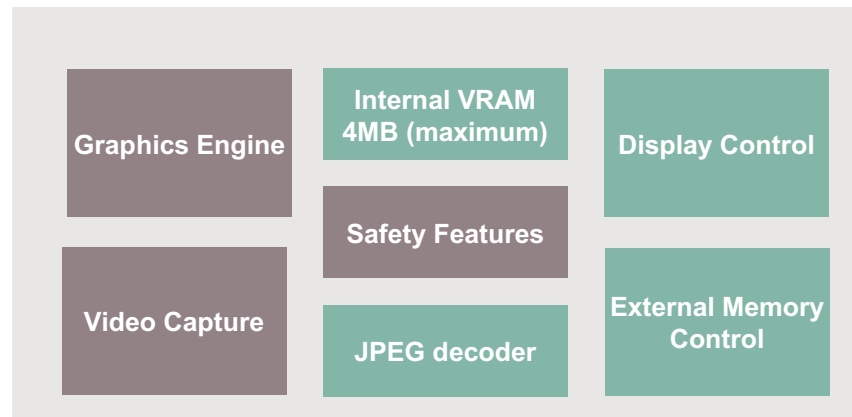
- › Supports Motion JPEG

Flexible memory interface

- › Supports latest high-speed serial memories

Backward compatible with Traveo™

- › Rendering in legacy Image-Based Operation (IBO) mode
- › Porting guide (Graphics Driver User Guide)



High Resolution Graphics Engine with Internal VRAM

Infineon Automotive LED Lighting Solutions: Quick Links

LED Lighting Application

[LED Front Lighting](#)

[LED Rear Lighting](#)

- › Infineon Automotive LED lighting solutions contain all needed ICs like LED drivers, Power MOSFETs, SBCs, PMICs, Motor Drivers and MCUs from the Aurix™ and Traveo™ family

LED Driver

[LITIX™](#)

- › LITIX™ [Linear](#)
- › LITIX™ [Basic](#)
- › LITIX™ [Basic+](#)
- › LITIX™ [Power](#)
- › LITIX™ [Power Flex](#)

MOSFET

[OptiMOS™](#)

Microcontroller

[AURIX™](#)

- › [TC2xx](#)
- › [TC3xx](#)

[Traveo™ II](#)

Power Supply IC

[OPTIREG™](#)

System Basis Chips

[SBC](#)

Transceivers

[Automotive CAN Transceivers](#)

High Side Switches

[PROFET™](#)





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