

# First Quarter FY 2021 Quarterly Update

Infineon Technologies AG  
Investor Relations



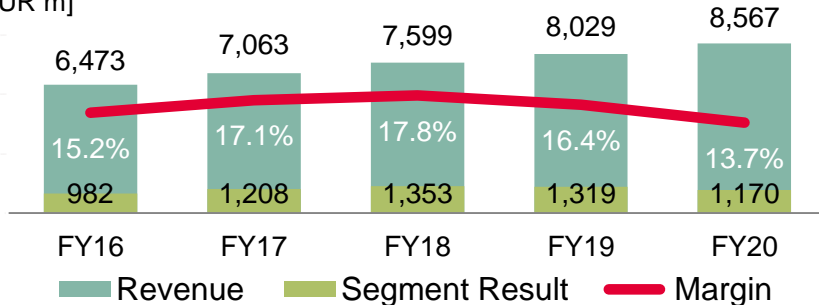
# Infineon at a glance

## Addressing long-term high-growth trends

- IoT (edge comp., data center, 5G, sensing, connectivity)
- electro-mobility
- assisted driving, autonomous driving
- energy efficiency, renewables, EV infrastructure
- security

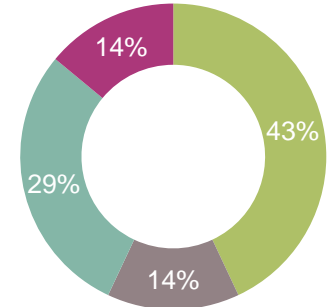
## Financials

[EUR m]



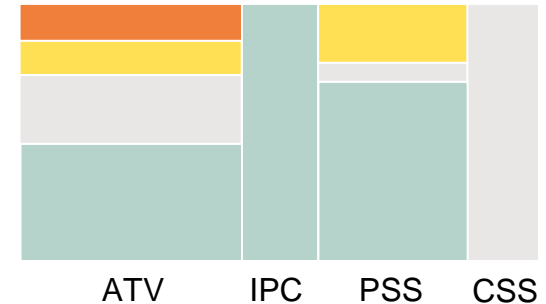
## Illustrative aggregated FY20 revenue by segment

- Automotive (ATV)
- Industrial Power Control (IPC)
- Power & Sensor Systems (PSS)
- Connected Secure Systems (CSS)



## Illustrative aggregated FY20 revenue by product category

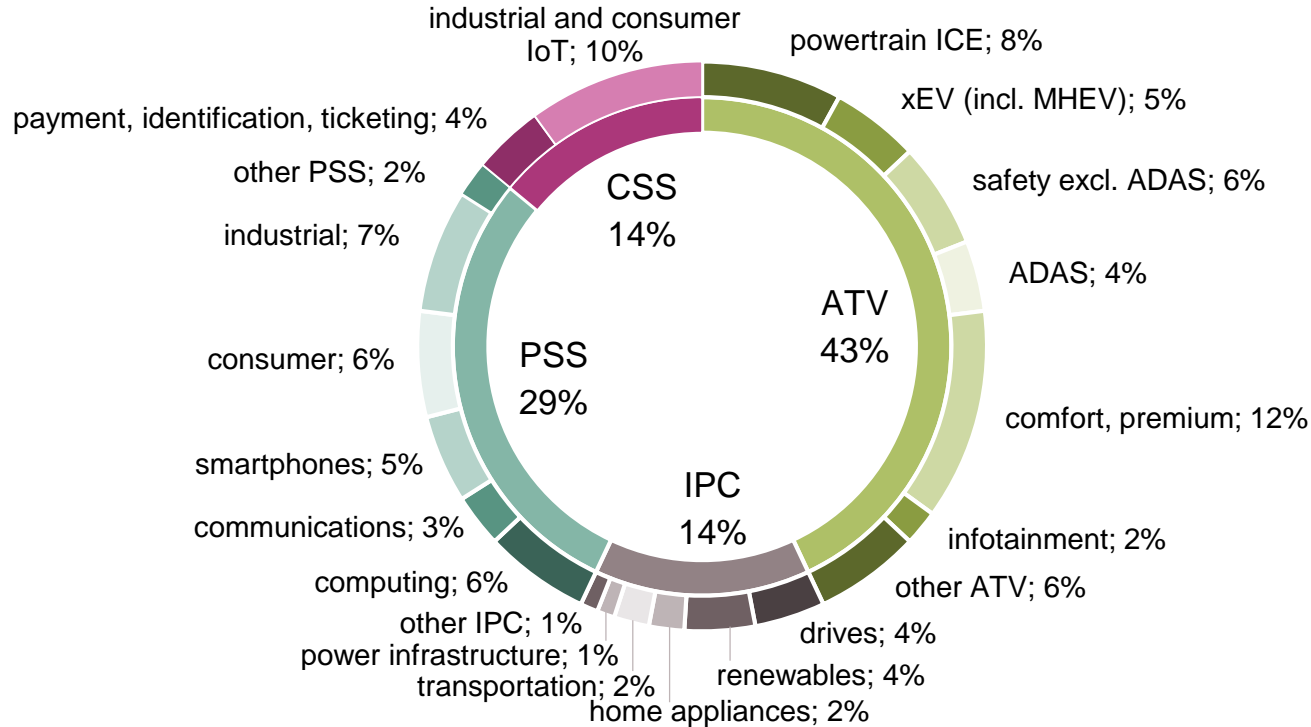
- ~5% memories for specific applications
  - ~10% RF & sensors
  - ~30% embedded control and connectivity
  - ~55% power semi-conductors
- of total revenue



# Illustrative aggregated FY20 revenue including contribution from Cypress of ~€1,900m from 1 Oct 2019 through 30 Sep 2020



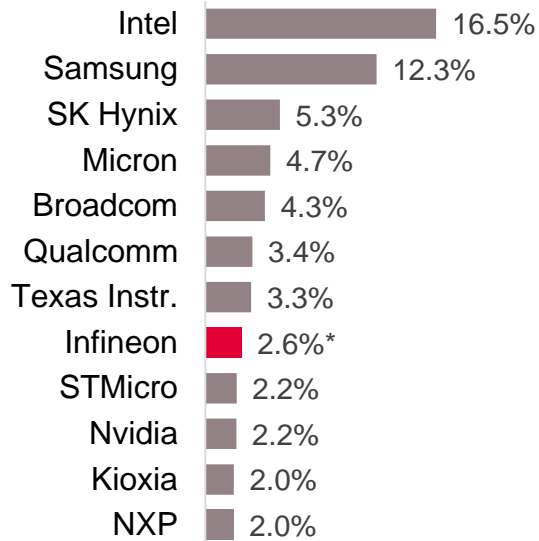
## Illustrative aggregated FY20 revenue of ~€9,600m by target application



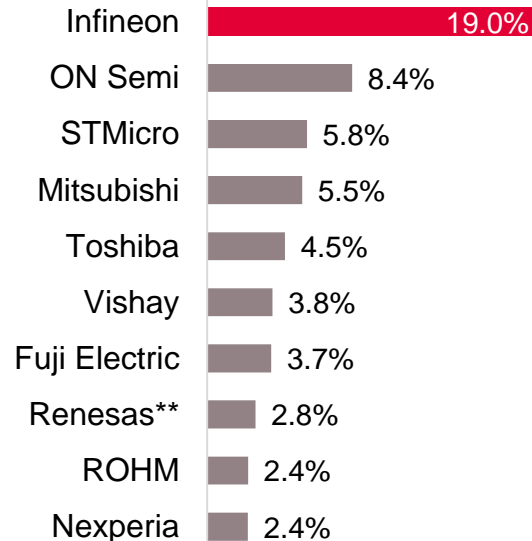
# Infineon is a global top-10 player, #1 in power semiconductors, and ranked #3 in the overall microcontroller market



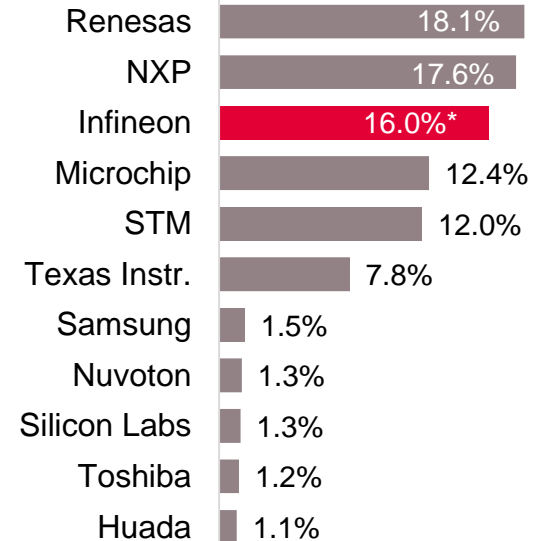
## Semiconductor suppliers 2019 total market: \$428bn<sup>1)</sup>



## Power discretives and modules 2019 total market: \$21.0bn<sup>2)</sup>



## MCU suppliers 2019 total market: \$17.5bn<sup>1)</sup>



\* including contribution from Cypress

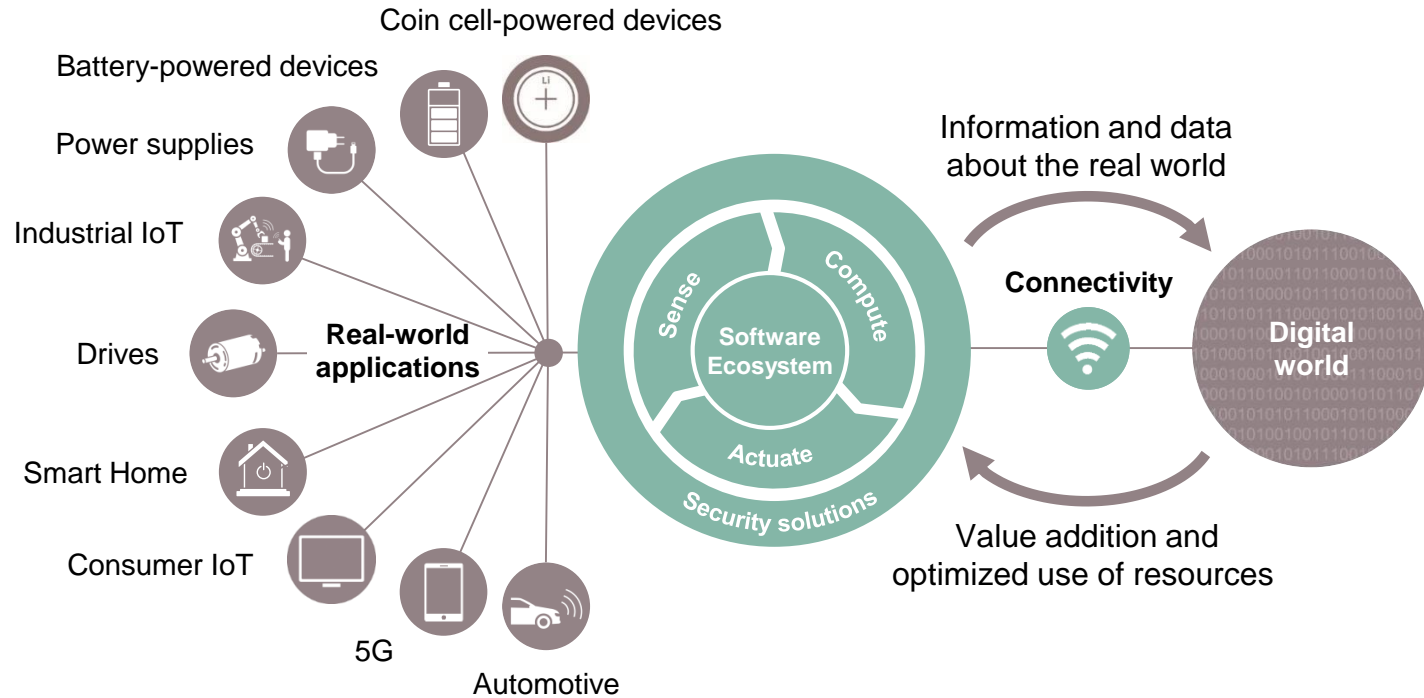
\*\* Renesas acquired Integrated Device Technology in March 2019. Both companies were combined as Renesas in the 2019 ranking.

1) Based on or includes research from Omdia: *Annual 2001-2019 Semiconductor Market Share Competitive Landscaping Tool – Q4 2019 v2*. March 2020

2) Based on or includes research from Omdia: *Power Semiconductor Market Share Database – 2020*. September 2020

Results are not an endorsement of Infineon Technologies AG. Any reliance on these results is at the third party's own risk.

# Infinion offers a unique portfolio that links the real and the digital world



Sense: sensors

Compute: microcontrollers, memories

Actuate: power semiconductors

Connectivity: Wi-Fi, Bluetooth, USB

# Outlook for Q2 FY21 and FY21

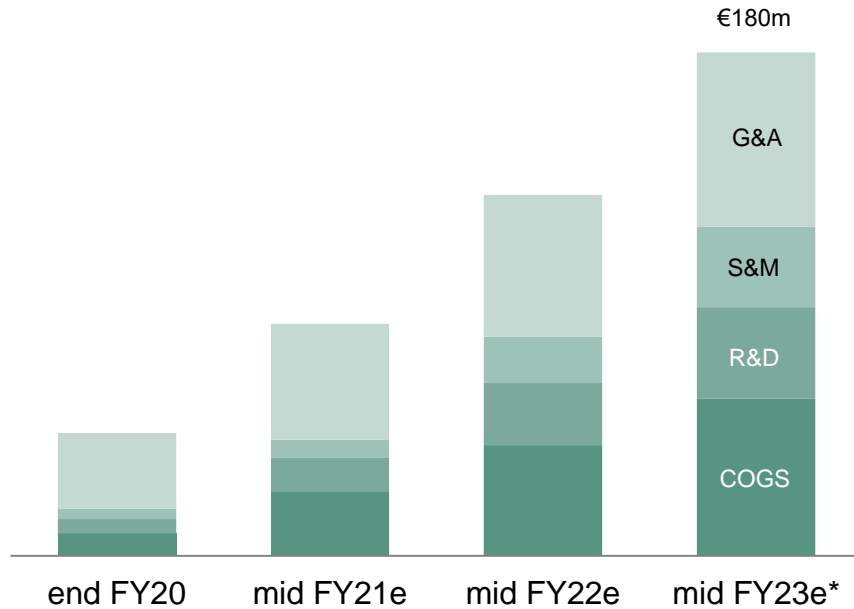
	Outlook Q2 FY21*	Outlook FY21*
Revenue	€2.5bn – €2.8bn	~ €10.8bn +/- 5% (prev.: ~ €10.5bn +/- 5%)
Segment Result Margin	At the mid-point of the revenue guidance: ~16.5%	At the mid-point of the revenue guidance: ~17.5% (prev.: ~16.5%)
Investments in FY21		~€1.6bn (prev.: €1.4bn – €1.5bn)
D&A in FY21		€1.5bn – €1.6bn**
Free cash flow in FY21		> €800m (prev.: > €700m)

\* Based on an assumed average exchange rate of \$1.20 for €1.00; previously \$1.15 for €1.00

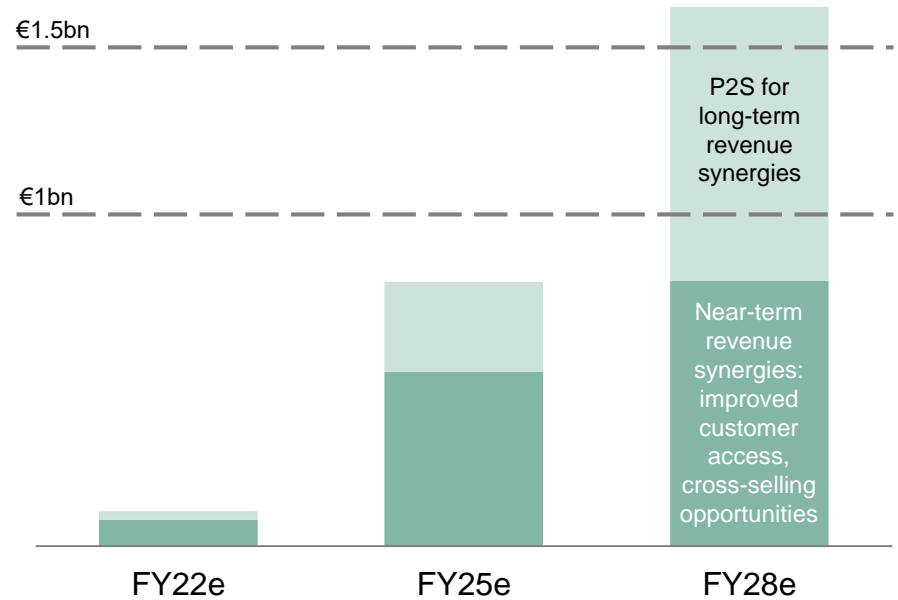
\*\* Including the effects of the purchase price allocation for Cypress and, to a lesser extent, International Rectifier

# Reaping of synergies on track

## Planned ramp-up of cost synergies






## Planned ramp-up of revenue synergies



Expected integration and restructuring costs equivalent to ~1x cost synergies one-off over time.

\* Expected cost synergies of €180m p.a. gradually ramping up over approximately three years after closing (16 April 2020).

