

## Third Quarter FY 2021 Quarterly Update

Infineon Technologies AG Investor Relations





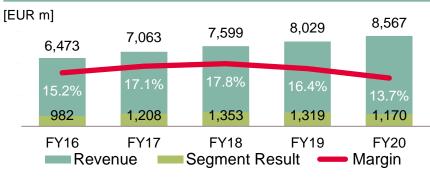
### Infineon at a glance

#### Addressing long-term high-growth trends



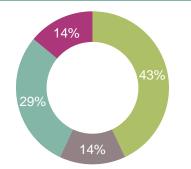
- IoT (edge comp., data center, 5G, sensing, connectivity)
- electro-mobility
- assisted driving, autonomous driving
  - energy efficiency, renewables, EV infrastructure
- security

#### Financials

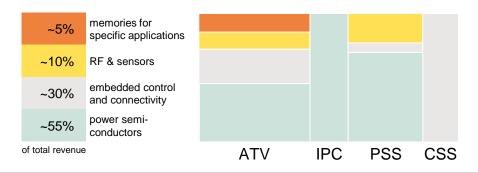


Illustrative aggregated FY20 revenue by segment

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



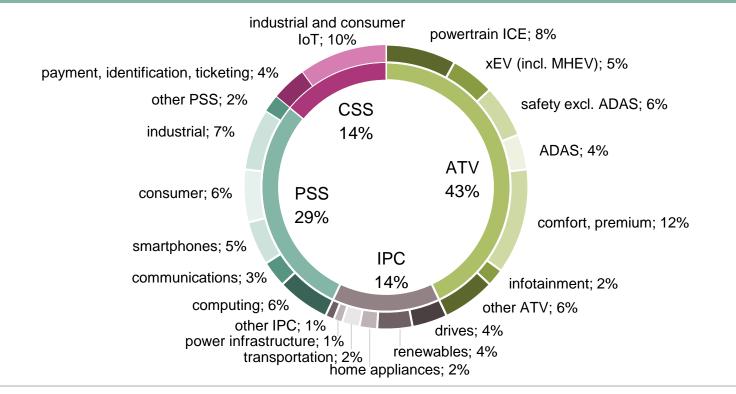
#### Illustrative aggregated FY20 revenue by product category



