Company presentation

Infineon Technologies AG

March 2024

A world leader in semiconductor solutions

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

Our values
We commit
We partner
We innovate
We perform

Our mission
We make life easier, safer and greener.

Part of your life. Part of tomorrow.

Table of contents

Driving decarbonization and digitalization. Together.

Semiconductors are crucial to solve the energy challenges of our time and shape the digital transformation.

This is why Infineon is committed to actively driving decarbonization and digitalization.

As a global semiconductor leader in power systems and IoT, we enable game-changing solutions for green and efficient energy, clean and safe mobility, as well as smart and secure IoT.

We make life easier, safer, and greener. Together with our customers and partners. For a better tomorrow.

Infineon is committed to binding CO_2 reduction targets

1 Carbon neutrality[1] by 2030 – primarily by avoiding emissions

2 Realization of 70 percent of the required savings and compensations by 2025

[1] Carbon neutrality is defined in terms of Scope 1 and Scope 2 emissions.

Corporate Social Responsibility: We create a net ecological benefit

In various areas of application (automotive electronics, industrial drives, photovoltaics as well as wind energy), our products can achieve CO_2 savings during their lifetime of around 117 million tons of CO_2 equivalents. Compared with the European electricity mix, this is around 12.5 percent of the annual net electricity production of the European Union.

CO_2 burden[1]

of 3.4 million tons
CO_2 equivalents

Ratio around 1:34

CO_2 savings[2]

of 116.6 million tons
CO_2 equivalents

Net ecological benefit: CO_2 emissions reduction of more than 113 million tons

[1] This figure takes into account manufacturing, transportation, own vehicles, travel, supplier-specific emissions, water/waste water, direct emissions, energy consumption, waste etc. as well as direct and indirect energy-related emissions by manufacturing service providers. It is based on data collected internally and publicly available conversion factors and relates to the 2023 fiscal year.

[2] This figure is based on internally established criteria, which are described in the explanatory notes. The figure relates to the 2022 calendar year and takes into account the following application areas: automotive electronics, industrial drives, photovoltaics as well as wind energy. CO_2 savings are calculated based on the potential savings generated by technologies in which semiconductors are used. The CO_2 savings are allocated based on Infineon's market share, semiconductor share and the lifetime of the technologies concerned, based on internal and external experts' estimations. Despite the fact that carbon footprint calculations are subject to imprecision due to the complex issues involved, the results are nevertheless clear.

Infineon is a global leader in power systems and IoT

Global leader

in automotive, power management, energy efficient technologies and IoT

~58,600

employees[1]

Market position

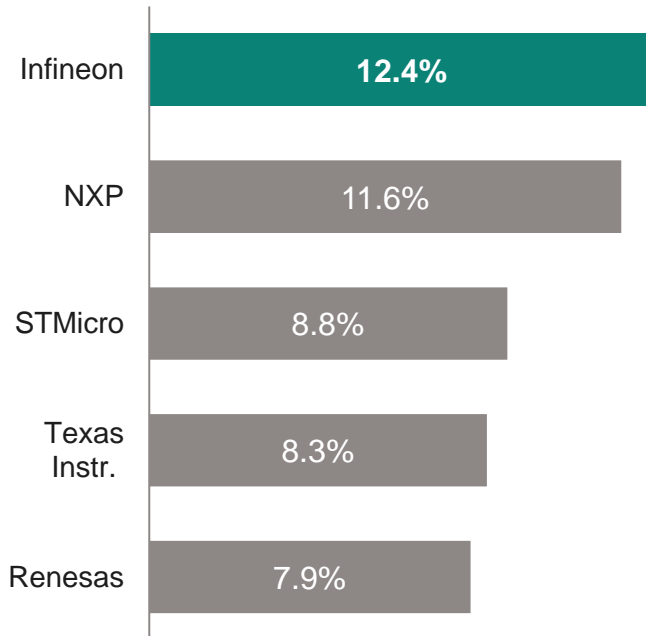| Automotive	Power	Microcontroller
#1	**#1**	**#5**
TechInsights, March 2023	Omdia, September 2023	Omdia, August 2023

[1] As of 30 September 2023

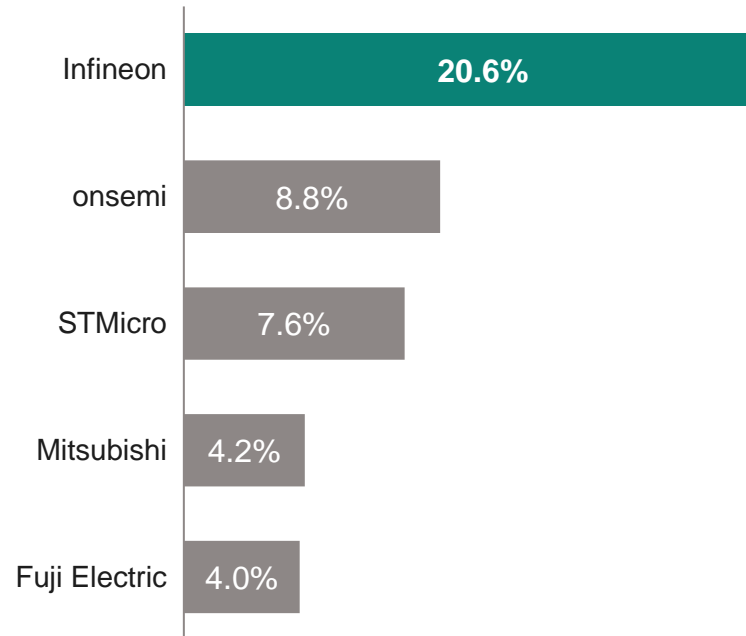# Infineon is a global player, clear leader in automotive semiconductors and power discretes and modules