# Infineon's through-cycle target operating model

		Target Operating Model
		Infineon financial performance to approach targets as Cypress integration progresses
Revenue growth		9%+
Segment Result Margin		19%
Investment-to-sales		13%



# Infineon XENSIV™ PAS CO<sub>2</sub> sensor enables highly-precise CO<sub>2</sub> measuring and will ramp-up for mass market in mid 2021

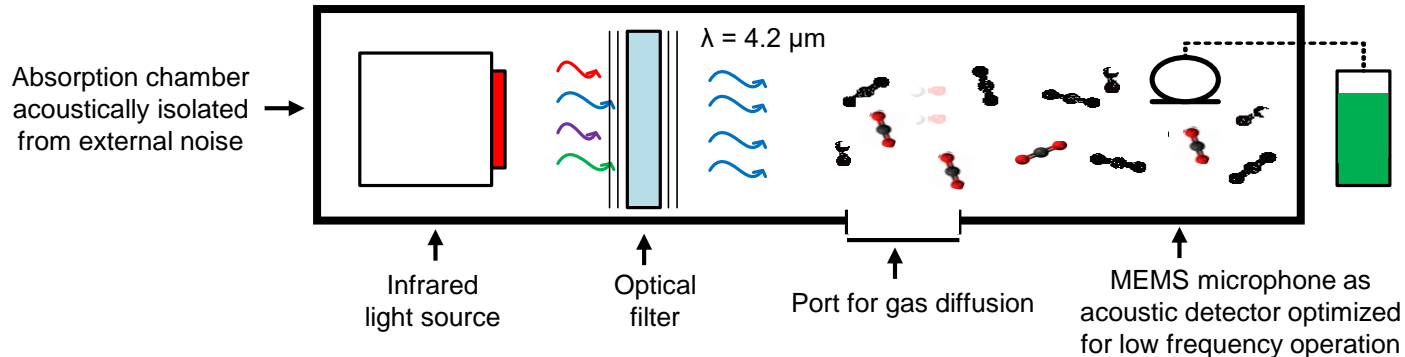


## Photoacoustic spectroscopy (PAS) technology based on Infineon's high-sensitivity MEMS microphone

- › Infineon XENSIV™ PAS CO<sub>2</sub> sensor enables highly-precise, cost-effective and space saving CO<sub>2</sub> measuring
- › The technology offers an exceptionally small form factor (14 mm x 13.8 mm x 7.5 mm) that is 4x smaller and 3x lighter (2 grams) than the typical NDIR (non-dispersive infrared) sensor, allowing for more than 75% space savings in customer systems
- › The SMD package ensures compatibility with high-volume manufacturing standards, enabling cost-effective, fast assembly and system integration
- › Advanced compensation and configuration algorithms enable a plug-&-play sensor and fast design-to-market



## All XENSIV™ PAS CO<sub>2</sub> sensor components are developed in-house, enabling full control of the system



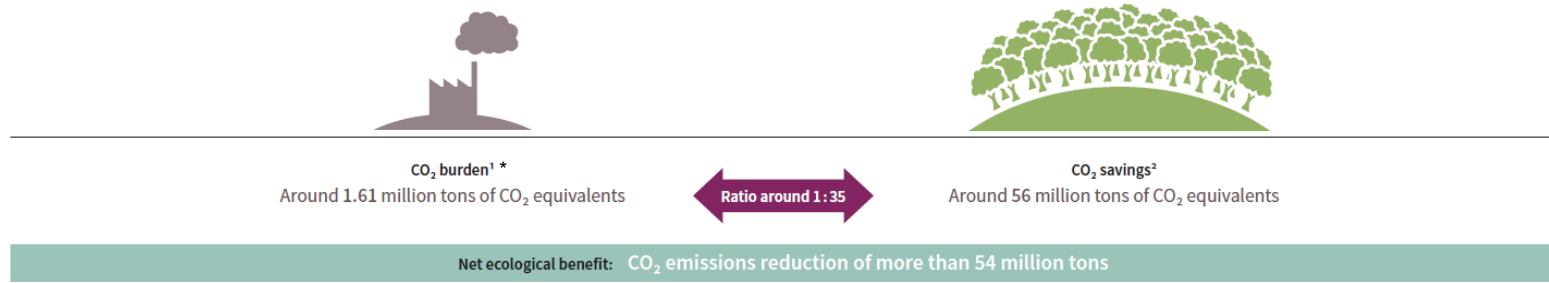


## ESG: targets and achievements



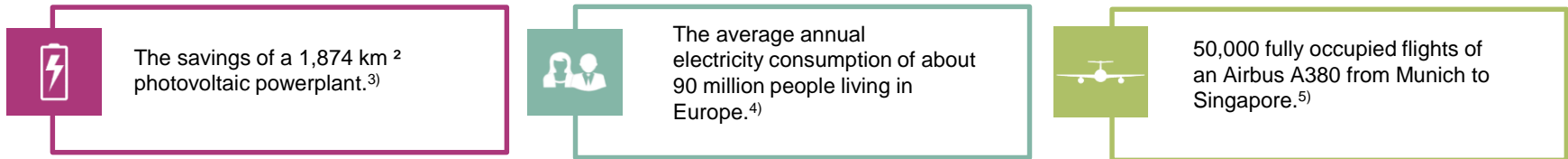
# Our products and innovations together with an efficient production are key elements to deal with climate change

## We contribute a CO<sub>2</sub> reduction of more than 54 million tons



\* The increase in the burden of CO<sub>2</sub> equivalents can mainly be explained by including manufacturing service providers for the first time into the calculation

## Our net ecologic CO<sub>2</sub> benefit is equal to...



For explanatory notes see appendix

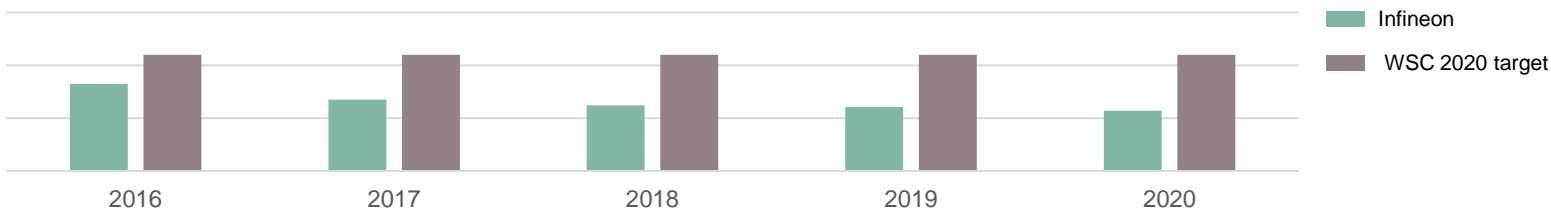
# Infineon will become carbon-neutral by 2030

## 70% CO<sub>2</sub> emissions reduction target in 2025 (Scope 1 and 2 emissions)

1. Avoiding direct emissions and further reducing energy consumption
2. Purchasing green electricity with guarantees of origin for unavoidable emissions
3. Compensate the smallest part by certificates that combine development support and CO<sub>2</sub> abatement

Abatement of Perfluorinated Compounds (PFC's)<sup>1)</sup> is one of the most important measures avoiding direct emissions.










## Normalized PFC emissions rate in tons of CO<sub>2</sub> equivalent per square meter wafer



Historically, Infineon's normalized emission rate has been below WSC 2020 target of 2.2 in tons of CO<sub>2</sub> per square wafer

<sup>1)</sup> Namely perfluorinated and polyfluorinated carbon compounds, sulfur hexafluoride (SF<sub>6</sub>) and nitrogen trifluoride (NF<sub>3</sub>)

# External recognitions confirm our engagement in contributing to a sustainable society

		Rating/Score	Scale	Date
	MSCI ESG	AA	CCC to AAA	02/2020
	CDP	B climate scoring B water scoring	F to A	12/2020
	Ecovadis	98 <sup>th</sup> percentile “Gold” award	0 to 100	11/2020
	Dow Jones Sustainability Index	81 Dow Jones Sustainability™ World and Europe Index listing	0 to 100	11/2020
	Ethibel Sustainability Index Excelece Europe”	Index member	-	05/2020
	ISS ESG Corporate Rating	B- Prime Status	D- to A+	01/2021
	FTSE4Good Index	Index member	-	07/2020
	Euronext Vigeo Eurozone 120 Index Euronext Vigeo Europe 120 Index	Indices member	-	06/2020
	Sustainalytics	77 “Outperformer” level	0 to 100	06/2020



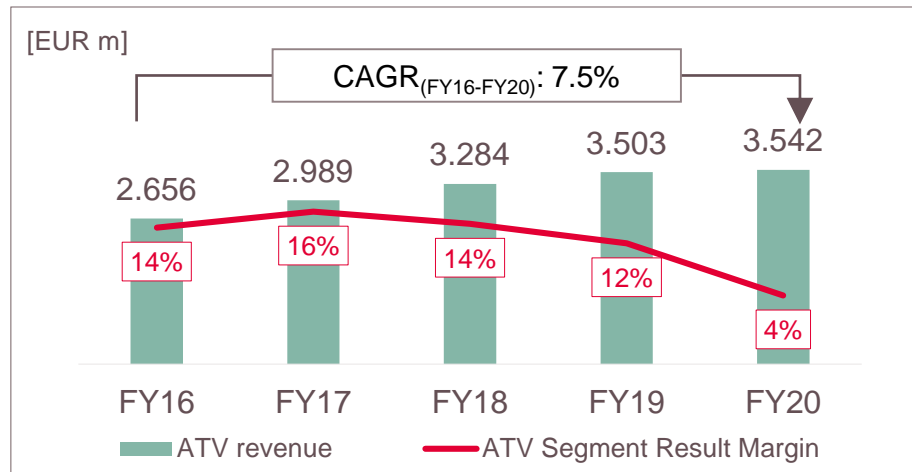


Automotive

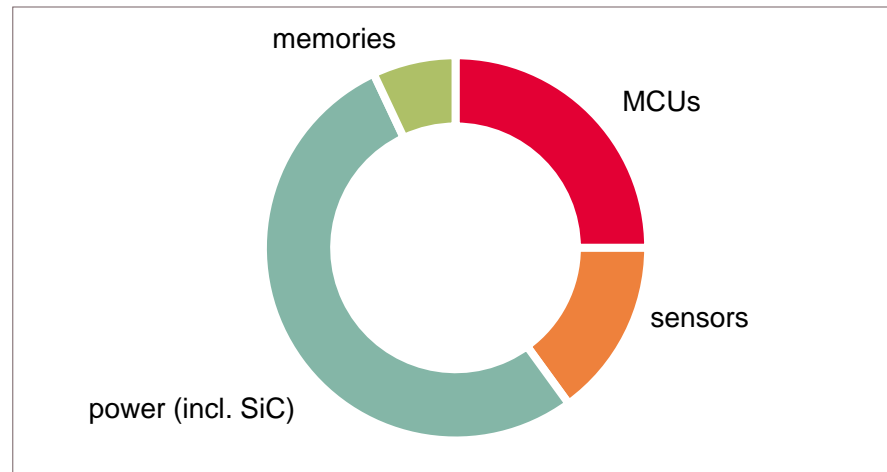


# ATV at a glance

## ATV revenue and Segment Result Margin



## FY20 revenue split by product group



## Key customers



# Market outlook for ATV division's target applications

## Applications

## Market Outlook for CY21



- › Y-Y recovery with unit growth at mid-teens %
- › Unit growth momentum could be limited near-term by shortage in semiconductors but could be compensated in H2 CY21; however, further upside is limited
- › Continued uncertainties related to market development mainly due to COVID-19 pandemic



- › Incentives and CO<sub>2</sub> regulations should keep demand high; especially in Europe
- › Improving consumer sentiment around sustainability theme
- › Steady investments in EV charging infrastructure further lowers reservation towards EVs



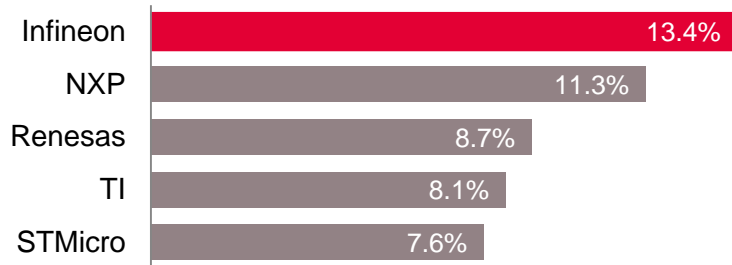
- › Further increase in L1 and L2 penetration expected
- › L2+ shipments still at the initial phase



# Infineon's top market position is built on system competence based on an industry-leading product portfolio

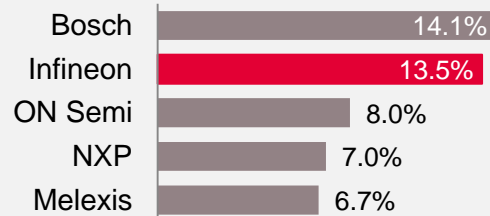


## Automotive semiconductors (2019 total market: \$37.2bn)

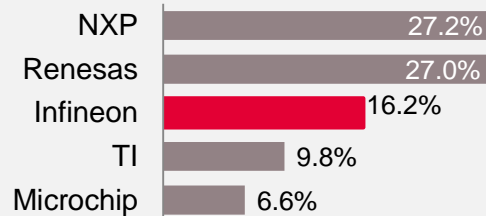


- › New #1 in the total market post acquisition of Cypress
- › Solid #1 in power despite xEV subsidies cut in China in H2 CY19
- › Undisputed #1 in automotive NOR Flash memory
- › Fostering #2 in sensors (from 10.4%<sub>CY12</sub> to 13.5%<sub>CY19</sub>)
- › Significant market share gain in microcontroller – both organically (strong demand for AURIX™) and via Cypress acquisition

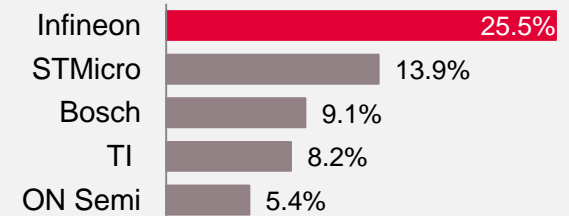
### Sensors



### Microcontrollers



### Power semiconductors



Source: Strategy Analytics: *Automotive Semiconductor Vendor Market Shares v2*. May 2020. The market shares shown here are the combined market shares of Infineon and Cypress based on their individual figures.



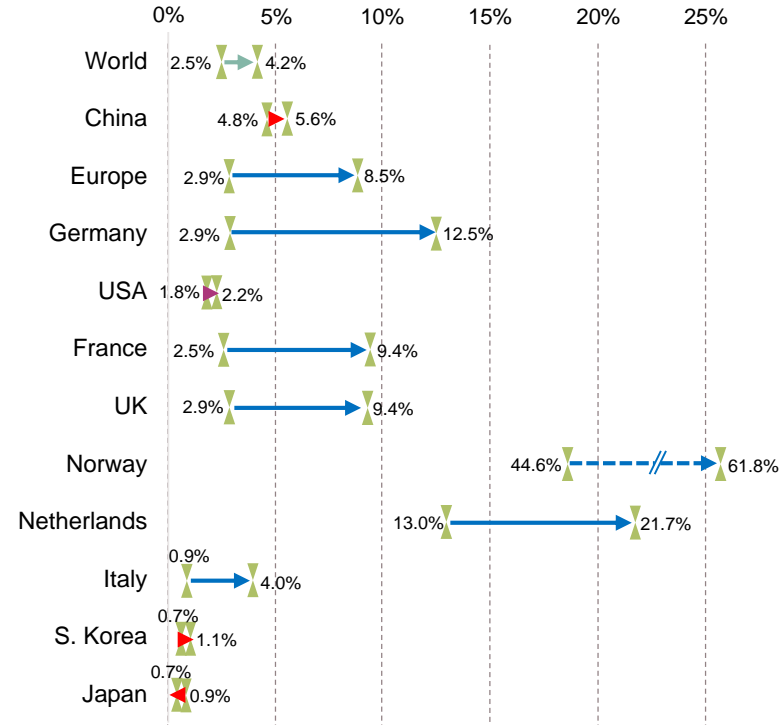
Electro-mobility



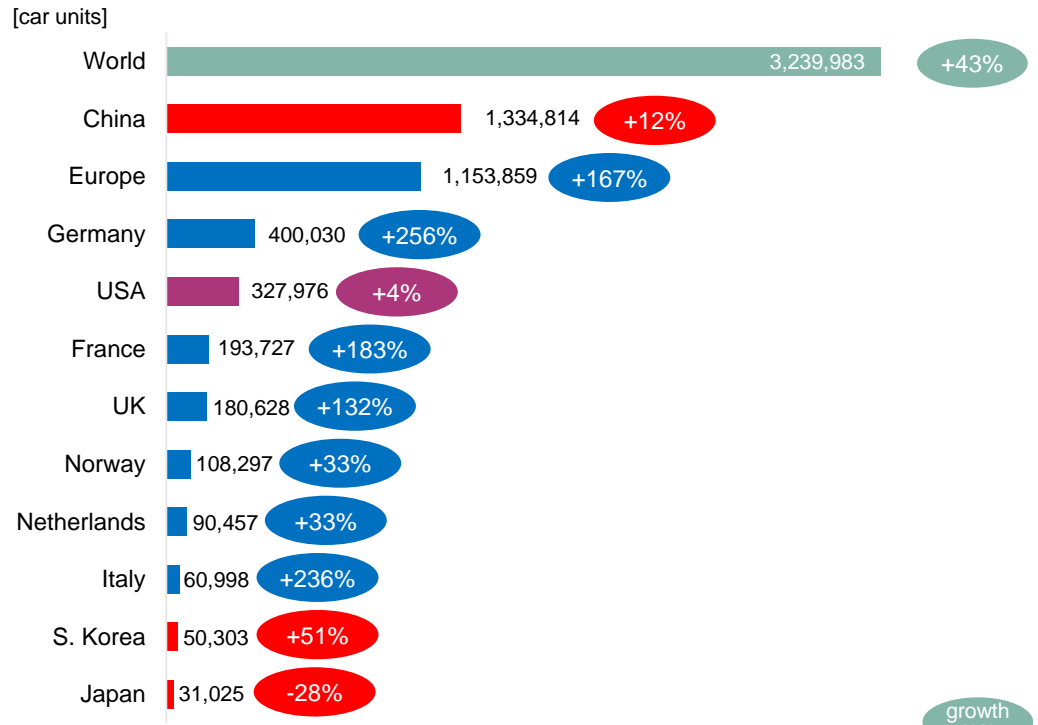
# Driven by triple-digit y-y growth in most countries, xEV penetration rate tripled from 2019 to 2020 – years earlier than prev. expected



## xEV penetration rate change from 2019 to 2020



## 2020 xEV sales



Source: EV Volume: BEV & PHEV Final December Sales. January 2021. IHS Markit: LV Sales Base Global. January 2021.

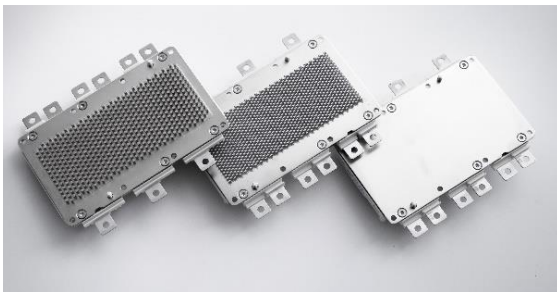
# Infineon provides leading-edge power module technology to top-selling Chinese NEV models



## Li Auto: LiXiang One



## Scalable Infineon HybridPACK™ Drive portfolio



## XPeng: P7



## Nio: ES8, ES6, EC6



- › > 20 BEV platforms in production with Infineon HybridPACK™ Drive
- › > 1m pieces shipped with an unparalleled quality performance
- › Available with Si and SiC chips
- › Scalable module portfolio meets cost-performance sweet spots between 120 kW and 250 kW
- › Optimized versions for 400 V and 800V battery voltage

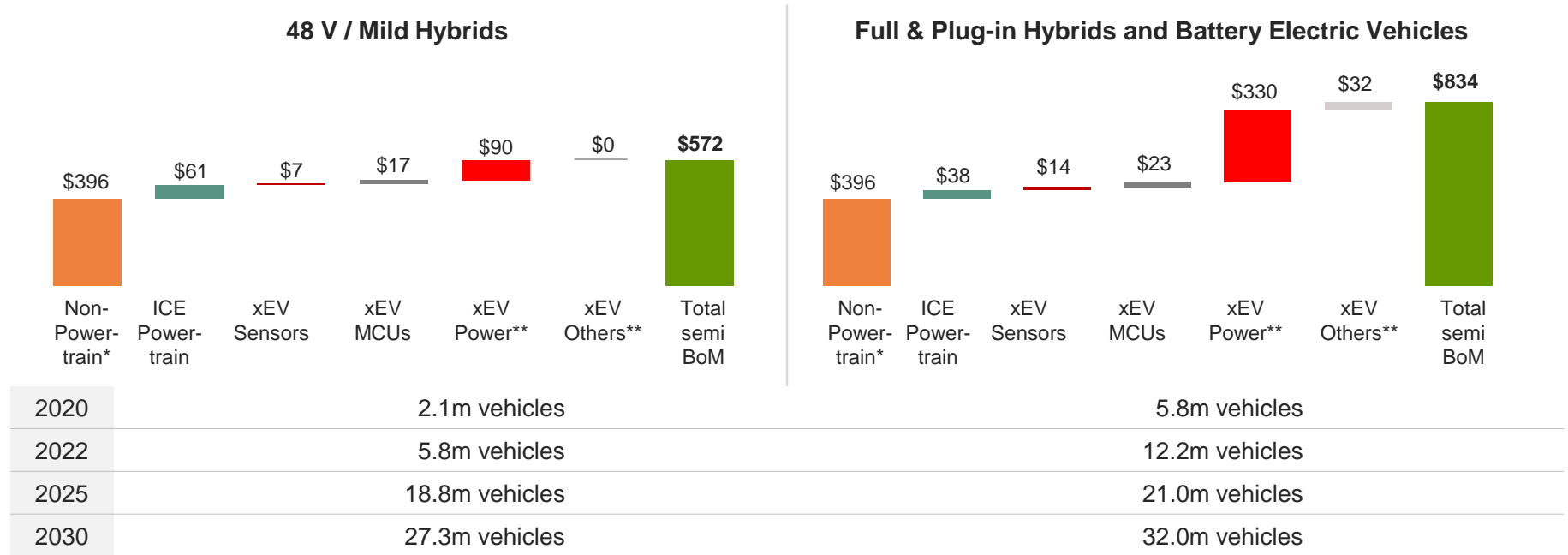
## Weltmeister: EX5



# The incremental content of power semiconductors in xEV is a significant opportunity for Infineon



## 2020 average xEV semiconductor content by degree of electrification



\* Non-Powertrain: average semiconductor content in body, chassis, safety and infotainment application segments

\*\* "power" includes voltage regulators and ASIC; "others" include opto, small signal discretes, memory