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

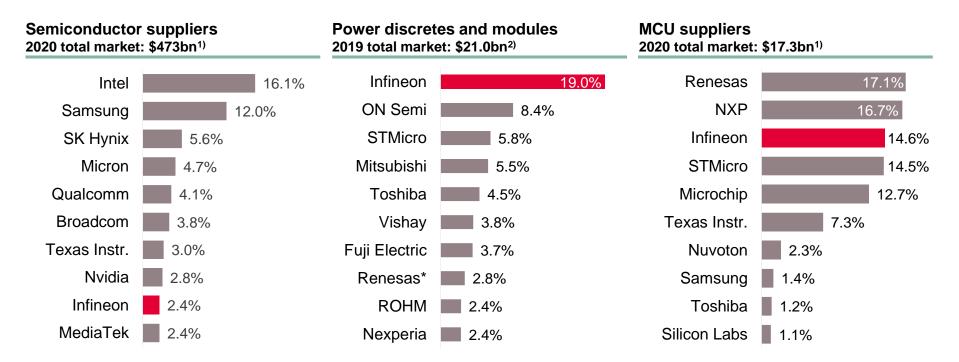


#### Illustrative aggregated FY20 revenue of ~€9,600m by target application



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



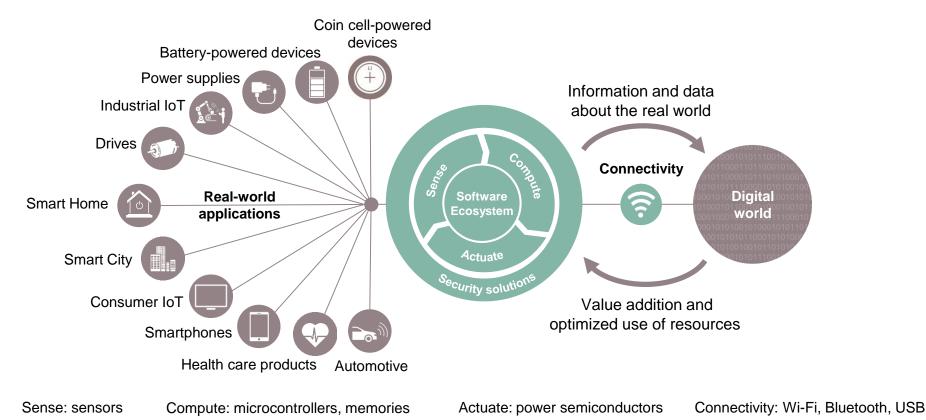


\* Renesas acquired Integrated Device Technology in March 2019. Both companies were combined as Renesas in the 2019 ranking.

- 1) Based on or includes research from Omdia: Annual 2001-2020 Semiconductor Market Share Competitive Landscaping Tool Q4 2020. March 2021.
- 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.

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







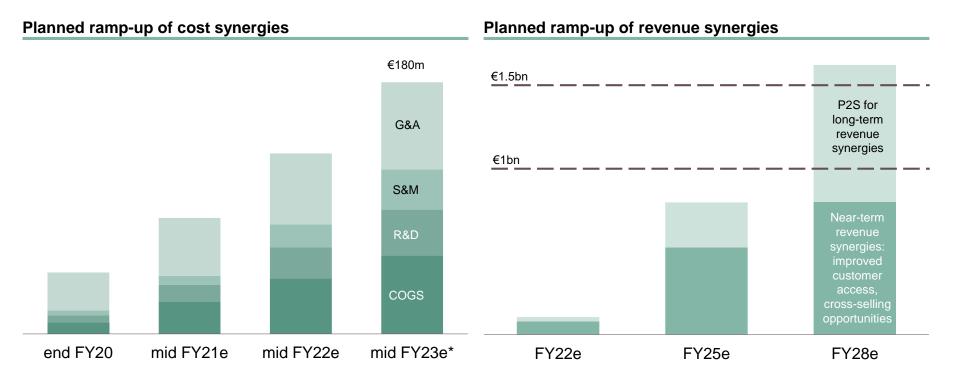
	Outlook Q4 FY21*	Outlook FY21*
Revenue	~ €2.9bn	~€11.0bn
Segment Result Margin	~ 19%	> 18%
Investments in FY21		~ €1.6bn
D&A in FY21	€1.5bn – €1.6bn**	
Free cash flow in FY21	<b>~ €1.5bn</b> (prev.: > € 1.2bn)	

\* Based on an assumed average exchange rate of \$1.20 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





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).