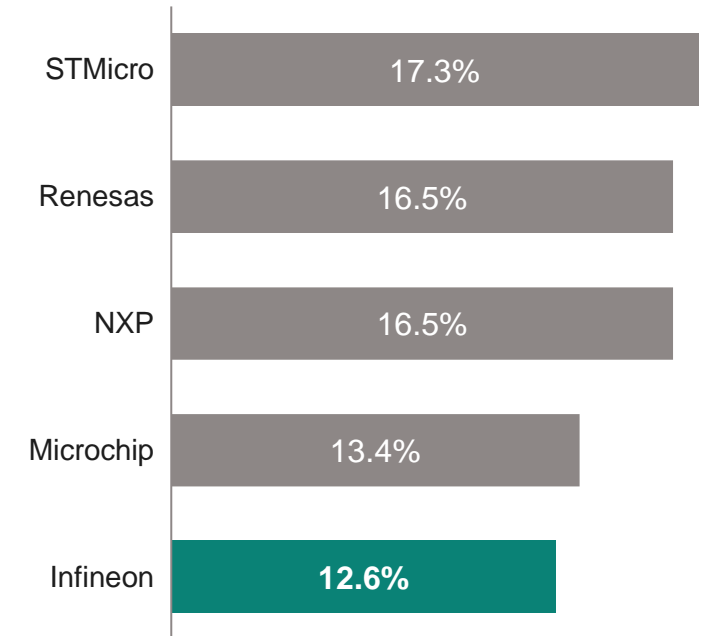## Automotive semiconductors[1]

Total market in 2022: USD 59.4bn

Company	Share
Infineon	**12.4%**
NXP	11.6%
STMicro	8.8%
Texas Instr.	8.3%
Renesas	7.9%

Power discretes and modules[2]

Total market in 2022: USD 30.9bn

Company	Share
Infineon	**20.6%**
onsemi	8.8%
STMicro	7.6%
Mitsubishi	4.2%
Fuji Electric	4.0%

Microcontroller[3]

Total market in 2022: USD 27.0bn

Company	Share
STMicro	17.3%
Renesas	16.5%
NXP	16.5%
Microchip	13.4%
Infineon	**12.6%**

[1] TechInsights: Automotive Semiconductor Vendor Market Shares. March 2023. | [2] Based on or includes research from Omdia: Power Semiconductor Market Share Database – 2022 – Final V2. September 2023. | [3] Based on or includes research from Omdia: Annual 2001-2022 Semiconductor Market Share Competitive Landscaping Tool – 3Q23. November 2023. Results are not an endorsement of Infineon Technologies AG. Any reliance on these results is at the third party's own risk.

Infineon at a glance
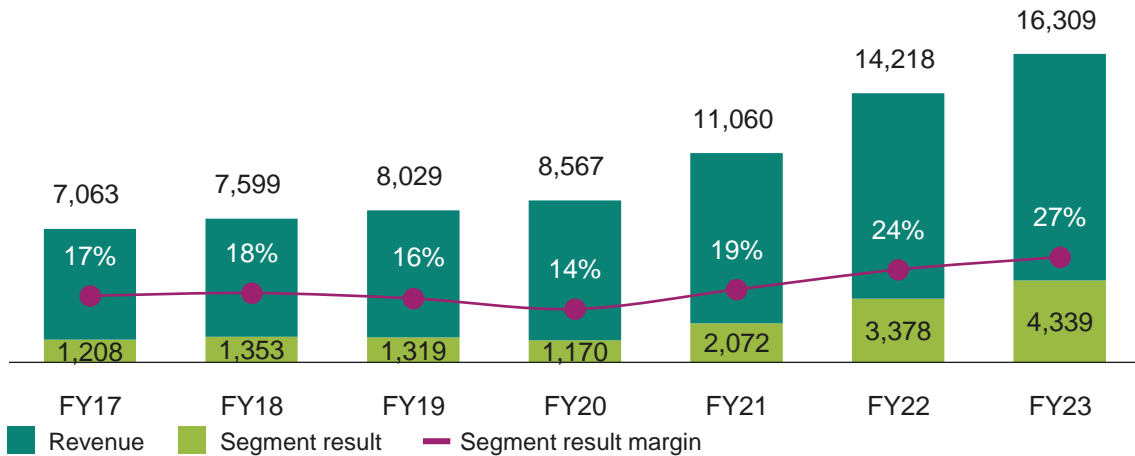
Growth areas

Energy
green and efficient

Mobility
clean and safe

IoT
smart and secure

Financials

[EUR m]

- **Revenue**
- **Segment result**
- **Segment result margin**

	FY17	FY18	FY19	FY20	FY21	FY22	FY23
Revenue	7,063	7,599	8,029	8,567	11,060	14,218	16,309
Segment result	1,208	1,353	1,319	1,170	2,072	3,378	4,339
Segment result margin	17%	18%	16%	14%	19%	24%	27%