Source: Infineon; based on or includes content supplied by IHS Markit, Automotive Group: *Alternative Propulsion Forecast*. July 2020; Strategy Analytics: *Automotive Semiconductor Demand Forecast 2018-2027* and *Automotive Sensor Demand 2018-2027*. July 2020





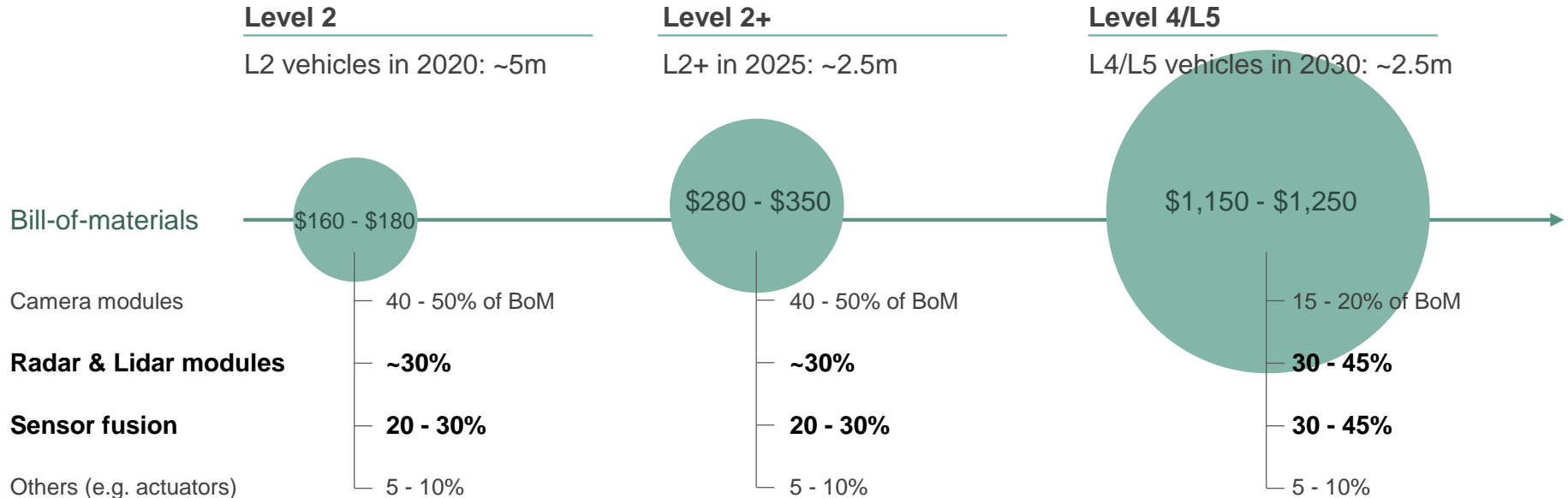
# Automated Driving



# Radar/Lidar modules and sensor fusion will grab the lion's share of semiconductor BoM in ADAS/AD-equipped cars



## Incremental average semiconductor content per car by level of automation at the given years

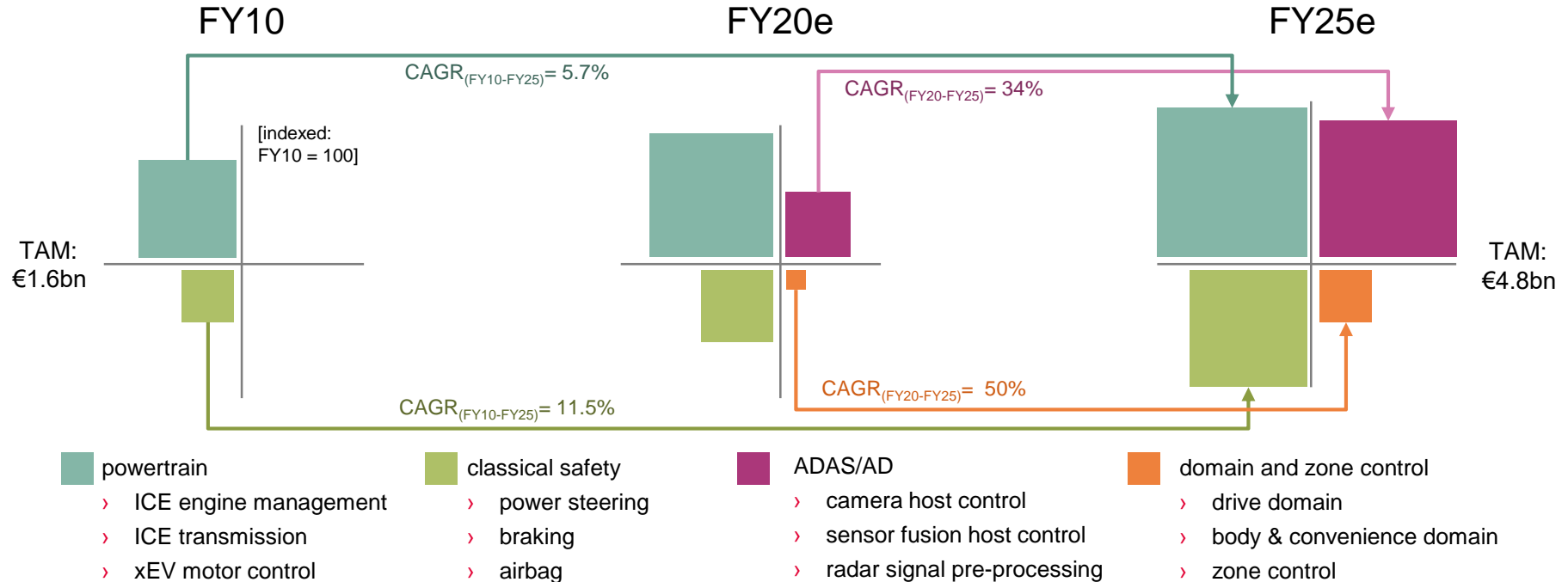


Source: Strategy Analytics: *Automated Driving Semiconductor Market Estimate*. August 2020; Infineon  
BoM contains all type of semiconductors (e.g. radar modules include  $\mu$ C); sensor fusion does not include memory.  
BoM are projected figures for the respective time frame.

# The Infineon AURIX™ $\mu$ C family has become the first-choice automotive architecture for high-growth and safety-critical applications



## Infineon AURIX™ revenue development over time



Source: Infineon; Strategy Analytics: *Automotive Semiconductor Demand Forecast*. February 2020. Covering Infineon target markets; excl. body, comfort, infotainment.



# Strong microcontroller footprint in next-generation high-volume platforms



## OEM platform #1:

- > 14 MCUs (+ NOR Flash + Wi-Fi)
- > start of production: end of CY20

Engine control module AURIX™ TC38x	Braking AURIX™ TC39x	AD fusion standard AURIX™ TC39x	Instrument cluster NOR Flash S26KS512
Drivetrain control module AURIX™ TC23x	Airbag AURIX™ TC23x	AD fusion high-end AURIX™ TC39x	Infotainment module 89359 (Wi-Fi / Bluetooth)
Transmission control module AURIX™ TC27x	Electric power steering AURIX™ TC27x	Central AD decision module AURIX™ TC39x	Central AD module NOR Flash S70FL01G S25FL512 S25FS512
Automatic gear shifter module AURIX™ TC23x	Automatic sway bar AURIX™ TC23x	Secure gateway module AURIX™ TC39x	
Electronic slip differential AURIX™ TC23x	Map driver assistance AURIX™ TC39x		

## OEM platform #2:

- > 20 MCUs
- > start of production: CY22

Engine management AURIX™ TC38x	Braking AURIX™ TC38x	AD fusion standard AURIX™ TC39x	Cluster TFT module FCR4 MB9DF125
Diesel engine management AURIX™ TC39x	Airbag AURIX™ TC37x	AD fusion high-end AURIX™ TC39x	8" rear-seat entertainment TrueTouch TMA78
Transmission control module AURIX™ TC38x	Electric power steering AURIX™ TC36x	Front camera AURIX™ TC37x	10" navigation module TrueTouch TMA1036
Inverter PHEV AURIX™ TC38x	Suspension CVC AURIX™ TC38x	Radar domain processing AURIX™ TC39x	Climate, gearshift MMI FR CY91xxx
Door module FR MB91520	Alarm system module FR MB91F520	Digital instrument cluster Traveo I S6J332	Head light module FR MB91F525

Infineon heritage

Cypress heritage

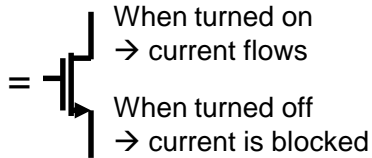


# Infineon's Power Strategy



# Infineon's portfolio covers the entire range of power and frequency

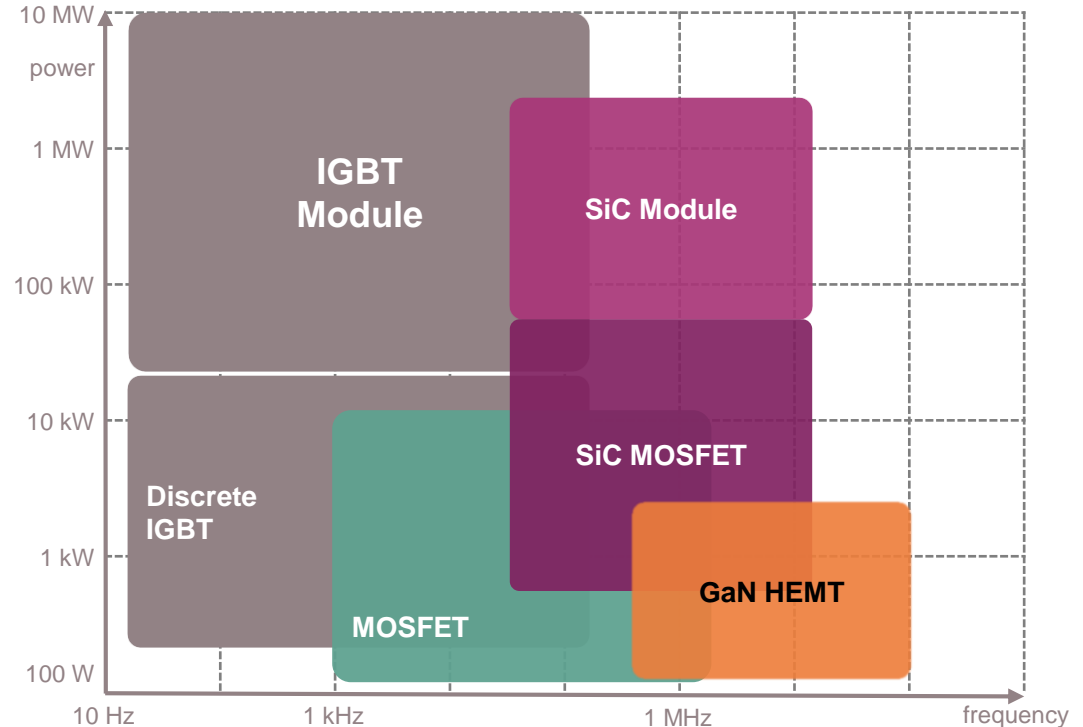
## What is a power switch?



### What counts?

- > Losses in on-state ( $R_{(DS)on}$ )
- > Heat dissipation
- > Max. switching frequency
- > Die size
- > Package size (form factor)

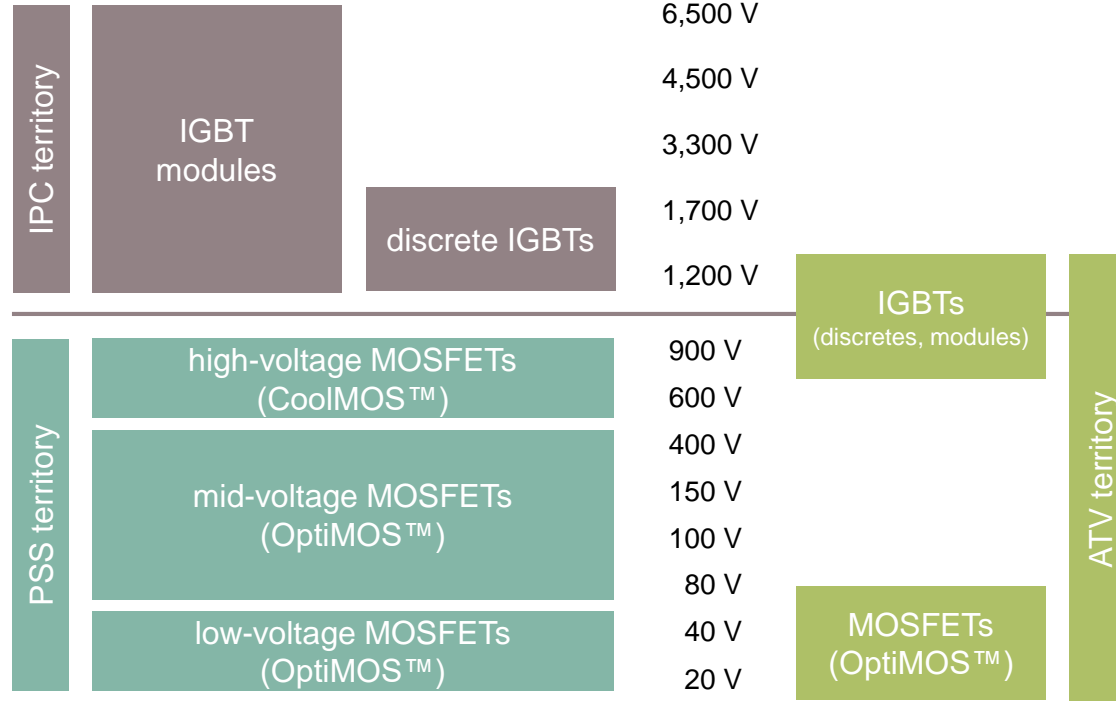
## How are power switches categorized?



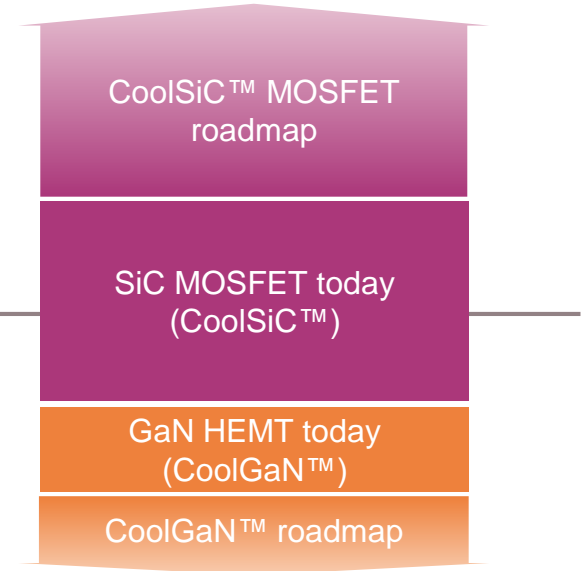
# Infiniteon's discrete power portfolio\* is basically separated by voltage classes



## Silicon-based power switches



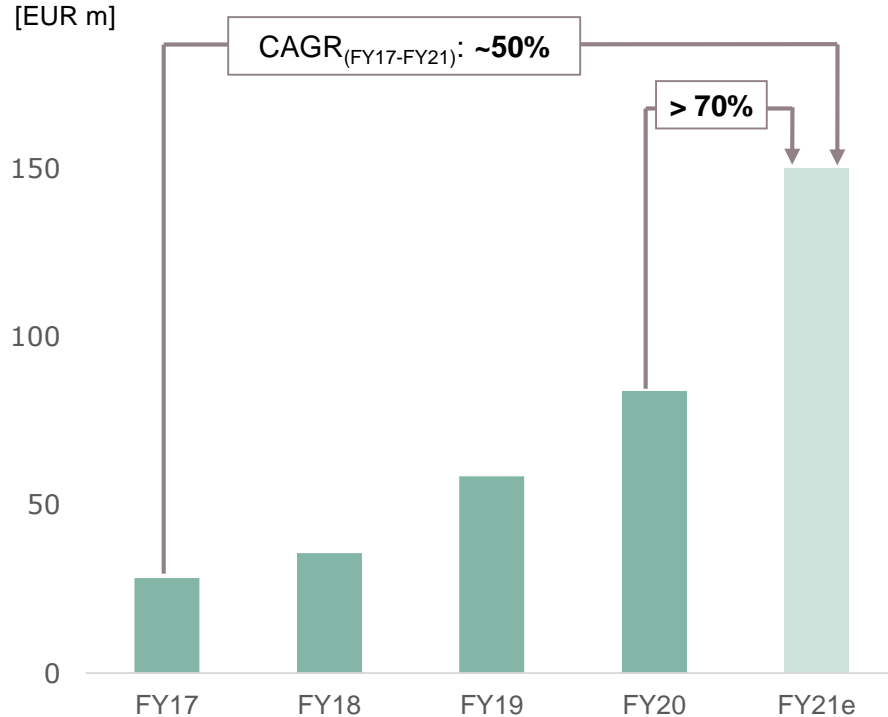
## Compound semiconductors



\* excluding drivers and control ICs

# SiC is switching gears: industrial still holds the biggest share, but about half of the incremental revenue contributed by automotive

## Industrial and automotive applications driving the growth



~150 different CoolSiC™ products

~60 different customers with more than €10k revenue

>2,500 total active customers including distribution

# Strong CoolSiC™ portfolio expansion: by packages and by voltages

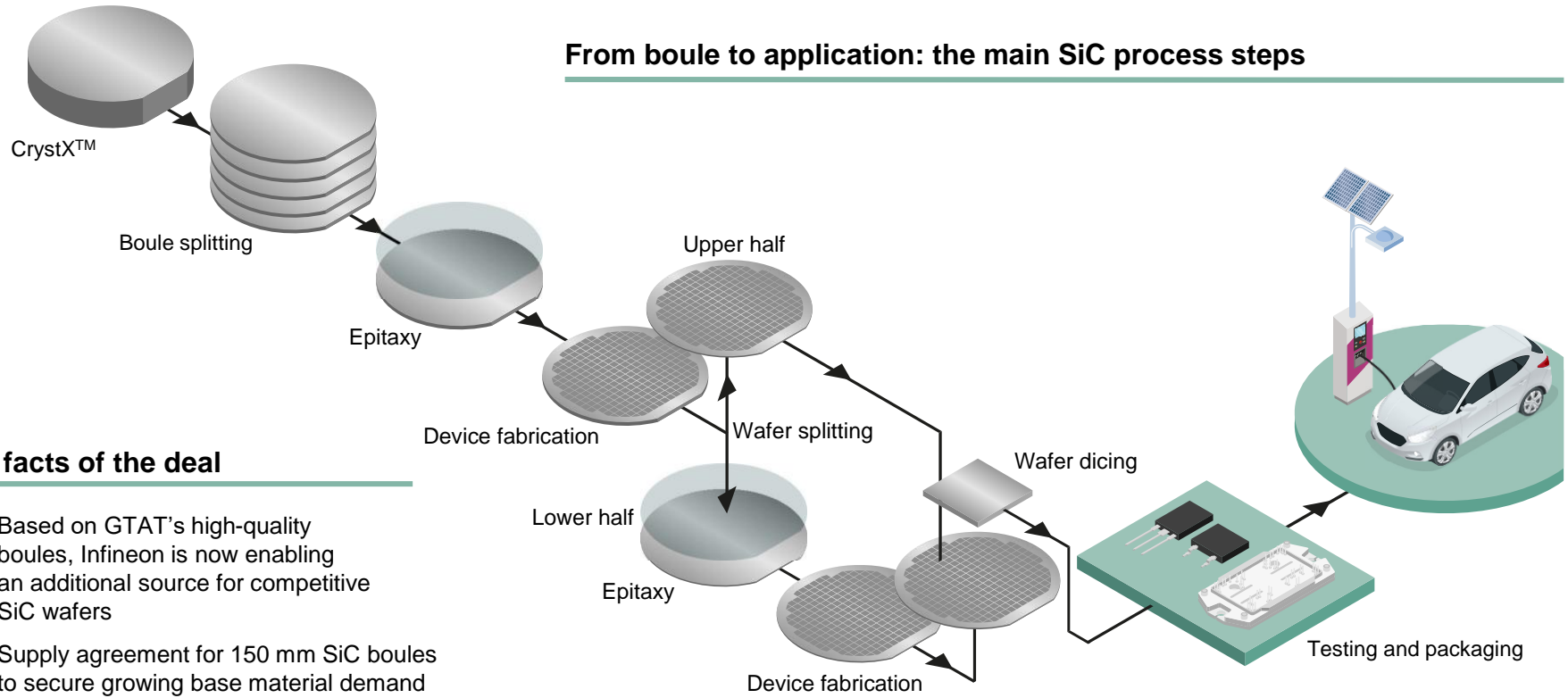


## Broadest and best-in-class SiC portfolio

		Industrial					Automotive grade				
package options	voltages	CoolSiC™ Diode	CoolSiC™ Hybrid		CoolSiC™ MOSFET			CoolSiC™ Diode	CoolSiC™ Hybrid	CoolSiC™ MOSFET	
		Discrete	Discrete	Module	Discrete	IPM	Module	Discrete	Discrete	Discrete	Module
	600 V										
	650 V								Expected in 2021		
	1200 V										Exp. in 2021
	1700 V										

Continuous expansion of portfolio

# Infinion expands supply base for SiC boules with GT Advanced Technologies



## Key facts of the deal

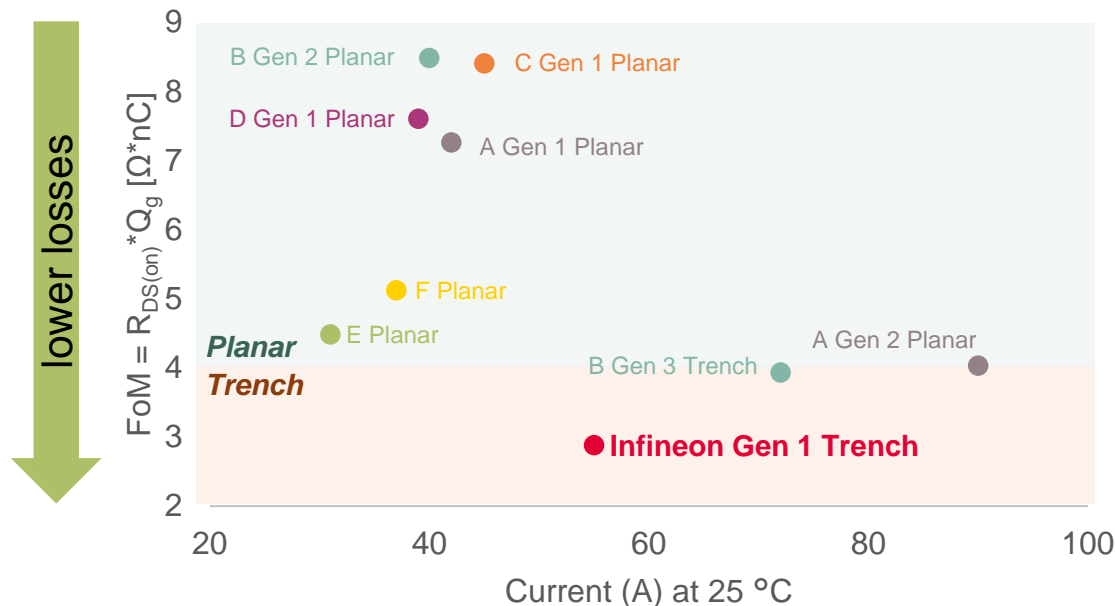
- > Based on GTAT's high-quality boules, Infineon is now enabling an additional source for competitive SiC wafers
- > Supply agreement for 150 mm SiC boules to secure growing base material demand
- > Contract has an initial term of five years

# Second generation (2<sup>nd</sup> Gen.) CoolSiC™ Trench MOSFET will increase the addressable market



## 1<sup>st</sup> Gen. with lowest losses is the leading technology today

## 2<sup>nd</sup> Gen. will expand the lead



- > 2<sup>nd</sup> Gen. CoolSiC™ Trench MOSFET is in advanced development phase
- > Enhanced power handling capability by 25% – 30%
- > Enhanced safe operating area without compromising quality
- > Enabling SiC in further high volume applications

**2<sup>nd</sup> Gen. CoolSiC™ Trench MOSFET will significantly enlarge the market size for SiC MOSFETs**

Source: SystemPlus Consulting: SiC Transistor Comparison 2020. November 2020



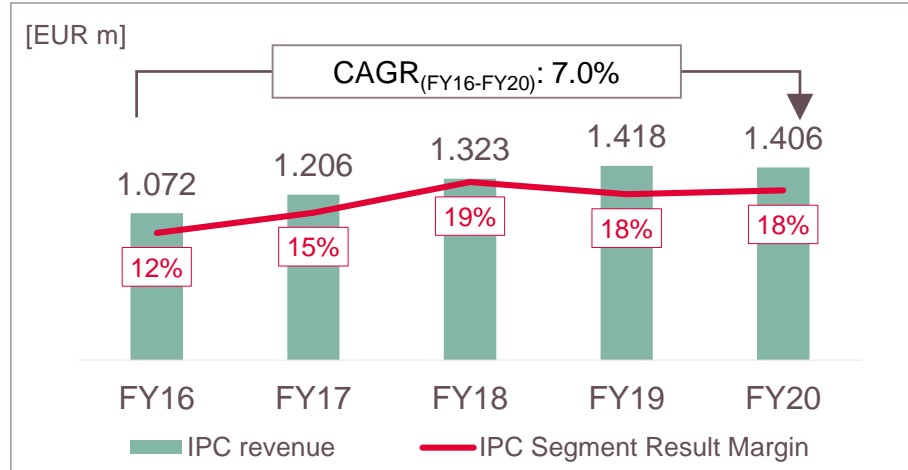


# Industrial Power Control

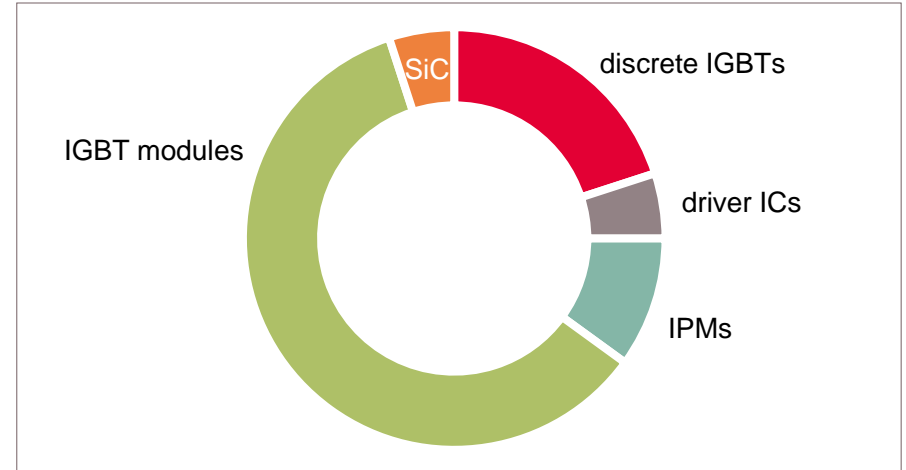


# IPC at a glance

## IPC revenue and Segment Result Margin















## FY20 revenue split by product group



## Key customers



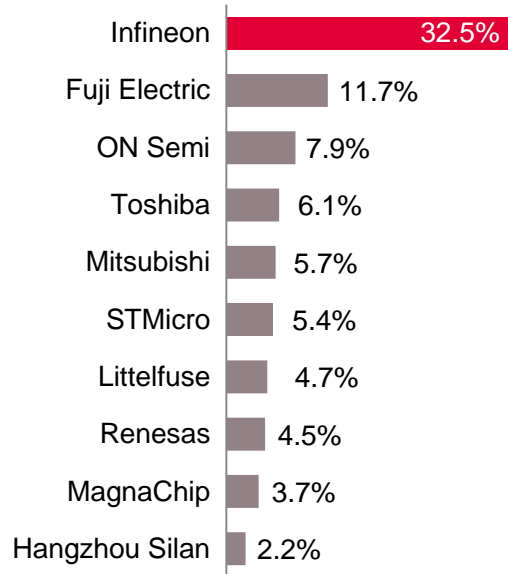
# Market outlook for IPC division's target applications

Applications (% of FY20 segment revenue)	Market Outlook for CY21	
 <p>Automation and Drives ~30%</p>		<ul style="list-style-type: none"> <li>› Industrial Drives expected to recover in low-single-digits with some upside potential from pent-up demand</li> </ul>
 <p>Renewables ~24%</p>		<ul style="list-style-type: none"> <li>› Wind: installations forecasted to increase to all-time-high</li> <li>› PV: installations to stabilize on high level</li> </ul>
 <p>Home appliance ~16%</p>		<ul style="list-style-type: none"> <li>› Catch-up of delayed purchases and energy efficiency incentive programs will drive growth</li> </ul>
 <p>Transportation ~13%</p>		<ul style="list-style-type: none"> <li>› Diminished COVID-related travel activities caused pushed-out of construction of passenger trains and e-Busses</li> </ul>
 <p>Power Infrastructure ~9%</p>		<ul style="list-style-type: none"> <li>› Growing demand in EV charging infrastructure, Industrial UPS and energy storage systems</li> <li>› Delays in Transmission &amp; Distribution projects</li> </ul>
 <p>Others 8%</p>		<ul style="list-style-type: none"> <li>› Growth driven by general market recovery</li> </ul>

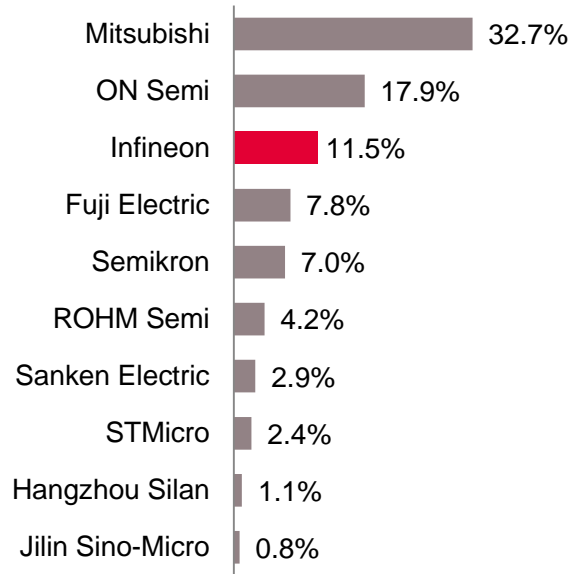
# Clear leader in discrete IGBTs and IGBT modules; fostering position in IPMs



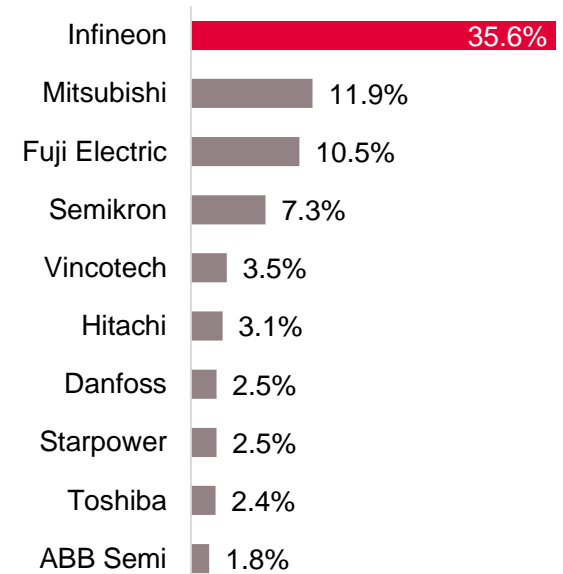
**Discrete IGBTs**  
2019 total market: \$1.44bn



**IPMs**  
2019 total market: \$1.59bn



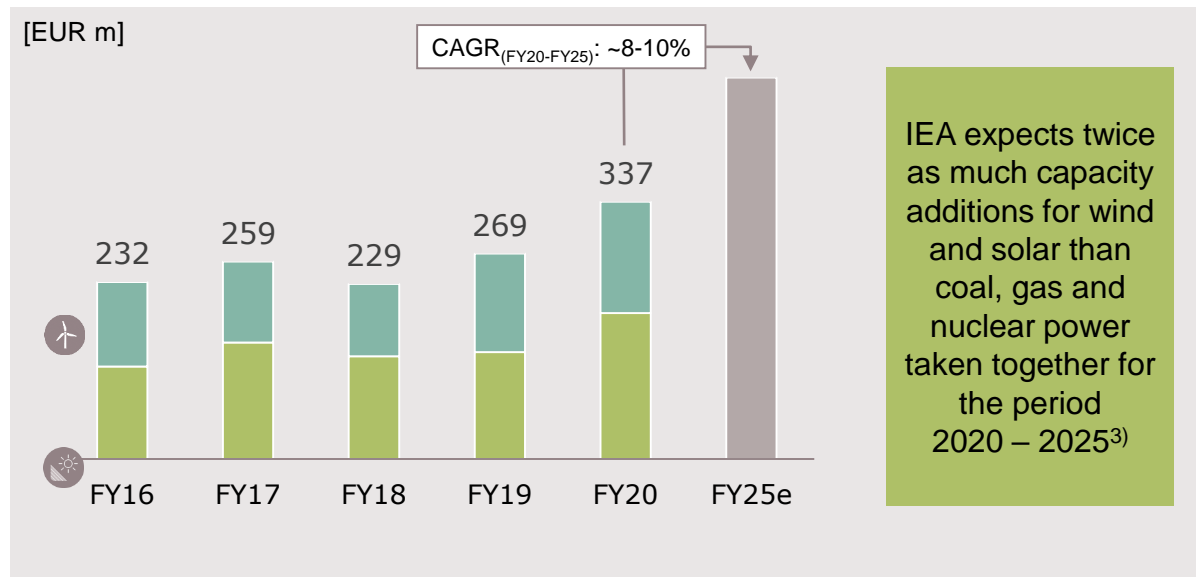
**IGBT modules<sup>1)</sup>**  
2019 total market: \$3.31bn



<sup>1)</sup> Including standard (non-integrated) IGBT modules and power integrated modules (PIMs) / converter inverter brake (CIB) modules  
Source: Based on or includes research from Omdia: *Power Semiconductor Market Share Database 2020*. September 2020

# Infineon serves all major players for PV inverters and wind turbines

## IPC revenue in renewables



## Infineon is powering all leading renewable energy players\*

PV inverter <sup>1)</sup>		Wind <sup>2)</sup>	
1   Huawei	✓	1   Vestas	✓
2   Sungrow	✓	2   SGRE	✓
3   SMA	✓	3   GE	✓
4   Power Electr.	✓	4   Goldwind	✓
5   Solar Edge	✓	5   Enercon	✓
6   ABB	✓	6   Nordex Group	✓
7   TMEIC	✓	7   Envision	✓
8   Sineng Electric	✓	8   Mingyang	✓
9   Growatt	✓	9   United Power	✓
10   Ginlong	✓	10   Suzlon	✓

\* Infineon is serving the top-10 of each category but not necessarily as a sole supplier.

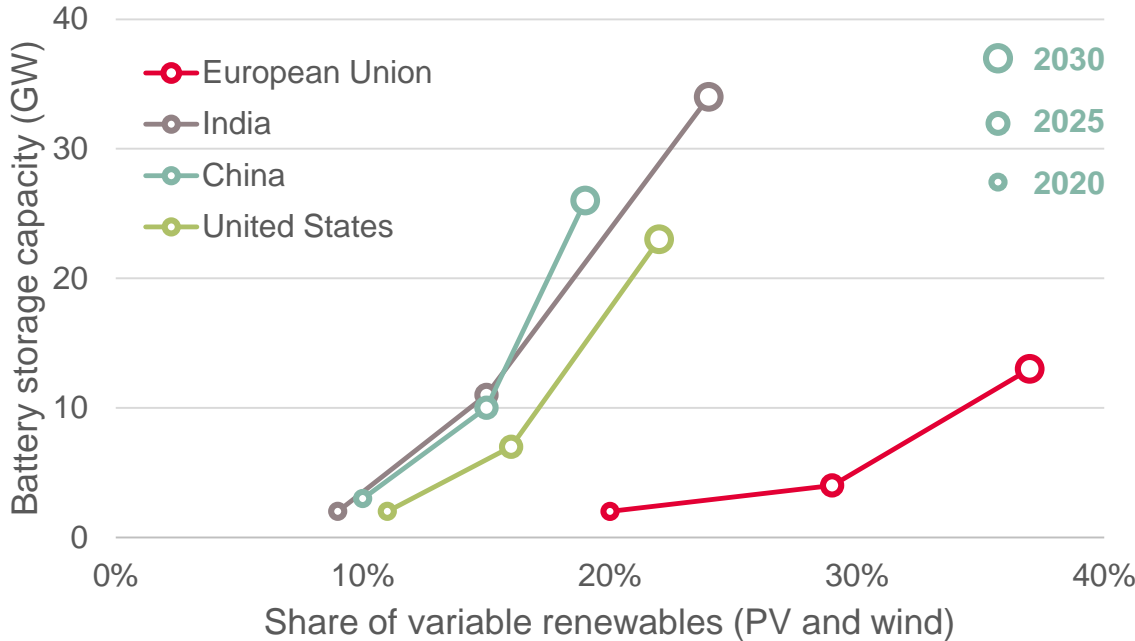
Source: 1) by shipped capacity in MW: based on or includes content supplied by IHS Markit, Technology Group: *PV Inverter Market Tracker – Q3 2020*. October 2020.

2) WoodmacKenzie: *Wind Turbine OEM Market Share*. November 2020.

3) International Energy Agency: *World Energy Outlook 2020*, p. 224.