FY23 revenue by segment[1]

- Automotive (ATV) — 51%
- Green Industrial Power (GIP) — 13%
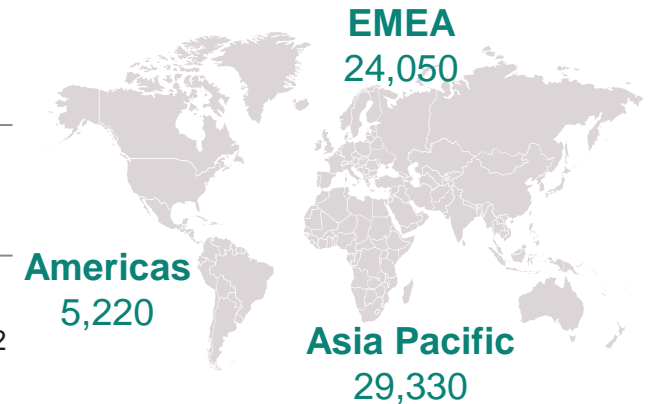- Power & Sensor Systems (PSS) — 23%
- Connected Secure Systems (CSS) — 13%
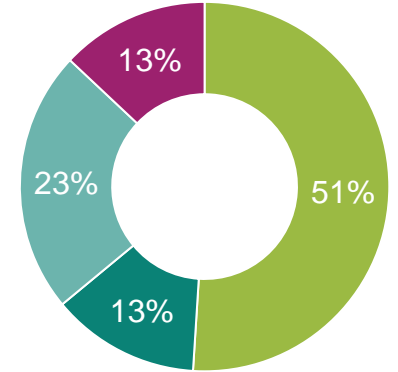
Employees[2]

58,600
employees worldwide

69
R&D and

17
manufacturing locations[2]

EMEA
24,050

Americas
5,220

Asia Pacific
29,330

For further information: Infineon Annual Report.
[1] 2023 Fiscal year (as of 30 September 2023) | [2] As of 30 September 2023

Close customer relationships are based on system know-how and application understanding
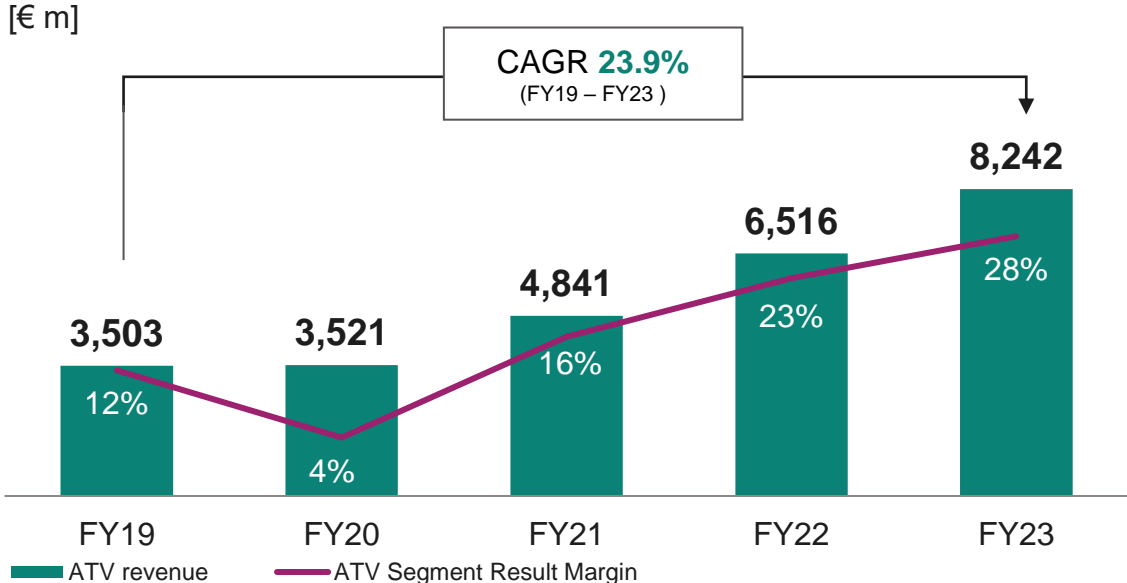
Automotive

APTIV · Astemo · BorgWarner · BOSCH · BYD · Continental · DENSO · FORVIA · HYUNDAI MOTOR GROUP · KEBODA · Valeo · veoneer · vitesco TECHNOLOGIES · ZF

Green Industrial Power

ABB · alpitronic · ALSTOM · Bloom energy · 中国中车 CRRC · GOLDWIND · INOVANCE · LG · Midea · OMRON · Rockwell Automation · Schneider Electric · SEMIKRON DANFOSS · SIEMENS · SMA · SUNGROW · Vestas · YASKAWA

Power & Sensor Systems

amazon · CISCO · DELL · DELTA · ERICSSON · ENPHASE · Google · hp · LITEON · makita · Panasonic · SAMSUNG · solaredge · ZTE