# Energy storage is essential to further deploy decentral and renewable energy generation

## Battery storage capacity and share of variable renewables<sup>1)</sup>



## Key drivers

- > **Decentralization** of power generation
- > **Peak shaving** of energy generation and energy consumption
- > **Limited capacity** and flexibility of today's grids
- > **Reduction of standby cost** of fossil power plants

~€3,200 of power semiconductor content per MW of installed energy storage capacity<sup>2)</sup>

Source: 1) International Energy Agency: *World Energy Outlook 2020*, p. 248; variable renewables consist of solar and wind energy.  
2) Infineon estimate

# What comes next?

## Mid- to long-term structural growth opportunities

### Core



new material



EV charging



collaborative robots

### Adjacent



Courtesy:  
Shakti pumps

solar pumps



Courtesy: McKinsey

energy storage



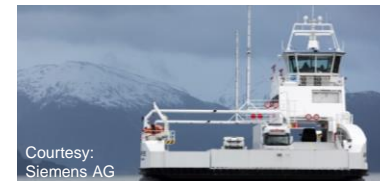
eDelivery vehicles

### New area



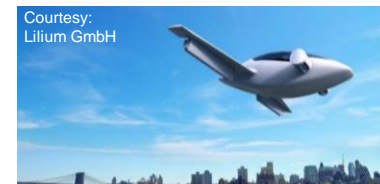
Courtesy: Alstom

fuel cell



Courtesy:  
Siemens AG

eMarine



Courtesy:  
Lilium GmbH

eAviation





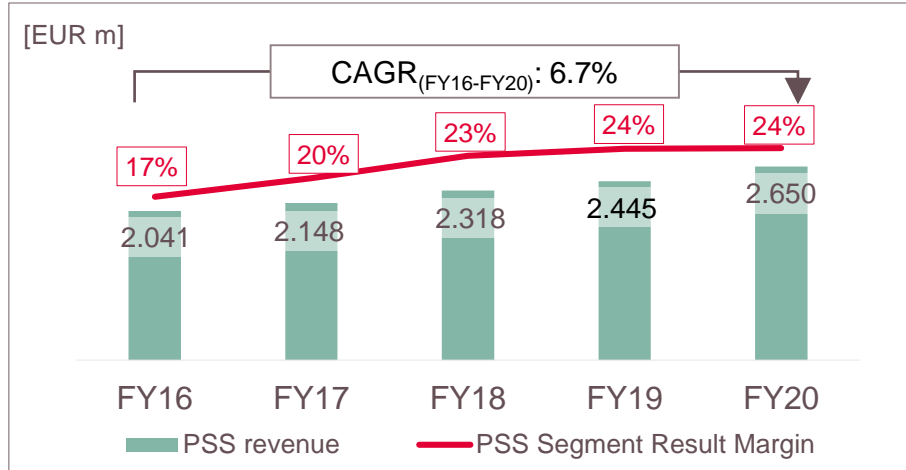
Power & Sensor Systems



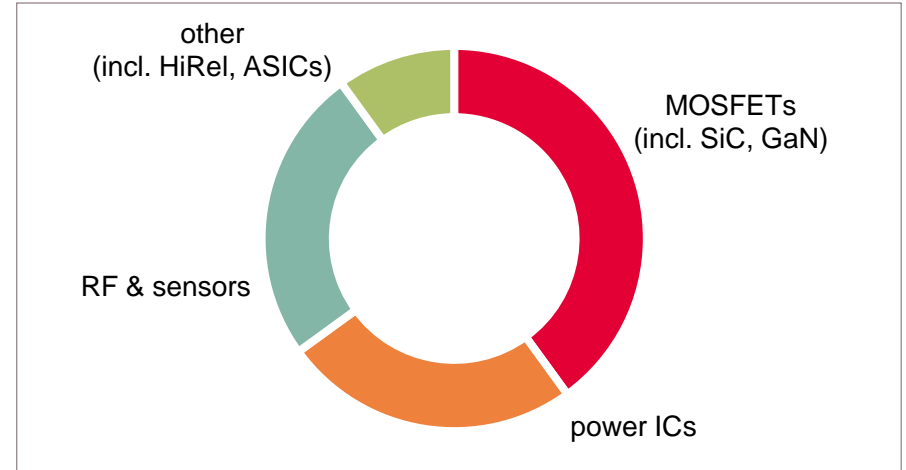


# PSS at a glance

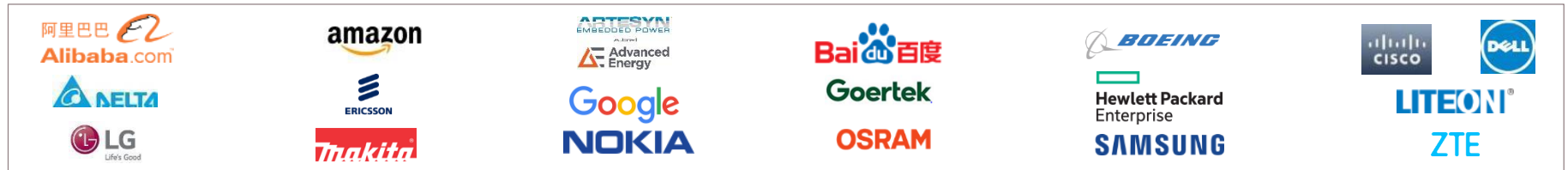
## PSS revenue and Segment Result Margin













## FY20 revenue split by product group



## Key customers



# Market outlook for PSS division's target applications

Applications (% of FY20 segment revenue)	Market Outlook for CY21	
 <p>Computing ~20%</p>		<ul style="list-style-type: none"> <li>&gt; Acceleration towards cloud computing to continue</li> <li>&gt; Pandemic-driven stay-at-home and WFH effects continue to favor notebook sales</li> </ul>
 <p>Communication ~9%</p>		<ul style="list-style-type: none"> <li>&gt; In general, long-term drivers due to 5G still intact</li> <li>&gt; However, trade tensions generate some uncertainty around speed of roll-out in China and other regions</li> </ul>
 <p>Smartphones ~19%</p>		<ul style="list-style-type: none"> <li>&gt; Strong rebound expected driven mainly by economic recovery and migration towards 5G phones</li> </ul>
 <p>Consumer ~20%</p>		<ul style="list-style-type: none"> <li>&gt; Catch-up of delayed purchases could lead to market pick-up</li> <li>&gt; However, new lock-downs could dampen consumer confidence</li> <li>&gt; Game consoles clear beneficiaries from stay-at-home</li> </ul>
 <p>Industrial ~23%</p>		<ul style="list-style-type: none"> <li>&gt; Automotive and other industrial segments show signs of recovery</li> <li>&gt; Battery-powered tools continue to show strong momentum</li> </ul>

\* does not sum up to 100% due to other applications not shown here

# PSS's growth is built on many applications from different sectors in power and non-power

## Computing



- › data center
- › enterprise server
- › PC, notebook
- › peripherals
- › chargers and adapters

## Communications



- › base stations
- › backhaul cellular infrastructure
- › 5G massive MIMO
- › telecommunication servers

## Smartphones



- › smartphones
- › mobile devices
- › wearables
- › USB Type-C, USB Type-C PD

## Consumer



- › eBikes, eScooter
- › multicopter
- › LSEV
- › gaming
- › TV sets
- › smart home

## Industrial



- › power supplies
- › EV on-board charger
- › charging infrastructure
- › PV inverter
- › power tools
- › lighting
- › Industry 4.0
- › space



PSS – Power

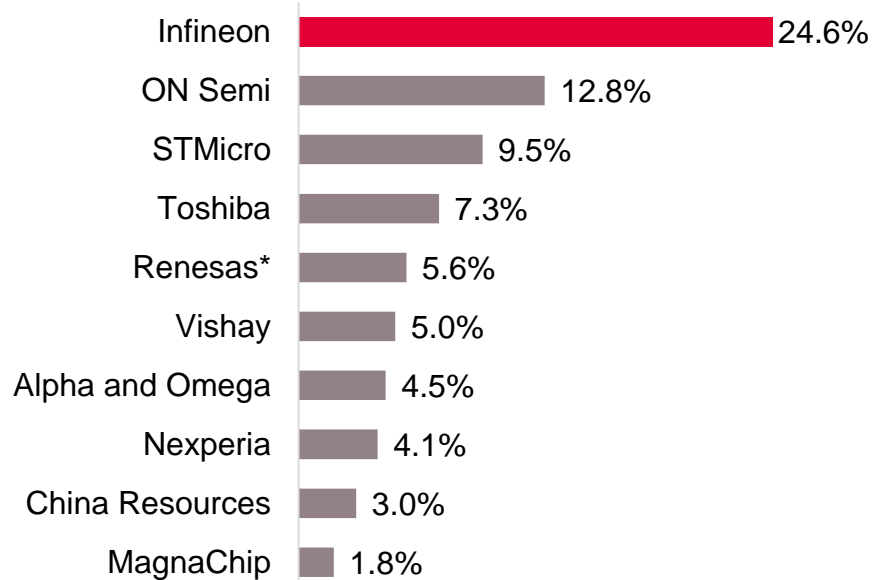


# Infineon is the clear leader in MOSFETs; growth potential in power ICs



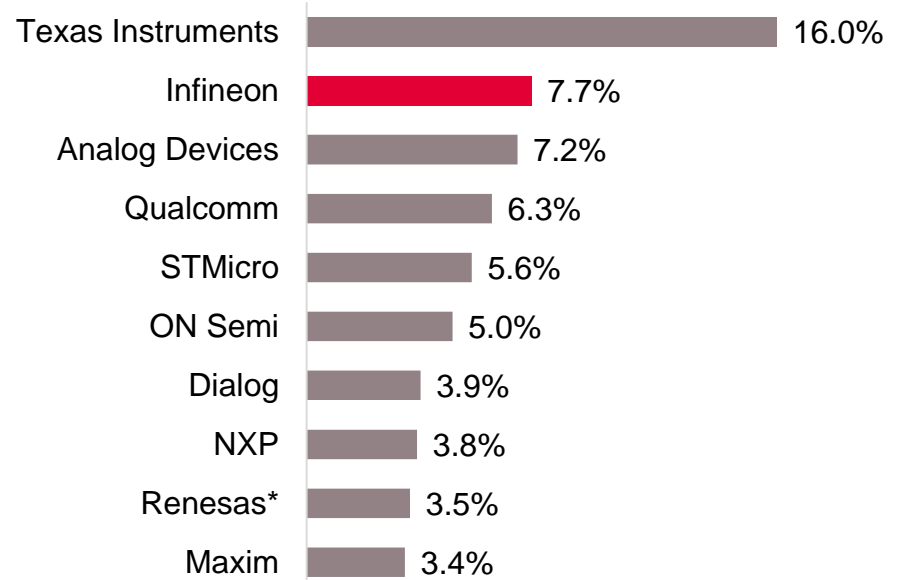
## Discrete Power MOSFETs

2019 total market: \$8.10bn



## Power ICs

2019 total market: \$24.4bn



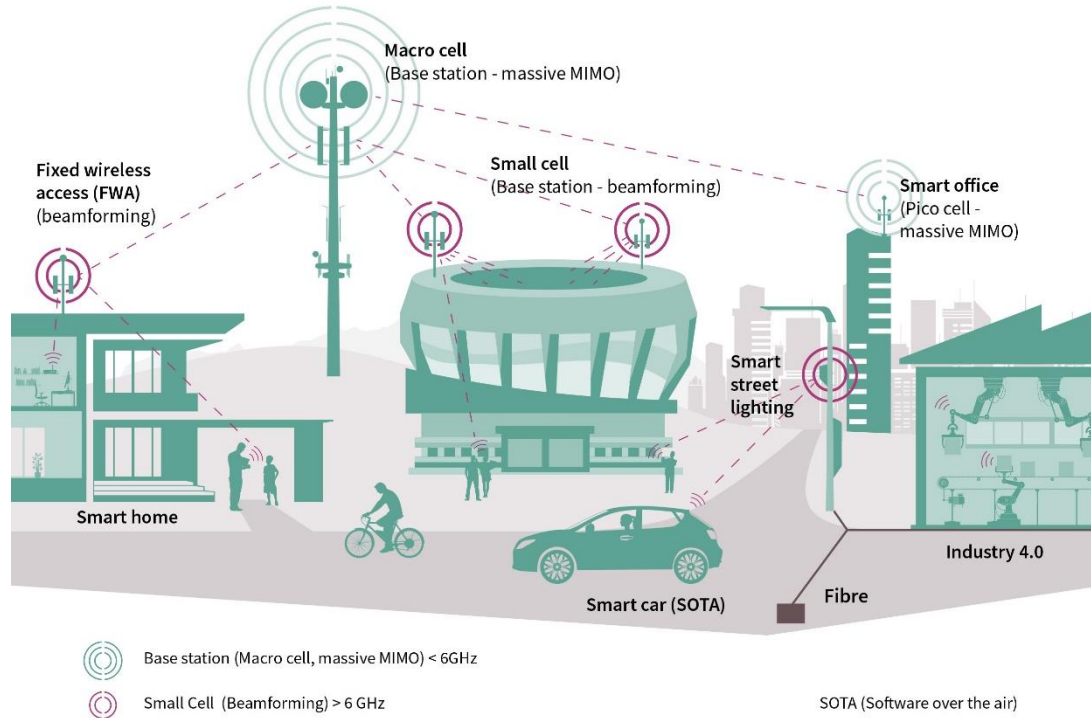
\* Renesas acquired Integrated Device Technology in March 2019. Both companies were combined as Renesas in 2019.

Discrete Power MOSFET market includes automotive MOSFETs, protected MOSFETs, SiC MOSFETs and GaN power transistors. Power IC market includes automotive power ICs.

Source: Based on or includes research from Omdia: *Power Semiconductor Market Share Database 2020*. September 2020.

# Transition from 3G/4G to 5G drives demand in power semis for antennas and power supplies

Smart and connected - the communication of tomorrow with 5G

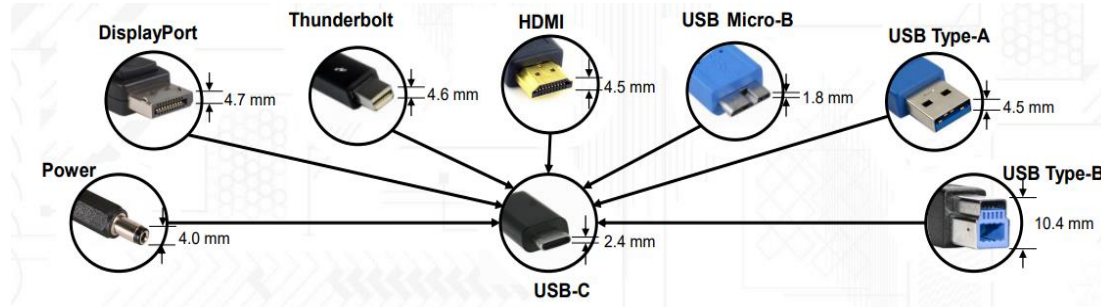


- **driver #1:** massive growth of data and computing power
- **driver #2:** higher number of base stations due to dense network
- **driver #3:** ~4x higher power semi content per radio board: from ~\$25 for MIMO antenna to ~\$100 for massive MIMO antenna array
- **driver #4:** fog computing data center as a completely new market



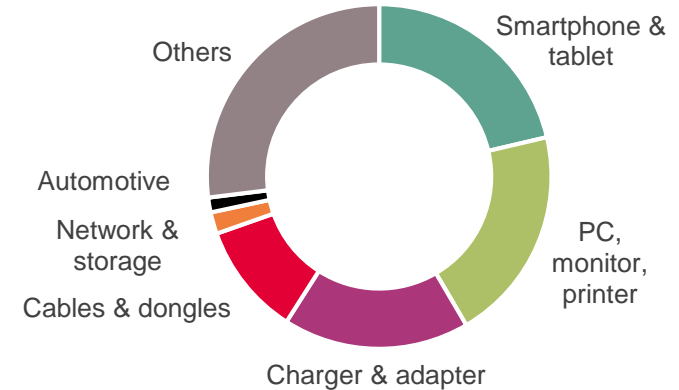
# Infineon is well positioned to benefit from the conversion to the de-facto standard USB Type-C

## USB Type-C becomes de-facto interface form factor



## Infineon USB business split by appl.

[FY20]

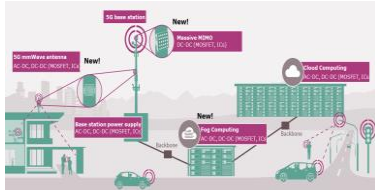


- › Infineon USB business dominated by USB Type-C and USB Type-C PD
- › USB Type-C PD in automotive is a nascent segment with good growth opportunities
- › USB Type-C PD offers revenue synergies for Infineon in AC-DC chargers and adapters

# What comes next?

## Mid- to long-term structural growth opportunities

### Core



5G infrastructure



hyperscale AI data center



new material

### Adjacent



smart building



wireless charging



on-board charger

### New area



smart speaker



health & lifestyle





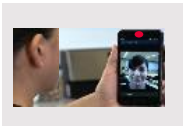
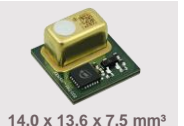
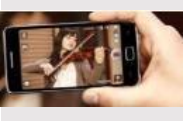
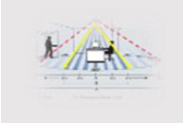


environmental sensor solutions



## PSS – RF and Sensing



# Main applications addressed by PSS sensors portfolio

MEMS microphone	3D radar (24/60 GHz)	3D ToF image sensor	Environmental
 <p>Best audio performance</p>	 <p>Ultra-low power consumption</p>	 <p>Best price / performance</p>	 <p>High precision and small form factor</p> <p>14.0 x 13.6 x 7.5 mm<sup>3</sup></p>
 <p>Low power consumption</p>	 <p>Presence detection</p>	 <p>VR/AR, biometrics</p>	 <p>Measure CO<sub>2</sub></p>

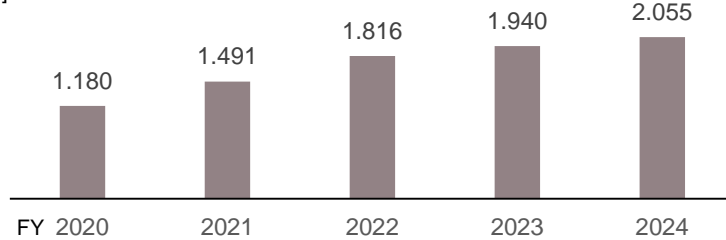
## Main applications

<ul style="list-style-type: none"> <li>&gt; Smartphone</li> <li>&gt; True wireless stereo headsets and earbuds</li> <li>&gt; Smart speaker</li> <li>&gt; Tablet</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Automotive</li> <li>&gt; Smart home</li> <li>&gt; TV</li> <li>&gt; Security camera</li> <li>&gt; Smart building</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Smartphone: world-facing and user-facing</li> <li>&gt; Robotics</li> <li>&gt; Automotive in-cabin sensing</li> <li>&gt; Payment terminals</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Heating, ventilation, air conditioning (HVAC)</li> <li>&gt; Air purifier</li> <li>&gt; Smart thermostat</li> <li>&gt; CO<sub>2</sub>/virus detection</li> </ul>
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# Sensor markets targeted by PSS

## MEMS microphone market

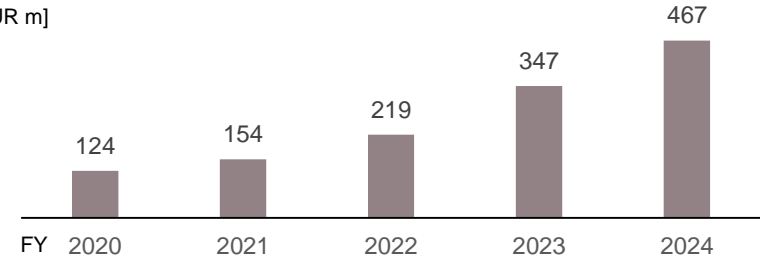
[US\$ m]



Source: Infineon estimates

## Radar IC market (24 GHz and 60 GHz only)

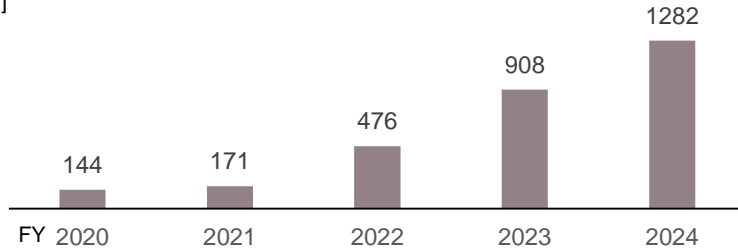
[EUR m]



Source: Infineon estimates

## 3D ToF image sensor market

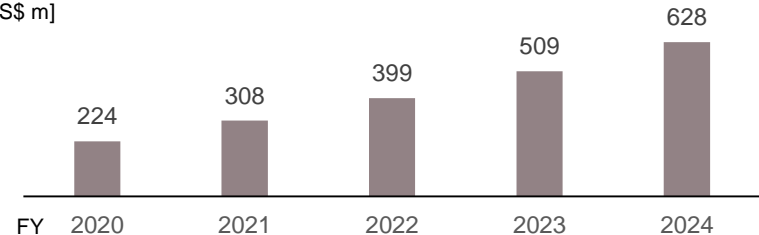
[EUR m]



Source: Infineon estimates

## Environmental sensor market\*

[US\$ m]



\* Infineon is addressing smart building, smart home, smart appliances, consumer IoT devices and automotive.

Source: Infineon estimates

# Different market dynamics of selected PSS sensors

## MEMS microphone

- › New headset features like active noise cancellation or transparent hearing require 4 to 9 microphones. Traditional wired headsets had only one microphone.
- › Global smartphone MEMS microphone market rebounded in Q3 CY20. Upward track expected to maintain in coming quarters.

## 3D ToF image sensor

- › 3D ToF image sensor enables newest generation of vacuum cleaning robots like Xiaomi Mijia 1T smart vacuum cleaner with “smart eyes” capabilities to accurately realize and avoid obstacles in all three dimensions.