Connected Secure Systems

amazon · arlo · cpi card group · fitbit · GPO · Haier · HARMAN A SAMSUNG COMPANY · hp · IDEMIA · Midea · PERFECT Plastic P · Raspberry Pi · SAMSUNG · SONY · THALES

EMS-Partners

flex · JABIL

Distribution partners

ARROW · AVNET · FUTURE ELECTRONICS · intron 英恒 · Jingchuan · MACNICA · Marubun Since 1844 · NEXTY Electronics · 威健 WEIKENG · wpg

ATV at a glance

ATV revenue and Segment Result Margin

[€ m]

CAGR **23.9%**
(FY19 – FY23)

	FY19	FY20	FY21	FY22	FY23
Revenue	3,503	3,521	4,841	6,516	8,242
Margin	12%	4%	16%	23%	28%

■ ATV revenue —— ATV Segment Result Margin

FY23 revenue split by product group

Memory ICs

MCUs

Power (incl. SiC)

Sensors

Key customers

APTIV · · Astemo · BorgWarner · BOSCH · BYD · Continental · DENSO

FORVIA · HYUNDAI MOTOR GROUP · KEBODA · Valeo · veoneer · vitesco TECHNOLOGIES · ZF
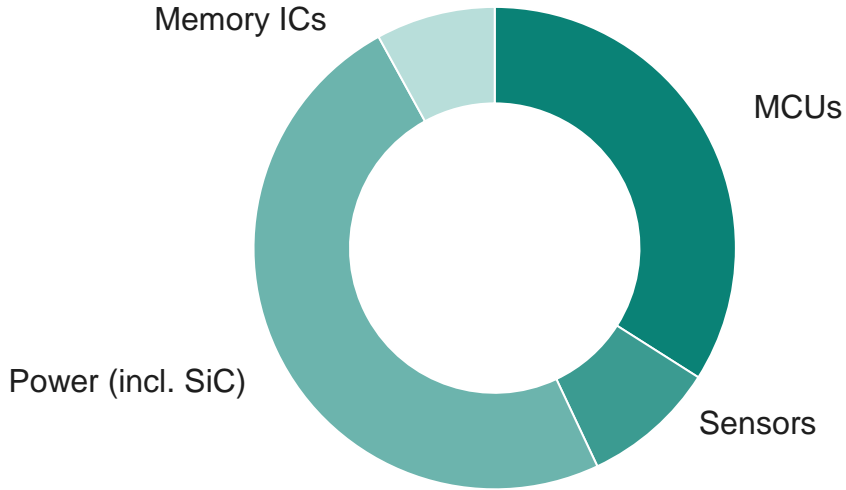
Automotive
Semiconductors are essential to realize the automotive megatrends

Infineon enables clean, safe, smart cars
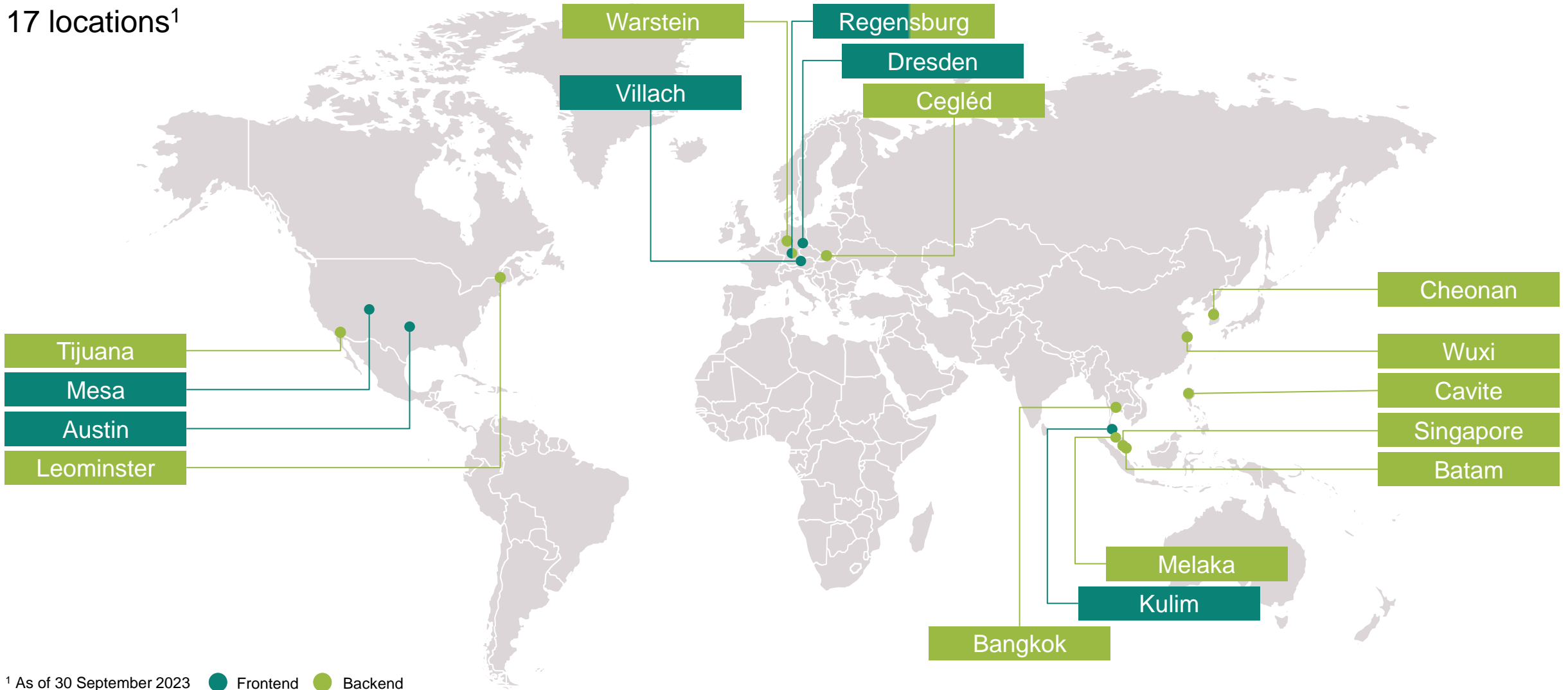