## Radar ICs (24 GHz and 60 GHz only)

- › Home appliance will drive 60 GHz radar growth in the consumer market (thermostats, speakers a.o.)
- › 60 GHz radar successfully launched as replacement for passive-infrared approach getting traction in the market
- › New applications like In-cabin-monitoring systems and smart trunk opener will fuel strong growth in auto segment

## Environmental sensors

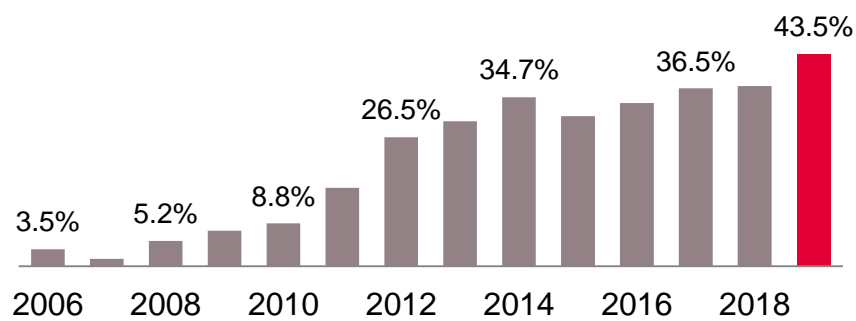
- › Market entry in CO<sub>2</sub> sensor market with first revenues expected in FY21.
- › XENSIV™ PAS CO<sub>2</sub> sensors support reducing the risk of virus transmission by enabling better and clean indoor air quality.



# Sweeping success of our XENSIV™ MEMS microphones driven by unparalleled audio characteristics catapulted Infineon to new #1

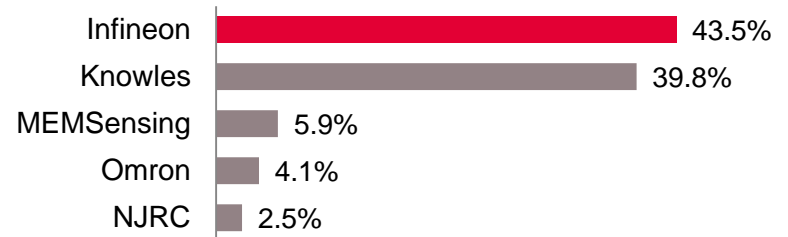


## Infineon's market share development in MEMS microphones (by units)



### 2019 MEMS die market share

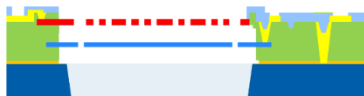
total market: 5.4bn units



Based on or includes research from Omdia: *MEMS Microphones Dice Market Shares 2020*. October 2020

## Technological progression of Infineon XENSIV™ MEMS microphones

1 Single-back plate



SNR = 62 – 65 dB(A)

2 Dual-back plate



SNR = 65 – 69 dB(A)

2014

3 Sealed dual-membrane



SNR = 68 – 75 dB(A)

2019

# New 3D ToF image sensor with improved long range to be launched in Q3 FY21

- › Enables functionalities like real-time augmented reality, long range scanning, small object reconstruction, fast low-power autofocus and picture segmentation.
- › Serves applications like gaming, virtual e-Commerce, 3D online education, facial recognition.

## Characteristics:

- › Long range up to 10 meters
- › High resolution up to 40k depth points
- › Lowest power, reduction of 40% at the imager
- › Accurate and robust depth data under all light conditions
- › Smallest 3D camera; 35% smaller footprint
- › Lowest system BoM due to high integrated CMOS image sensor and Infineon VCSEL driver component

## Adaptive resolution depending on distance



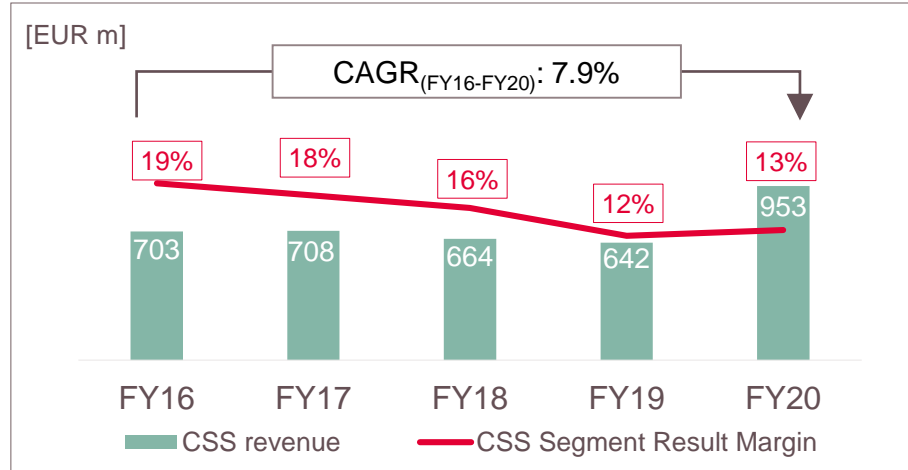


Connected Secure Systems

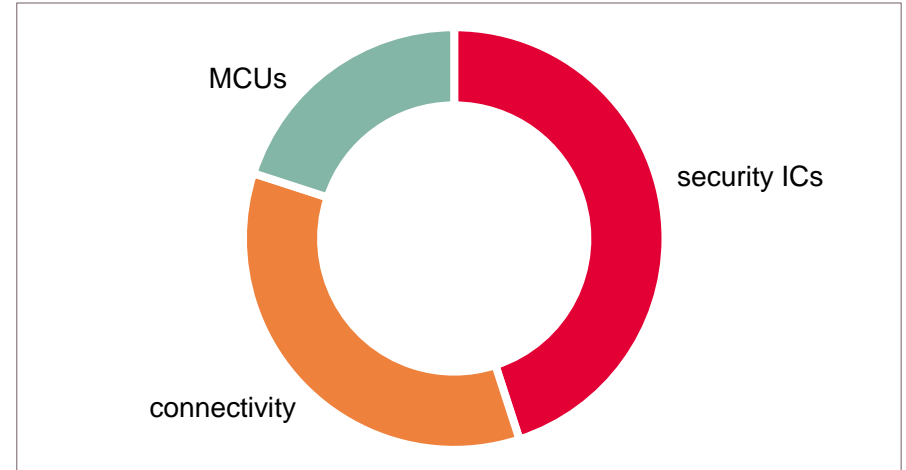


# CSS at a glance

## CSS revenue and Segment Result Margin


















## FY20 revenue split by product group



## Key customers



# Market outlook for CSS division's target applications

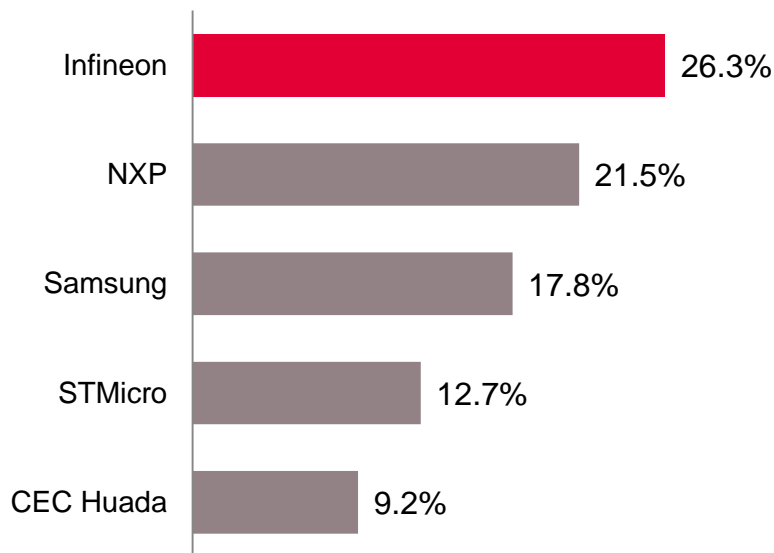
Applications (% of FY20 segment revenue)	Market Outlook for CY21	
Payment, ID, Ticketing ~30%	 	<ul style="list-style-type: none"> <li> › High demand for contactless payment solutions expected to continue</li> <li> › Prolonged restrictions on international travel expected to further affect especially the issuance of passports</li> </ul>
Industrial and Consumer IoT ~70%	   	<ul style="list-style-type: none"> <li> › Return to growth, however lower level than previously expected</li> <li> › New features and technologies enter production and proliferate across models</li> <li> › Increasing penetration rate of eSIM Automotive driven by increasing connectivity requirements</li> <li> › Connectivity technologies to improve in-car user experience</li> <li> › Market growth driven by launch of new console models</li> <li> › New product launches expected to boost demand</li> <li> › Further implementation of low-power processing and connectivity technologies across new models</li> </ul>

# Infineon remains top player in its target markets: security ICs, Wi-Fi standalone ICs



## Security ICs (excl. NFC controller; excl. NFC eSE)

2019 total market: \$2.8bn

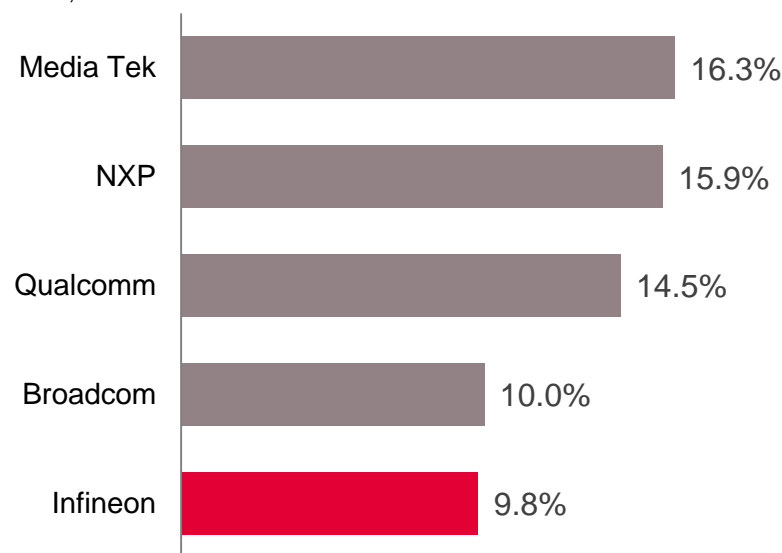


ABI Research: *Smart Card and Embedded Security IC Technologies*. October 2020

## Wi-Fi standalone ICs

2019 total market: 978m units

Infineon is focusing on wearables and IoT but not addressing routers, PCs, notebooks, tablets.



ABI Research: *Wireless Connectivity Technology Segmentation and Addressable Markets – Q3 2020 Update*. July 2020



# Connected Secure Systems – comprehensive systems for a secure, connected world



## Positioned to benefit from major growth trends

- › Security, connectivity and compute are the essential ingredients for IoT
- › Digitalization unlocks new opportunities
- › CSS supports other divisions with the integration of security, connectivity, and compute

## Payment, identification, ticketing



- › Payment (credit and debit cards)
- › Electronic passports & ID cards
- › Transport tickets
- › Access cards

## Industrial and consumer IoT



- › Industrial application
- › Infrastructure
- › Mobility and connected cars
- › Home appliances



- › Consumer electronics, e.g. games consoles, audio entertainment
- › Notebooks, PCs and servers
- › Smartphones and accessories

## Top player in key markets

# 1 in security ICs<sup>1,2</sup>

# 5 in Wi-Fi standalone ICs<sup>3</sup>

# 1 in payment<sup>1</sup>

# 3 in Bluetooth Standalone<sup>3</sup>

1) ABI Research: *Smart Card and Embedded Security IC Technologies*. October 2020.

2) excl. NFC Controllers; excl. NFC embedded Secure Element

3) ABI Research: *Wireless Connectivity Technology Segmentation and Addressable Markets*. November 2019.

# CSS owns the key ingredients to address the high-growth IoT market: security solutions, wireless connectivity and processing



Applications

Payment



Identification



Industrial IoT



Consumer IoT



Connected Cars



Smart Watch



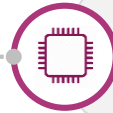
## Security solutions

SECORA™ family, OPTIGA™ family, CL / DIF and embedded security controllers



## Wireless Connectivity

Wi-Fi / Bluetooth combos, Wi-Fi standalone, BT/BLE standalone

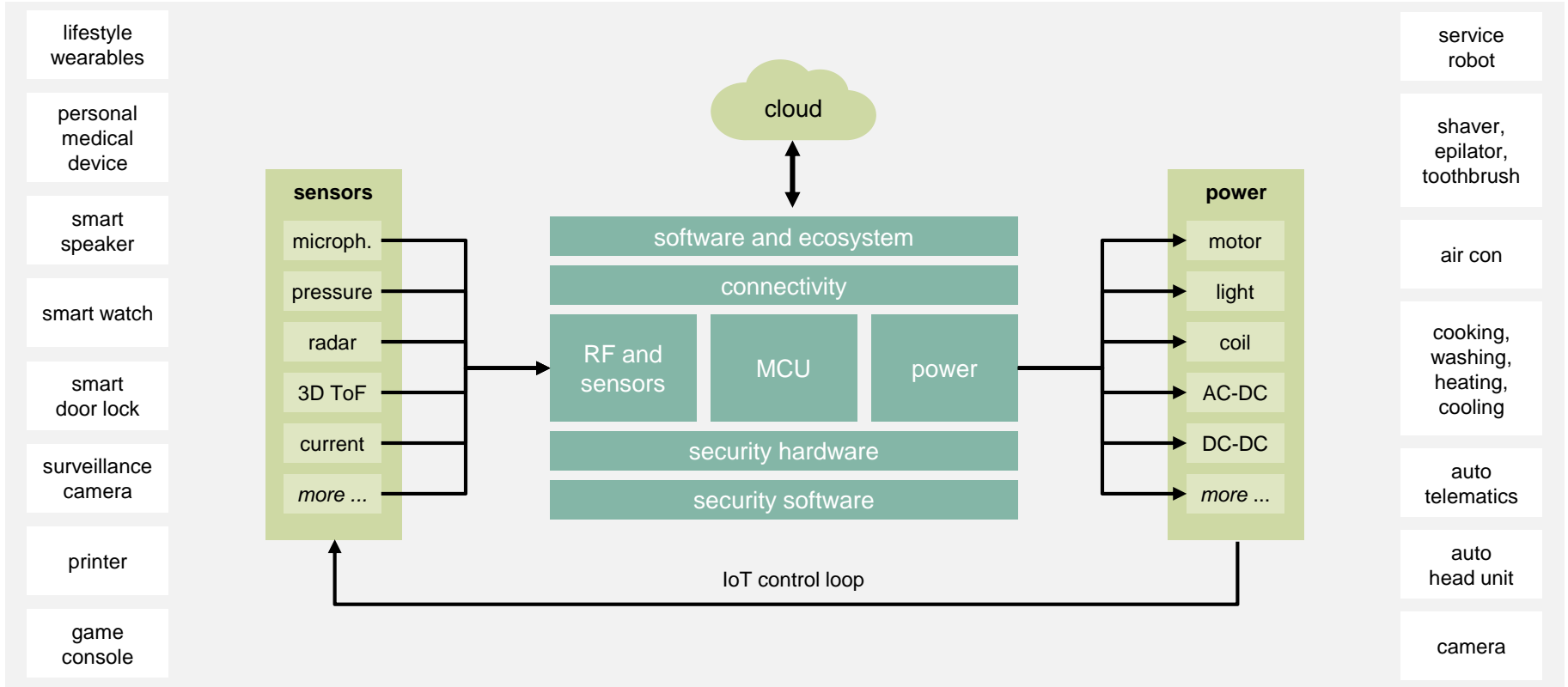


## Processing

PSoC™ family, XMC™ family, general-purpose MCUs

CSS portfolio

# Infinion offers the entire system for IoT – unlocking new markets and applications



8140	57.230	0.57	+0.03▲	587.451	0.007%	250,000
4NA5	81.053	4.35	-2.09▼	158.037	1.561%	375,000
3V17	62.985	2.07	+1.17▲	916.598	5.032%	621,000
7RE3	37.278	1.14	+0.72▲	634.270	3.984%	389,000
S421	94.107	0.73	-0.51▼	538.014	2.416%	743,000
YT64	21.744	5.63	+3.16▲	692.360	0.657%	405,000
1897	13.361	1.82	-1.23▼	237.981	0.103%	882,000



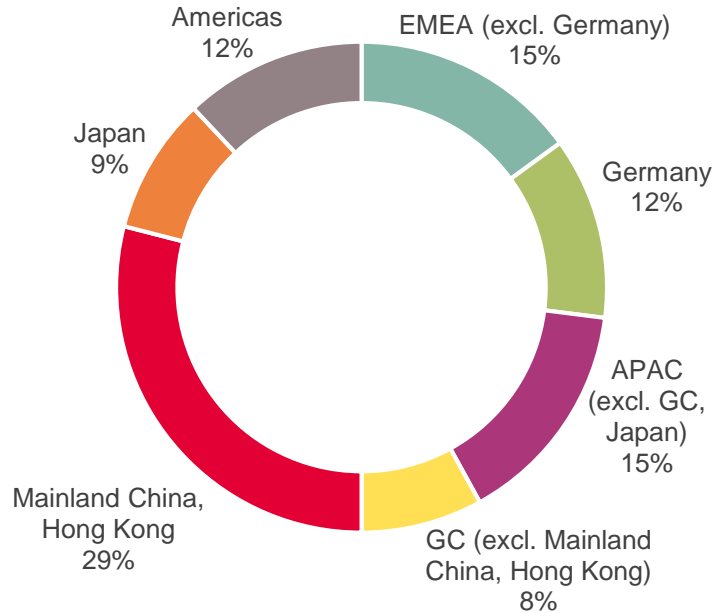
# Selected financial figures



Strong presence in all regions; well-balanced customer portfolio;  
no customer represents more than 10% of total sales



### FY20 revenue by region



### Revenue by sales channel\*

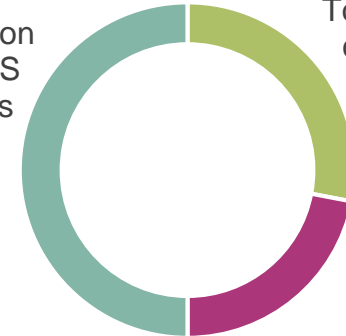
Distribution and EMS partners



Top-10 direct customers



Distribution and EMS partners



Top-10 direct customers

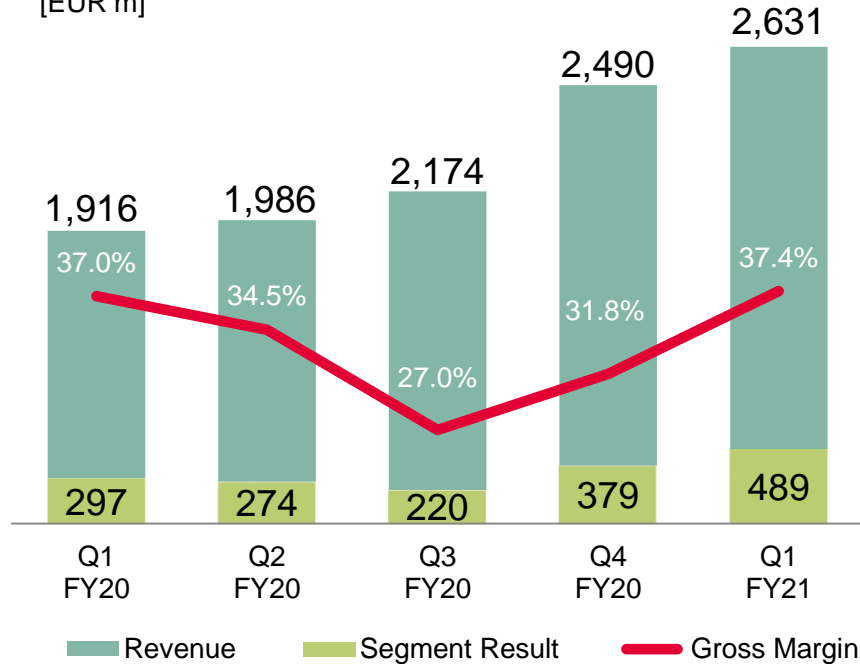
other direct customers

\* assuming 12-months revenue contribution of Cypress

# Group financial performance

## Revenue\* and gross margin development

[EUR m]



- > Strong start into FY21
- > Demand in several areas, most notably microcontrollers and IoT products, is outstripping supply
- > Covid and trade tensions remain significant uncertainties
- > Accelerating adoption rates for structural drivers like electro-mobility and IoT
- > Integration of Cypress is progressing