Green Mobility	Automated Driving	Connectivity	Advanced Security

Infineon is globally positioned with its network of Frontend and Backend manufacturing facilities

17 locations[1]

Warstein
Regensburg
Dresden
Villach
Cegléd

Cheonan
Wuxi
Cavite
Singapore
Batam

Tijuana
Mesa
Austin
Leominster

Melaka
Kulim
Bangkok

[1] As of 30 September 2023   ● Frontend   ● Backend

Our global Research and Development activities

About 12 percent

of Infineon's annual revenue goes into Research and Development (R&D).
In fiscal year 2023, R&D investments amounted to about 2 billion euros.

29,700 patents and patent applications in the overall portfolio

show a high level of innovative strength and longterm competitiveness. In fiscal year 2023 alone, Infineon registered about 1,850 new patent applications.

Numerous innovative ecosystems

with tech companies, universities and research institutes are of great importance to Infineon.

69[1] sites in 25 countries and regions:

|	
Americas	Guadalajara, Tijuana (Mexico); Andover, Austin, Chandler, Colorado Springs, El Segundo, Irvine, Leominster, Lexington, Lynnwood, Morrisville, Murrieta, Portland, San Diego, San José and Warwick (all USA)
Asia Pacific	Bangalore (India); Batam (Indonesia); Cheonan and Seoul (both Korea); Ipoh, Kulim, Melaka and Penang (all Malaysia); Muntinlupa (Philippines); Singapore (Singapore); Nonthaburi (Thailand)
Greater China	Chengdu, Shanghai, Shenzen, Wuxi and Xi'an (all Mainland China); Hsinchu and Taipei (both Taiwan)
Japan	Nagoya, Sendai, Tokyo (all Japan)
Europe	Graz, Klagenfurt, Linz and Villach (all Austria); Herlev (Denmark); Le Puy-Sainte-Réparade (France); Augsburg, Dresden, Duisburg, Erlangen, Ilmenau, Langen, Neubiberg, Regensburg, Soest and Warstein (all Germany); Budapest and Cegléd (both Hungary); Cork and Dublin (both Ireland); Netanya (Israel); Padua and Pavia (both Italy); Nijmengen (Netherlands); Brasov, Bucharest and Iasi (all Romania); Belgrad (Serbia); Bristol and Redhill (both UK); Lviv (Ukraine)

[1] as of 30 September 2023.

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Automotive Microcontroller | We make green mobility smart

Green
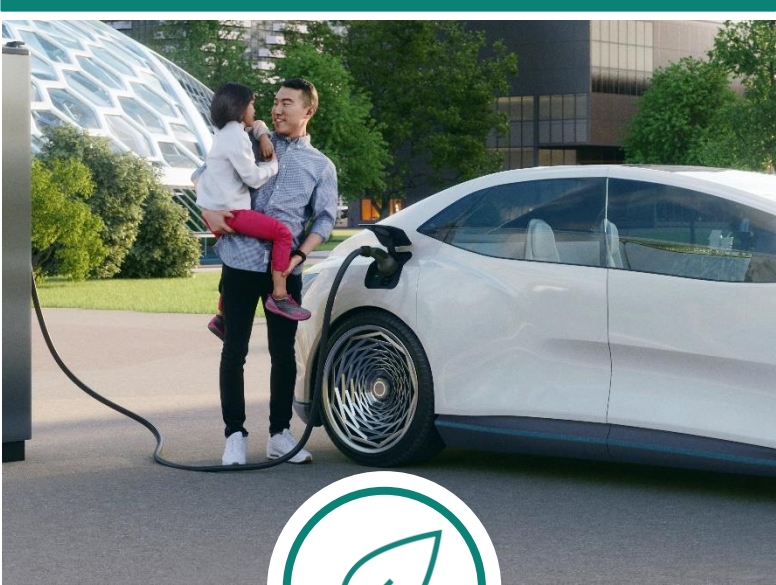
Zero emission becomes real

Mobility

A driver becomes a passenger
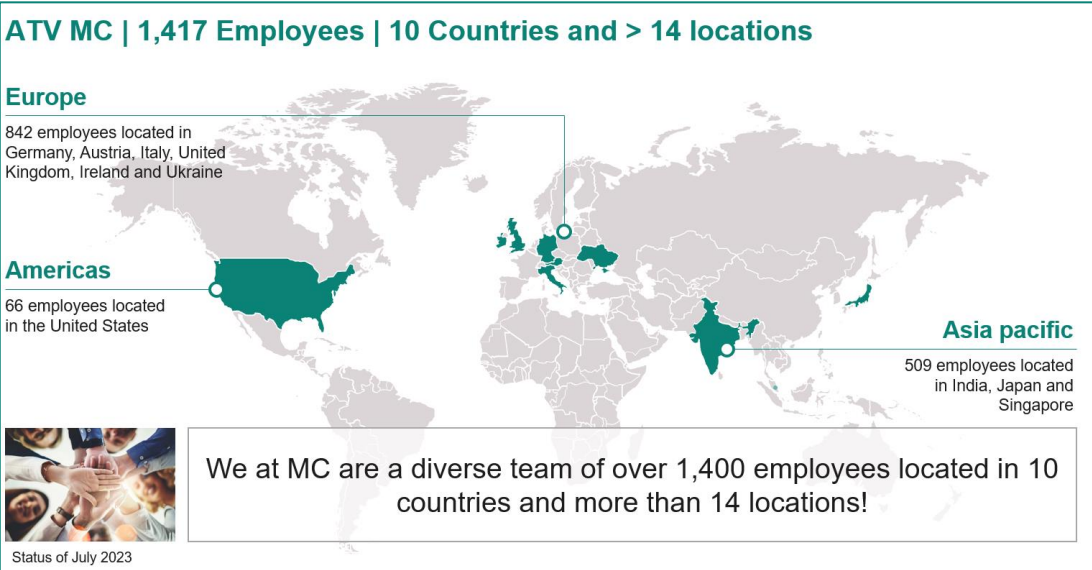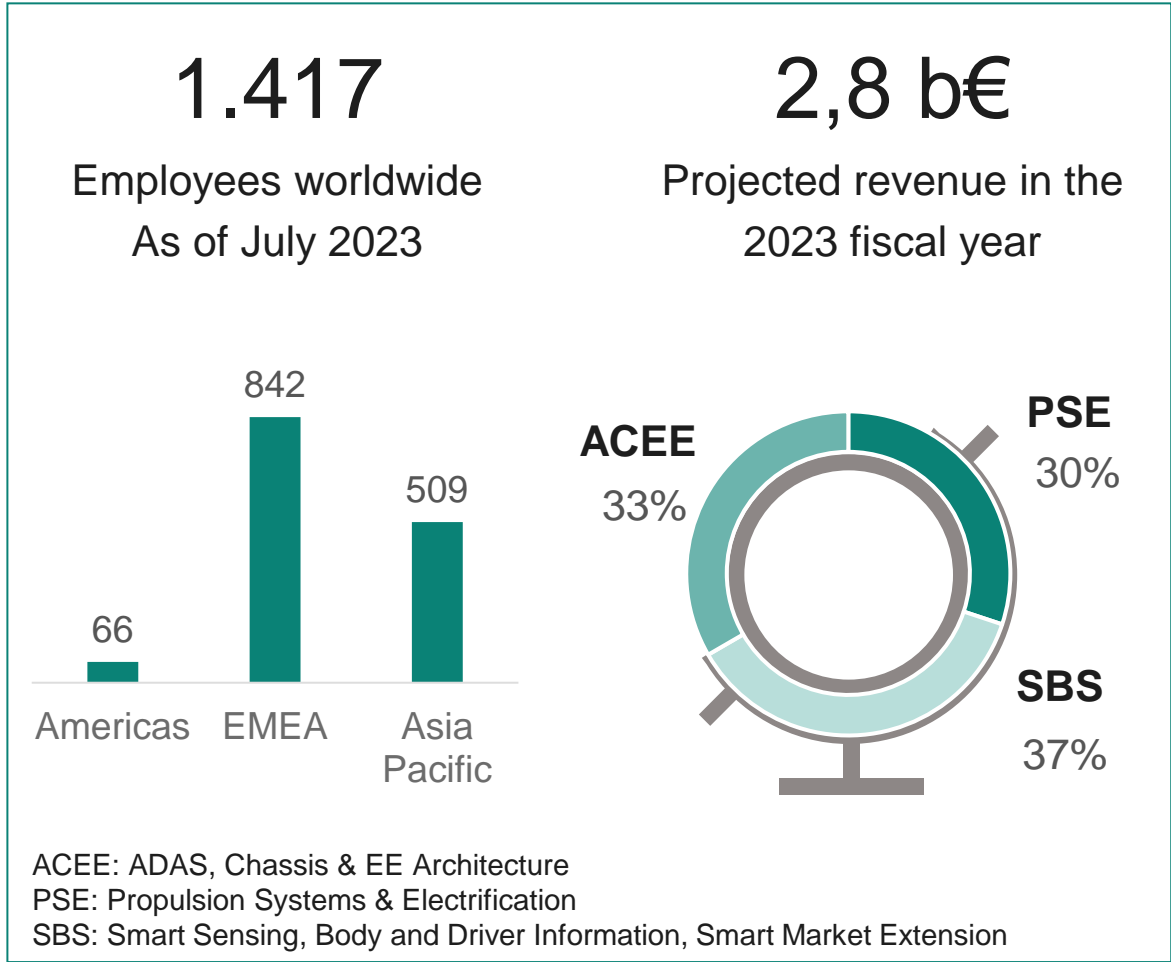
Smart