### Book-to-bill\*\*



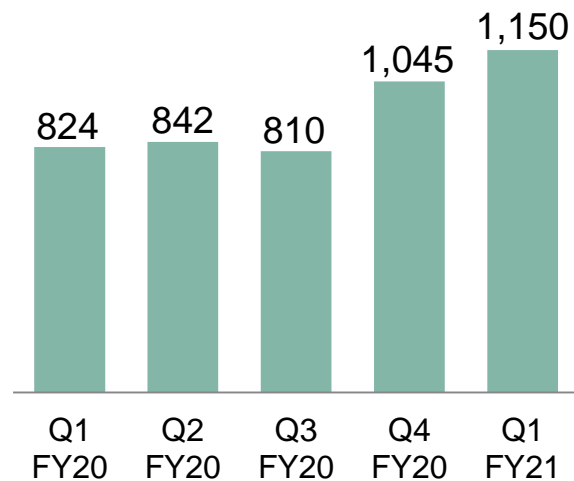
\* Consolidation of Cypress revenue as of 16 April 2020. \*\* For definition see notes



# Automotive (ATV)

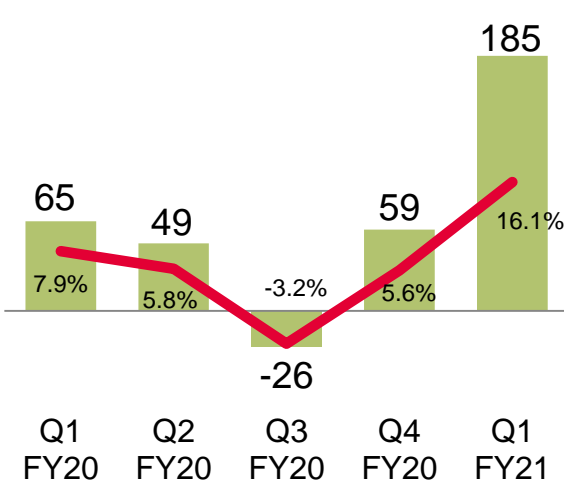
## Revenues\*

[EUR m]

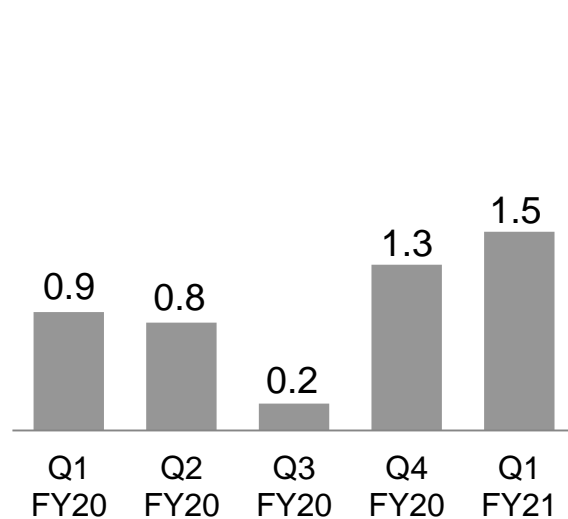


## Segment Result\*

[EUR m]



## Book-to-bill



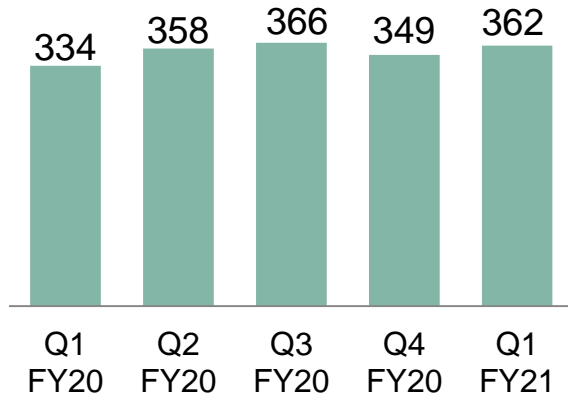
- › Global car markets continue to rebound, particular strength in components for electric vehicles
- › Current semiconductor shortage: foundry capacity, especially for microcontrollers is a limiting factor
- › Significant reduction in underutilization charges and non-recurring effects drive strong margin improvement

\* With effect from 1 Oct 2020, we transitioned a group of industrial microcontrollers with an annual sales volume of a low-double-digit million Euros from ATV to CSS. Historical figures have been retroactively adjusted.

# Industrial Power Control (IPC)

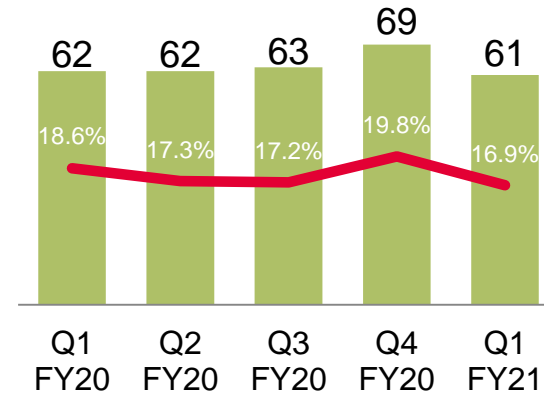
## Revenues

[EUR m]

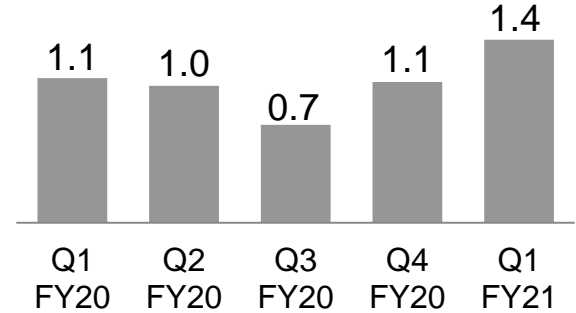


## Segment Result

[EUR m]



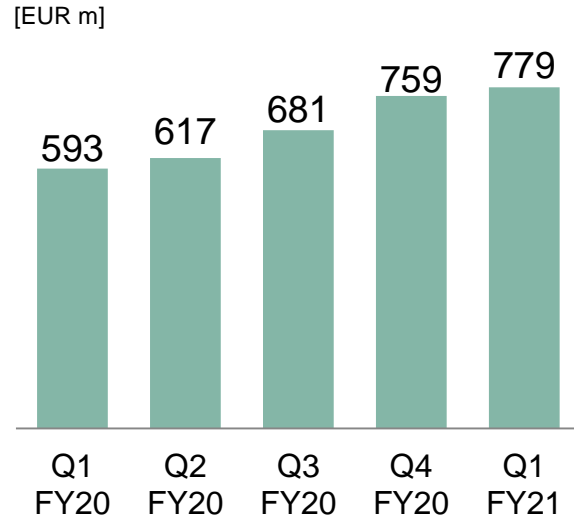
## Book-to-bill



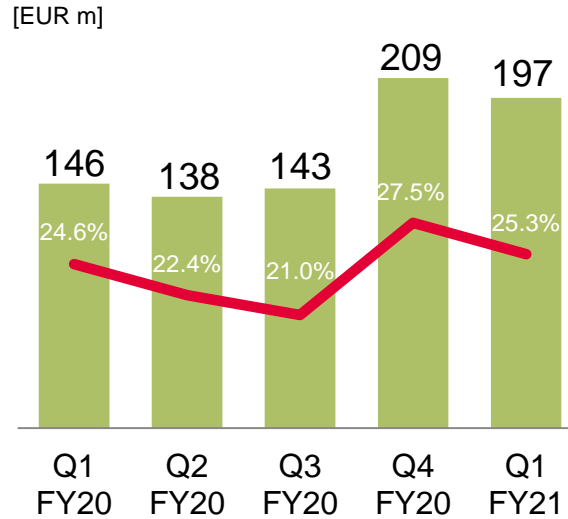
- › Renewables - positive momentum continues
- › Home appliances remain strong, driven by pent-up demand and energy-saving regulations
- › Industrial drives moved sideways, transportation continues to be hampered by low travel activities
- › Segment Result Margin decline reflects adverse currency movements and unfavorable product mix

# Power & Sensor Systems (PSS)

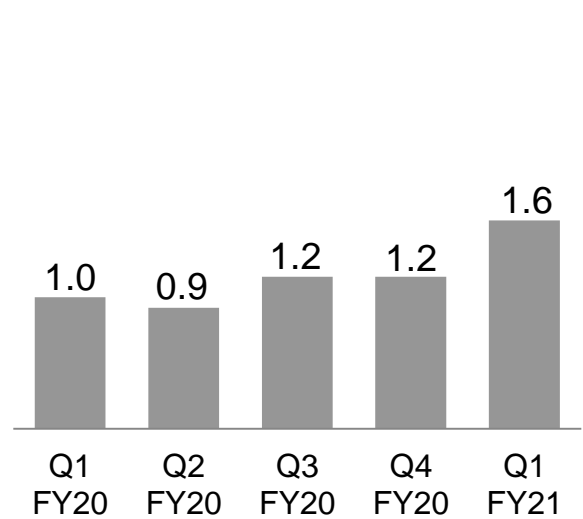
## Revenues



## Segment Result



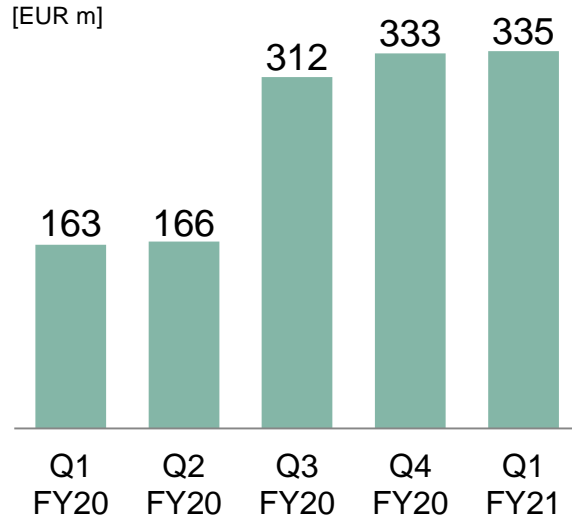
## Book-to-bill



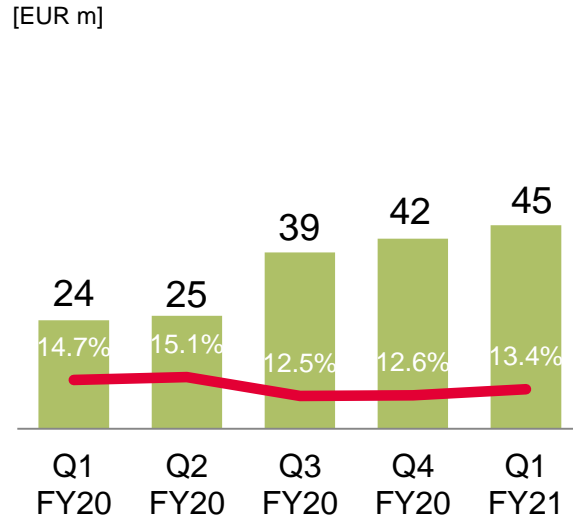
- › Remote workforce and stay-at-home regulations continue to boost demand
- › Strong demand for low-voltage switches (power tools) and MEMS microphones (smartphones & accessories)
- › Demand for the server components remains flat, but at high levels

# Connected Secure Systems (CSS)

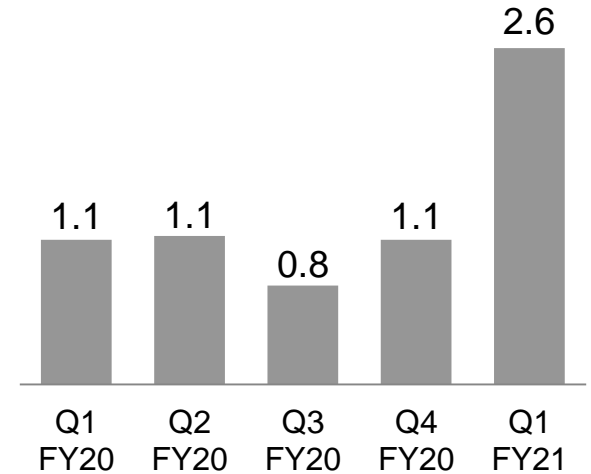
## Revenues\*



## Segment Result\*



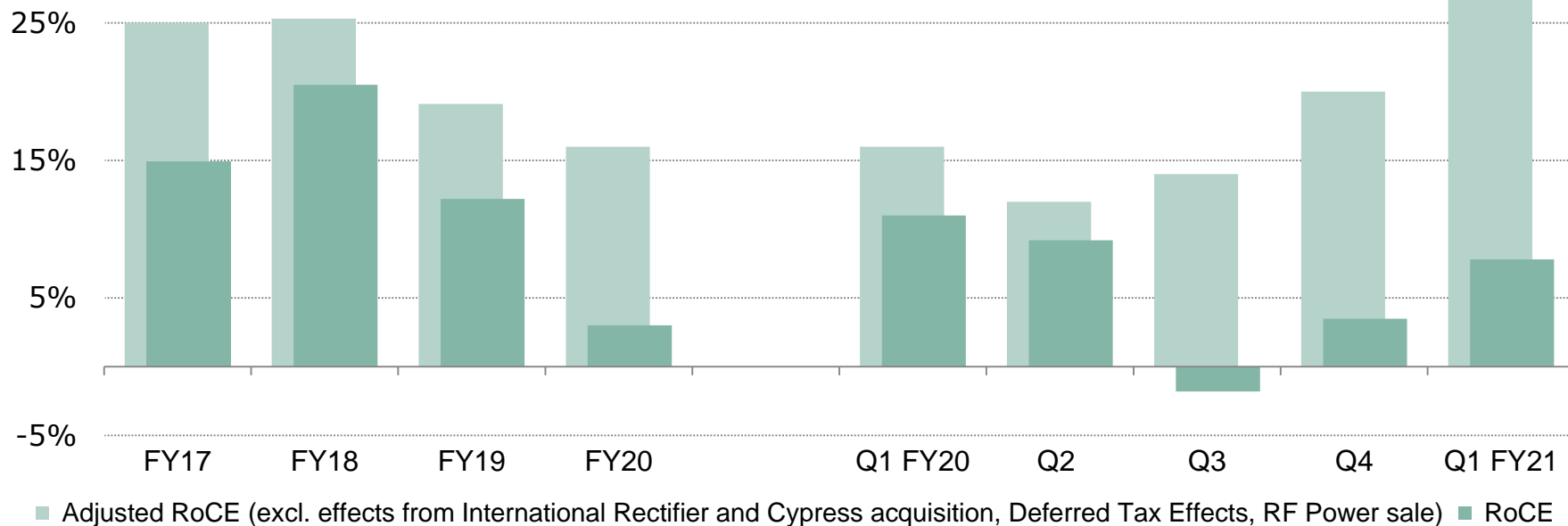
## Book-to-bill



- › CSS affected by supply constraints on the foundry side
- › Vibrant demand especially for general-purpose microcontrollers and Wi-Fi components
- › Secular trend towards connected devices continues to be unabated

\* With effect from 1 Oct 2020, we transitioned a group of industrial microcontrollers with an annual sales volume of a low-double-digit million Euros from ATV to CSS. Historical figures have been retroactively adjusted.

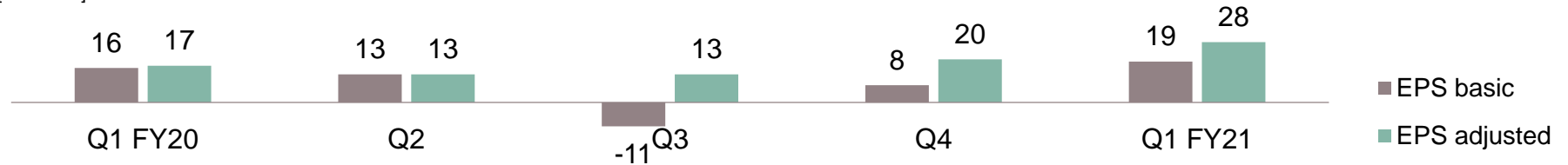
# RoCE and adjusted RoCE



# Earnings-per-share and total cash return

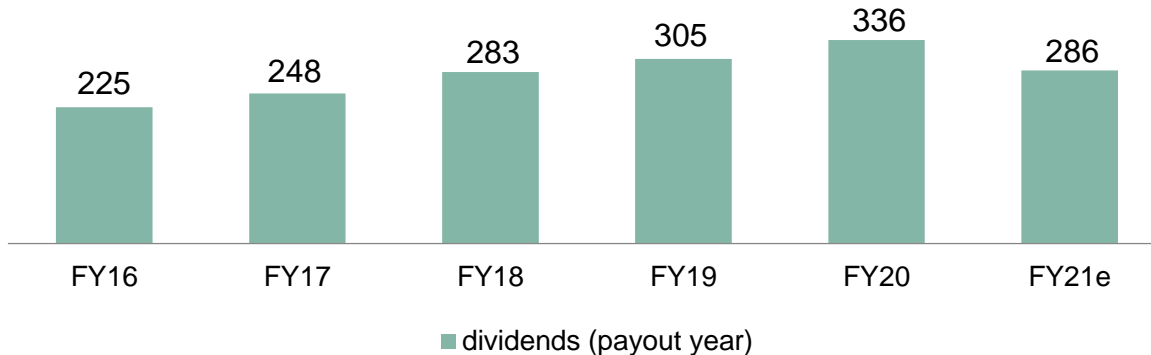
## Development of earnings-per-share (EPS) from continuing operations

[EUR cent]



## Total cash return to shareholders

[EUR m]



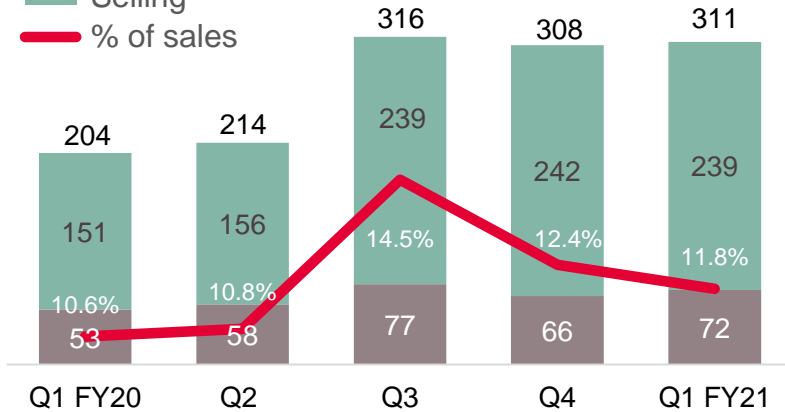
- > Dividend proposal for FY20: €0.22 per share
- > Proposed total dividend payout of €286m for FY20

# Opex development

## Selling, General & Administration

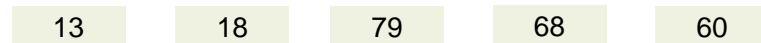
[EUR m]

- General & Administration
- Selling
- % of sales



Therein non-segment result charges

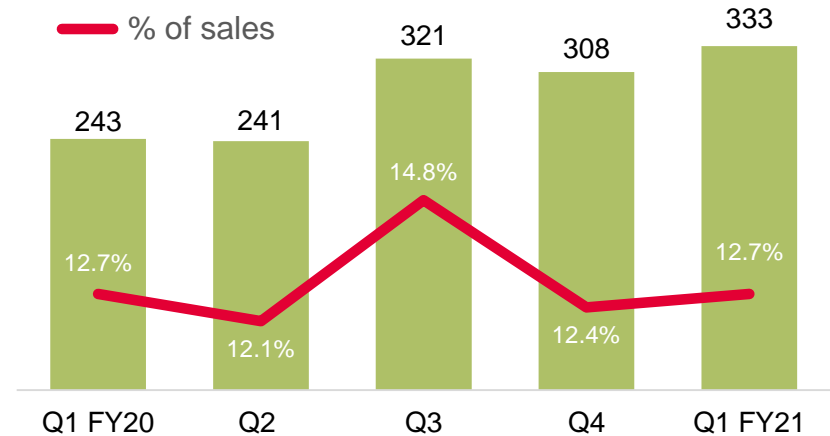
[EUR m]



## Research & Development

[EUR m]

- R&D
- % of sales



Therein non-segment result charges

[EUR m]