A car becomes a smarter car

ATV MC at a glance

Facts & Figures

1.417

Employees worldwide
As of July 2023

2,8 b€

Projected revenue in the
2023 fiscal year

66 — Americas
842 — EMEA
509 — Asia Pacific

ACEE 33%
PSE 30%
SBS 37%

ACEE: ADAS, Chassis & EE Architecture
PSE: Propulsion Systems & Electrification
SBS: Smart Sensing, Body and Driver Information, Smart Market Extension

ATV MC | 1,417 Employees | 10 Countries and > 14 locations

Europe
842 employees located in Germany, Austria, Italy, United Kingdom, Ireland and Ukraine

Americas
66 employees located in the United States

Asia pacific
509 employees located in India, Japan and Singapore

We at MC are a diverse team of over 1,400 employees located in 10 countries and more than 14 locations!

Status of July 2023

Family Products

AURIX™

TRAVEO™   PSoC™

Source: Revenue and market shares based on Bluebook 2023

MC consists of three product lines serving different application segments

ACEE
ADAS, Chassis & EE Architecture

- Safety
- Radar
- Data Fusion
- Chassis
- Camera
- EE Architecture

Radar system

Braking

PSE
Propulsion Systems & Electrification

- Engine Management
- Transmission

Inverter
- Battery Management
- DCDC
- On-Board-Charger

Classic PT

Electrification

SBS
Smart Sensing, Body and Driver Information, Smart Market Extension

- Body
- Connectivity
- Cluster
- Infotainment
- AR/Graphics
- Wireless Charging
- HMI
- Smart Sensing
- CAV & Industrial

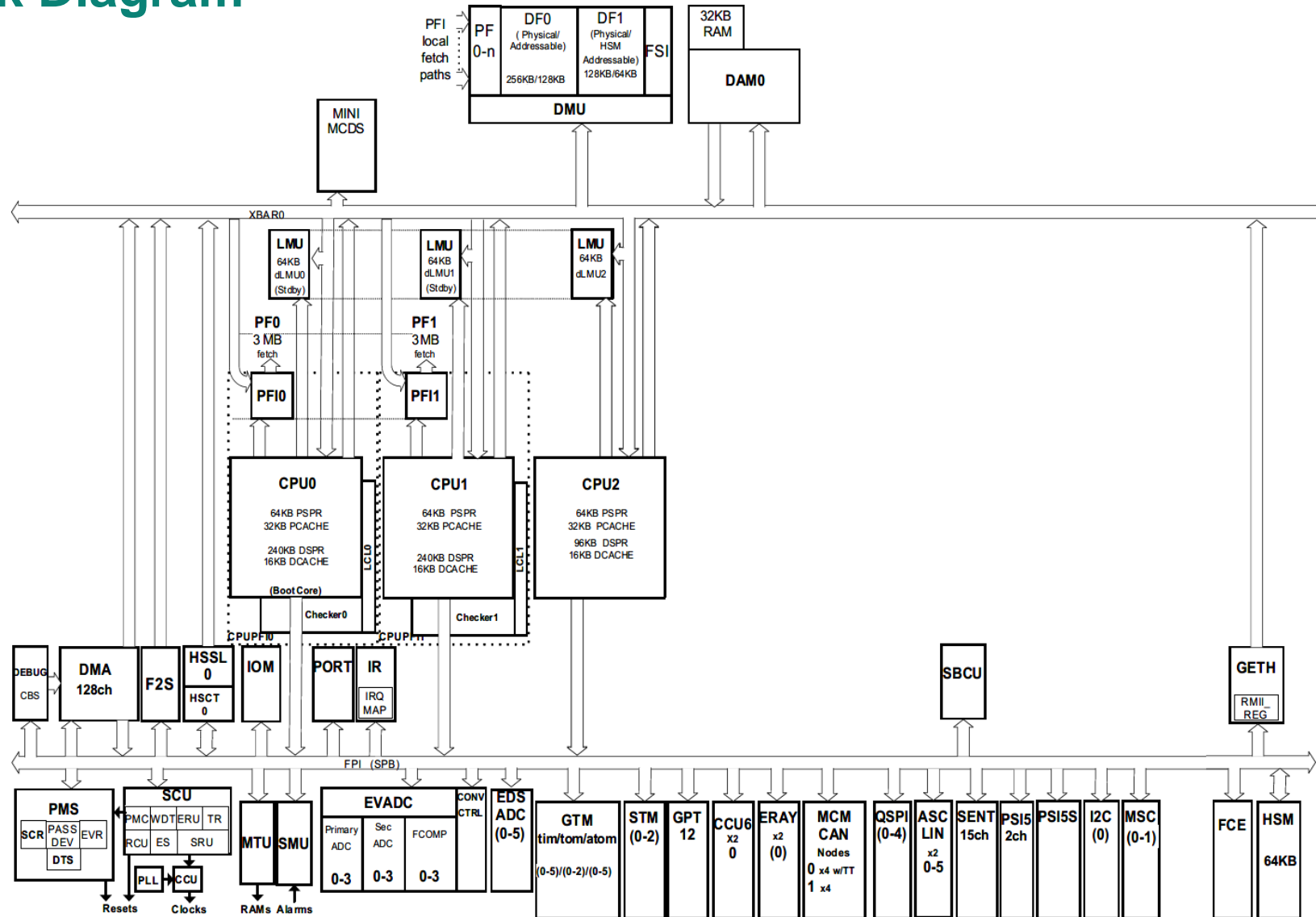Body Control Module

OLED Curved Display

Infineon AURIX Microcontrollers

AURIX™: Infineon's TriCore Processor

MICROCONTROLLER
- √ Fast context switch & interrupt response
- √ Integrated Peripheral support
- √ Powerful bit manipulation unit & comparison Instructions

RISC processor
- √ 32-bit load/store Harvard architecture
- √ Super-scalar execution & uniform register set
- √ Memory Protection Unit (MPU) & C/C++ and RTOS support

DSP
- √ Sustainable single-cycle dual MAC
- √ DSP addressing modes & Zero overhead modes
- √ Saturation, Rounding & Q-Math (fraction format)

Three in **One**

+ 500M devices shipped

TriCore™ AURIX™ MCU

AURIX™ TriCore unites the elements of a RISC processor core, a microcontroller and a DSP in one **single** MCU!

AURIX™: Industry Focus Applications

Power & Energy	Smart Vehicles Off high way	Factory Automation	Others

Power & Energy	Smart Vehicles Off high way	Factory Automation	Others
Solar Inverter	Fun vehicles, e.g. skidoo, jet ski	PLC, µPLC	Drones
Wind Inverter	Agricultural	Servo Drives	Radar applications
Renewable Energies	Earth moving e.g terex	Robotics / eRobotics	Medical
Off-board charger	Construction e.g. caterpillar (CAV)	In-factory vehicles	Elevators
	Special vehicles		RTOS & Clould Connectivity
	Crane systems		
	Train system		
	Avionics		
	Boats		

AURIX™ for industrial applications: one product family, multiple use cases!

AURIX™: Commercial, Construction, Agricultural Vehicles (CAV) & Transportation Applications

ADAS/Safety	Connectivity	Low voltage motor control	Hybrid electric solutions	Body and I/O management	Transportation
24 GHz radar	24V Gateway BCM with SOTA Platooning	Unidirectional motor control of DC motor	Auxiliary applications	24V body ECU, BCM	Safety management systems for trains
77 GHz radar	Telematics, Smart Cockpit	24V Brushed DC motor control	Powertrain inverter	Hydraulic & Pneumatic management systems	Safety Airborne systems (EASA)
24V Sensor Fusion		24V Brushless DC motor control	BMS, DCDC Converter, OBC, Charging	LED Lighting	
EHPS		24V EMS		Seat management	
Braking					

Main inverter
The inverter not only drives the electric motor but is also used for regenerative braking and feeding energy back to the battery.

HV-LV DC-DC converter
The DC-DC converter charges the conventional 12 V power supply net from the high-voltage battery and replaces the former belt-driven alternator.

On-board charger
The battery block is charged via an AC-DC converter module. In the example shown here, an on-board unit charges the battery. Off-board and inductive charging solutions are also available.

Battery management system
The energy for the electric powertrain primarily comes from Lithium-based battery systems that need to be monitored to ensure occupants' safety.

Heater
Pure electric-driven cars require heating source in their HVAC systems. The high-voltage heater subsystem is interconnected to the HV battery through power switches and generates heat for cabin comforts.

Auxiliary inverter
Instead of being belt-driven, Auxiliary inverters such as e-compressor for HVAC systems, water pumps, etc., are driven by electric power. Smart and energy-efficient auxiliary inverters are mainly realized through B6 bridges on its controller board.

AURIX™ - xEV Application Examples

... Why AURIX at University of Padua?

Arduino (hardware)

Da Wikipedia, l'enciclopedia libera.

Arduino è una piattaforma hardware composta da una serie di schede elettroniche dotate di un microcontrollore. È stata ideata e sviluppata nel 2005 da alcuni membri dell'Interaction Design Institute di Ivrea come strumento per la prototipazione rapida e per scopi hobbistici, didattici e professionali[1]. Il nome della scheda deriva da quello del bar di Ivrea frequentato dai fondatori del progetto, nome che richiama a sua volta quello di Arduino d'Ivrea, Re d'Italia nel 1002[2].

Con Arduino si possono realizzare in maniera relativamente rapida e semplice

32-bit AURIX™ TriCore™ Microcontroller

AURIX™ TriCore™ unites the elements of a RISC processor core, a microcontroller and a DSP in one single MCU. TriCore™-based products target a large variety of automotive application. These include the control of combustion engines, **electrical and hybrid vehicles**, **transmission control units** , **chassis domains**, **braking systems**, **electric power steering systems**, **airbags**, connectivity and **advanced driver assistance systems** to support the trend toward autonomous, clean and connected cars. The AURIX™ family delivers also the versatility required for the **industrial sector**, excelling in optimized **motor control** applications and signal processing.
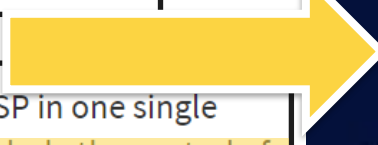
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Padova, Via Niccolo Tommaseo 65 b