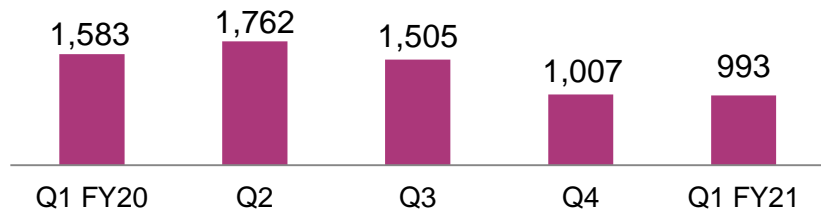




# Trade working capital components

## Working capital\*

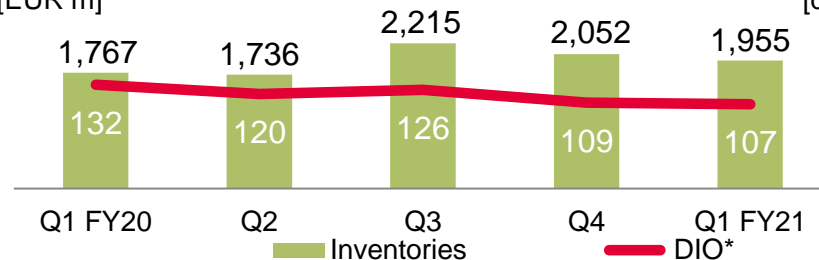
[EUR m]



## Inventories

[EUR m]

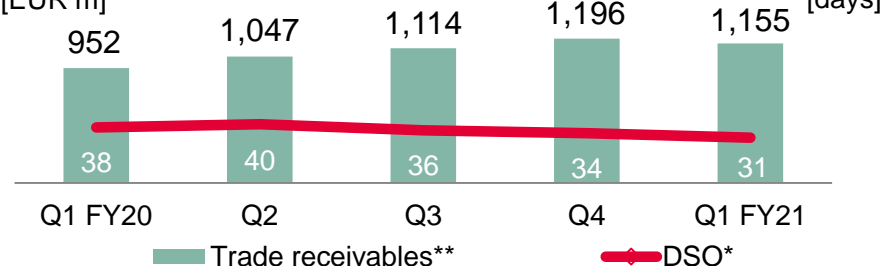
[days]



## Trade receivables

[EUR m]

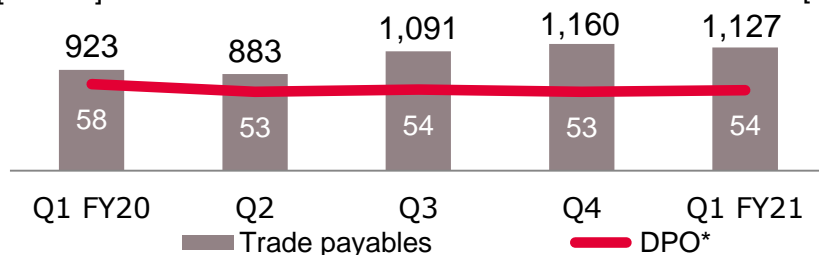
[days]



## Trade payables

[EUR m]

[days]



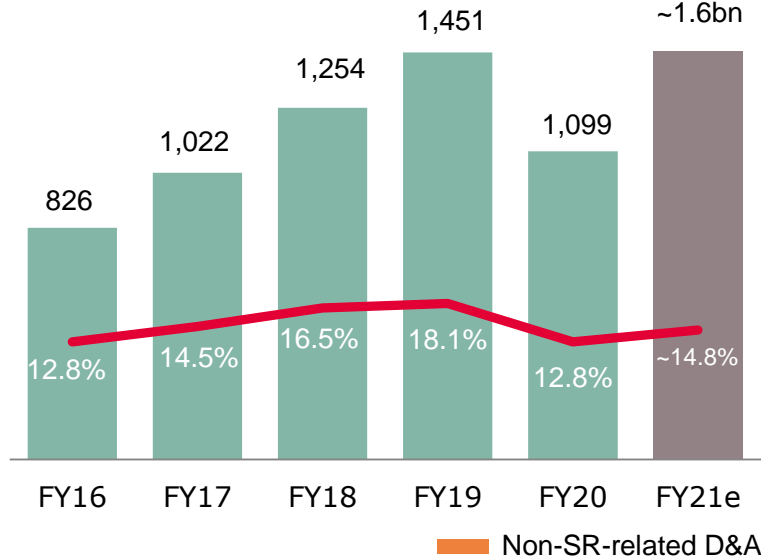
\* For definition please see page "Notes".

\*\* Along with the integration of Cypress refund liabilities to customers are presented under "other current liabilities" instead of "trade receivables". Prior quarters' figures were adjusted accordingly for better comparability.

# D&A impacted by Cypress consolidation and PPA

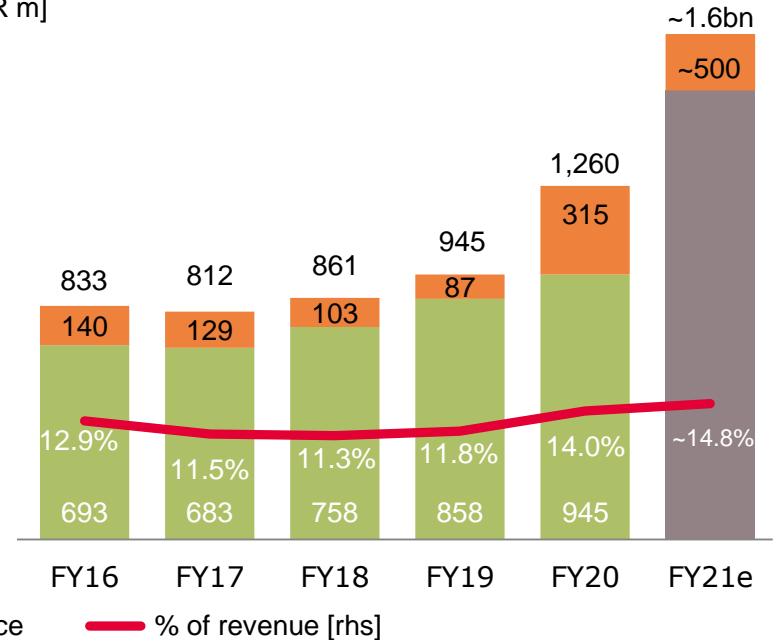
## Investments\*

[EUR m]



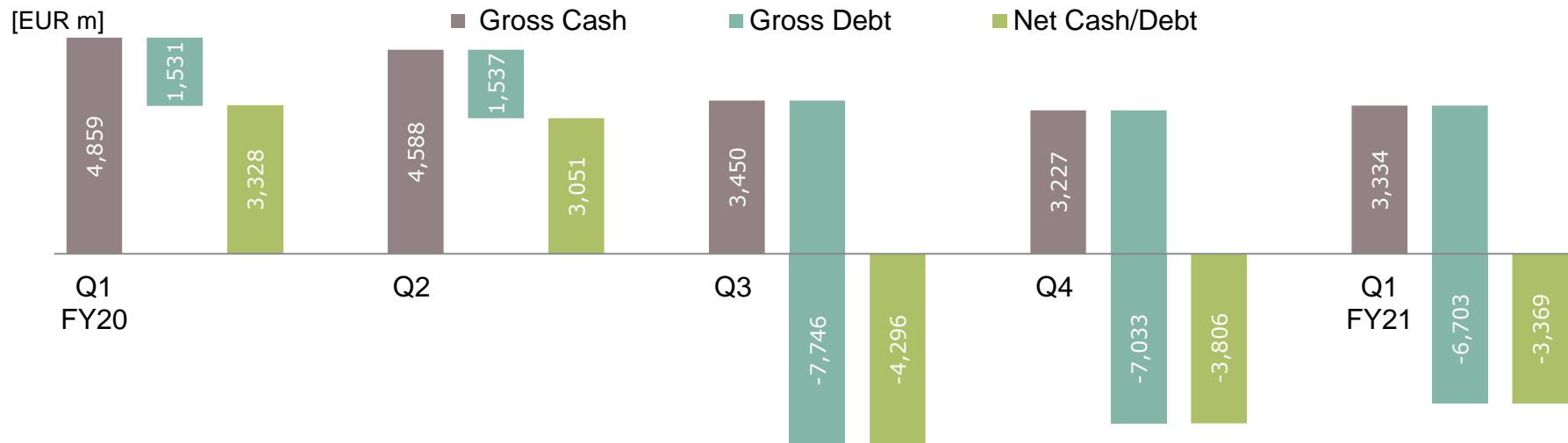
## Depreciation & Amortization

[EUR m]



\* For definition please see page "Notes".

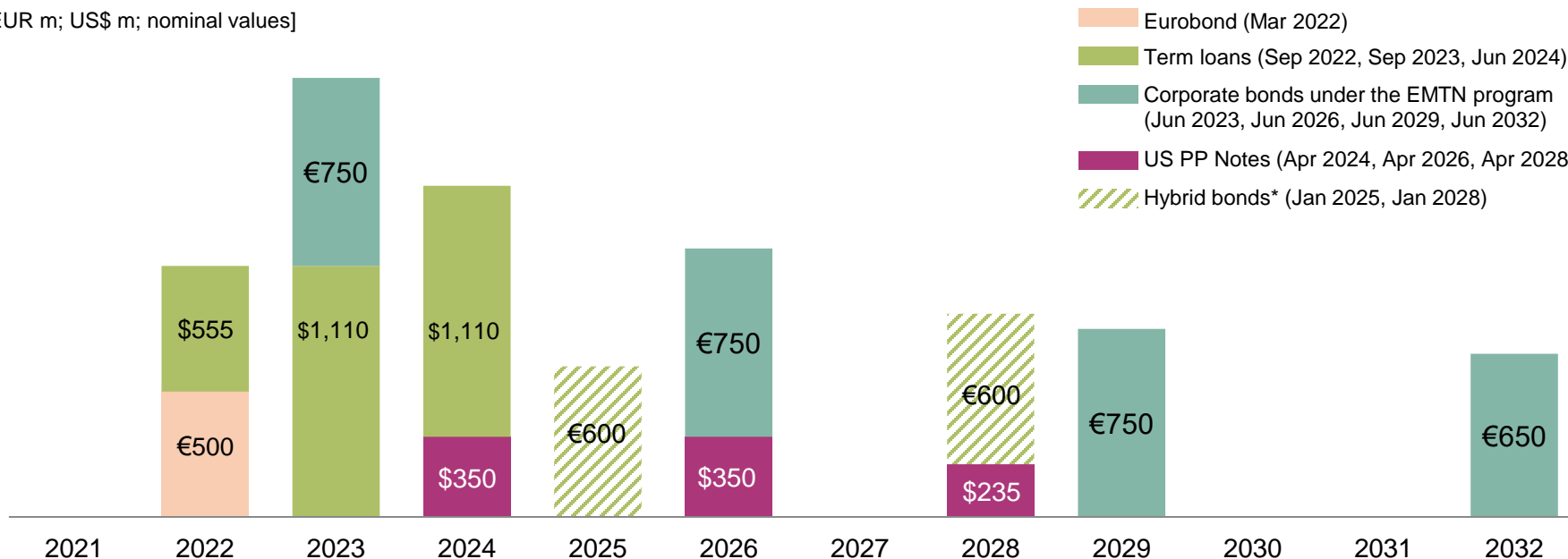
# Liquidity development



- › Q4 FY20: early repayment of one half of the first term loan (USD 555m).
- › Q1 FY21: Gross debt – reduced by 174m EUR repayment and impact of weaker US-dollar on USD-denominated debt.  
Net debt: improvement driven by strong free cash flow and, to some extent, currency effects.

# Maturity profile

[EUR m; US\$ m; nominal values]



Note: Graph excludes pre-existing Cypress convertibles of ~\$382m repayment value, maturing latest 2022, and additional debt with maturities between 2021 and 2023 totaling €9m.

\* On 1 Oct 2019, Infineon issued a perpetual hybrid bond with two tranches: €600m with first call date in 2025 and €600m with first call date in 2028; both are accounted as equity under IFRS.



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# Glossary (1 of 2)

ABB	accelerated book building
AC	alternating current
AC-DC	alternating current - direct current
AD	automated driving
ADAS	advanced driver assistance system
AEB	automatic emergency braking
AFS	advanced frontlight system
AI	artificial intelligence
AR	augmented reality
ASP	average selling price
BEV	battery electric vehicle
BGA	ball grid array
BLE	Bluetooth Low Energy
BoM	bill of material
BT	Bluetooth
CL	contactless
CPU	central processing unit
CRC	cyclical redundancy check
DC	direct current
DC-DC	direct current - direct current
DIF	dual-interface (contact-based and contactless)
DIY	do it yourself
DPM	digital power management
eCall	emergency call

ECC	error correction code
ECU	electronic control unit
EPS	electric power steering
eSIM	embedded subscriber identity module
ESS	energy storage system
EV	electric vehicle
FHEV	full hybrid electric vehicle
FPGA	field programmable gate array
G2M	go-to-market
GaN	gallium nitride
GPS	global positioning system
GPU	graphics processing unit
HEV	mild and full hybrid electric vehicle
HMI	human machine interaction
HSM	hardware security module
HST	high-speed train
HVAC	heating, ventilation, air conditioning
HW	hardware
IC	integrated circuit
ICE	internal combustion engine
IGBT	insulated gate bipolar transistor
IoT	Internet of Things
IPM	intelligent power module
IVN	in-vehicle networking
iPol	image processing line

## Glossary (2 of 2)

IRFPoP	International Rectifier
IVN	in-vehicle networking
LCD	liquid crystal display
LDO	low dropout voltage regulator
LED	light-emitting diode
LSEV	low-speed electric vehicle
LSPS	LS Power Semitech Co. Ltd.
μC	microcontroller
Mb	megabit
MCU	microcontroller unit
MEMS	micro electro-mechanical systems
MHA	major home appliances
MHEV	mild hybrid electric vehicle
MIMO	multiple input, multiple output
micro-hybrid	vehicles using start-stop systems and limited recuperation
mild-hybrid	vehicles using start-stop systems, recuperation, DC-DC conversion, e-motor
MOSFET	metal-oxide silicon field-effect transistor
MPU	microprocessor unit
OBC	on-board charger
OEM	original equipment manufacturer
P2S	Infineon's strategic product-to-system approach
PAS	photo-acoustic spectroscopy
PFC	power factor correction
PHEV	plug-in hybrid electric vehicle
PMIC	power management IC
Pol	point-of-load

PSoC	programmable system-on-chip
PV	photovoltaic
RF	radio frequency
rhs	right-hand scale
Si	silicon
SiC	silicon carbide
SiGe	silicon germanium
SMD	surface mounted device
SMPS	switch-mode power supply
SNR	signal-to-noise ratio
SoC	system-on-chip
SOTA	software over-the-air
SPI	serial peripheral interface
SRAM	static random access memory
SW	software
TAM	total addressable memory
TCO	total cost of ownership
ToF	time-of-flight
TPM	trusted platform module
UPS	uninterruptible power supply
USB	universal serial bus
V2X	vehicle-to-everything communication
VR	virtual reality
VSD	variable speed drive
Wi-Fi	wireless fidelity
xEV	all degrees of vehicle electrification (EV, HEV, PHEV)



# Disclaimer

## Disclaimer

This presentation contains forward-looking statements about the business, financial condition and earnings performance of the Infineon Group. These statements are based on assumptions and projections resting upon currently available information and present estimates. They are subject to a multitude of uncertainties and risks. Actual business development may therefore differ materially from what has been expected. Beyond disclosure requirements stipulated by law, Infineon does not undertake any obligation to update forward-looking statements.

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# Financial calendar

Date	Location	Event
10 – 11 Feb 2021	San Francisco → virtual	Goldman Sachs Technology & Internet Conference
25 Feb 2021	Neubiberg → virtual	Annual General Meeting
1 Mar 2021	virtual	dbAccess Global ESG Conference
3 Mar 2021	Nuremberg → virtual	CSS Call along with embedded World trade show
9 – 10 Mar 2021	London → virtual	UBS Technology One-on-One Virtual Conference
11 Mar 2021	virtual	ODDO BHF 5 <sup>th</sup> Digital TMT Forum
24 Mar 2021	virtual	JPMorgan Fireside Chat
4 May 2021*		Q2 FY21 Results
6 May 2021	Nuremberg → virtual	IPC Call along with PCIM trade show
27 May 2021	London → virtual	JPMorgan European TMT Conference
8 – 9 Jun 2021	Paris → virtual	23 <sup>rd</sup> Exane BNP Paribas European CEO Conference
10 Jun 2021	San Francisco → virtual	Bank of America Global Technology Conference
17 Jun 2021	virtual	GS European Digital Economy Conference
1 Jul 2021	Barcelona → virtual	PSS Call along with MWC trade show
3 Aug 2021*		Q3 FY21 Results

\* preliminary

## ESG footnotes

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- 1) This figure considers manufacturing, transportation, function cars, flights, materials, chemicals, water/waste water, direct emissions, energy consumption, waste, etc. and is based on internally collected data and externally available conversion factors. All data relate to the 2020 fiscal year. Manufacturing service providers are not included.
- 2) This figure is based on internally established criteria, which are explained in the explanatory notes. The figure relates to the calendar year 2019 and considers the following fields of application: automotive, LED, induction cookers, server, renewable energy (wind, photovoltaic), mobile phone chargers as well as drives. CO<sub>2</sub> savings are calculated on the basis of potential savings of technologies in which semiconductors are used. The CO<sub>2</sub> savings are allocated on the basis of Infineon market share, semiconductor content and lifetime of the technologies concerned, based on internal and external experts' estimations.
- 3) Calculation based on average polycrystalline photovoltaic cells and the average yearly solar radiation of central Germany.
- 4) Based on the average electricity consumption of private households in Germany and official energy conversion factors.
- 5) Calculation based on average passenger capacity and direct flight route using externally available data and conversion factors.

# Notes

**Investments** = 'Purchase of property, plant and equipment' + 'Purchase of intangible assets and other assets' incl. capitalization of R&D expenses

**Capital Employed** = 'Total assets' – 'Cash and cash equivalents' – 'Financial investments' – 'Assets classified as held for sale' – ('Total Current liabilities' – 'Short-term debt and current maturities of long-term debt' – 'Liabilities classified as held for sale')

**RoCE** = NOPAT / Capital Employed  
= ('Income from continuing operations' – 'financial income' – 'financial expense') / Capital Employed

**Working Capital** = ('Total current assets' – 'Cash and cash equivalents' – 'Financial investment' – 'Assets classified as held for sale') – ('Total current liabilities' – 'Short term debt and current maturities of long-term debt' – 'Liabilities classified as held for sale')

**DIO (days inventory outstanding; quarter-to-date)** = ('Net Inventories' / 'Cost of goods sold') x 90

**DPO (days payables outstanding; quarter-to-date)** = ('Trade payables' / ['Cost of goods sold' + 'Purchase of property, plant and equipment']) x 90

**DSO (days sales outstanding; quarter-to-date)** = ('Trade receivables' - 'reimbursement obligations')\* / 'revenue'\* x 90

\*without debtors with credit balances

# Notes

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## Book-to-bill ratio - Definition

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Book-to-bill = Orders received / Revenue in Euro per quarter

- › Orders received contains order backlog and external customer forecast  
External customer forecast includes consignment stock forecast by customers  
Not included are internal consignment replenishment orders
  
- › Orders received does not include unconfirmed orders received  
Unconfirmed demand will be reported as orders received and in book-to-bill when it gets confirmed
  
- › Orders received may not coincide with the IFRS 15 definition of a contract with a customer

## For further reading

Power Semiconductor Business Update Call  
Dr. Peter Wawer, Andreas Urschitz  
30 Nov 2020



<https://www.infineon.com/2020powercall>

ATV Call  
Peter Schiefer  
5 October 2020



<https://www.infineon.com/2020atvcall>

Sustainability Report 2020  
23 November 2020



[https://www.infineon.com/sustainability\\_report](https://www.infineon.com/sustainability_report)

IFX Day 2018  
Capital Markets Day  
London, 12 June 2018



[https://www.infineon.com/ifxday\\_2018](https://www.infineon.com/ifxday_2018)

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