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



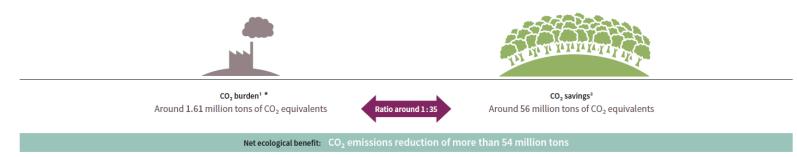
## ESG: targets and achievements



# 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 CO2 benefit is equal to...



#### For explanatory notes see appendix

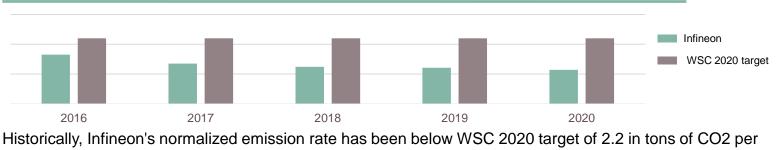


### Infineon will become carbon-neutral by 2030

## 70% $CO_2$ 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 CO2 equivalent per square meter wafer

square wafer

1) 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 🛞	MSCI ESG	AA	CCC to AAA	02/2021
	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 Indices In colleboration with	Dow Jones Sustainability Index	81 Dow Jones Sustain- ability™ World and Europe Index listing	0 to 100	11/2020
Enilie Barrier Barrier	Ethibel Sustainability Index Excelence Europe"	Index member	-	05/2020
ISS ESG⊳	ISS ESG Corporate Rating	B- Prime Status	D- to A+	01/2021
FTSE4Good	FTSE4Good Index	Index member	-	06/2021
	Euronext Vigeo Eurozone 120 Index Euronext Vigeo Europe 120 Index	Indices member	-	06/2020
	Sustainalytics	77 "Outperformer" level	0 to 100	06/2020

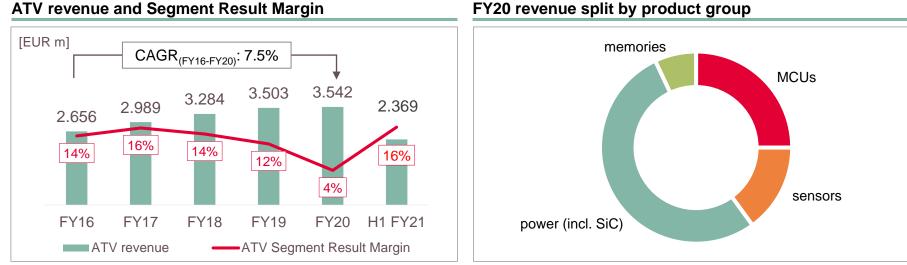


## Automotive





### ATV at a glance



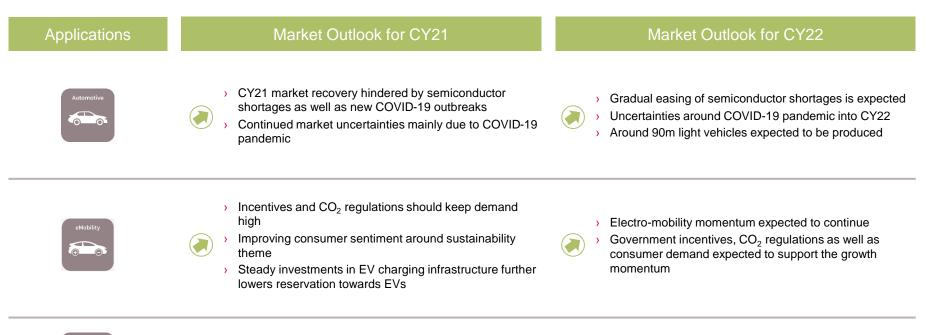
#### **ATV revenue and Segment Result Margin**

Key customers

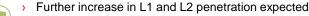


### Market outlook for ATV division's target applications









> L2+ shipments still at the inital phase

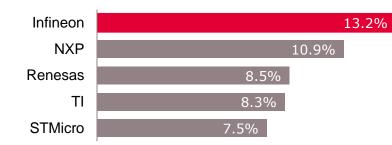


L1 and L2 will see strong growth at the expense of L0 L2+ shipments will grow from a comparatively small base

2021-08-03

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





#### Automotive semiconductors (2020 total market: \$35.0bn)

- > Strengthened #1 position; increasing distance to #2
- > #1 in power semiconductors
- > Undisputed #1 in automotive NOR Flash memory ICs
- #2 position in sensors
- Solid #3 position in microcontrollers due to strong demand in AURIX<sup>™</sup>, TRAVEO<sup>™</sup> and PSoC<sup>™</sup> families

Sensors Microcontrollers			ollers	Power semi	conductors
Bosch	22.2%	Renesas	26.7%	Infineon	30.2%
Infineon	15.5%	NXP	26.3%	STMicro	16.3%
ON Semi	10.0%	Infineon	16.9%	TI	10.3%
Melexis	8.6%	TI	9.8%	ON Semi	7.1%
NXP	7.3%	Microchip	6.9%	Rohm	5.9%

Strategy Analytics: Automotive Semiconductor Vendor Market Shares. April 2021.

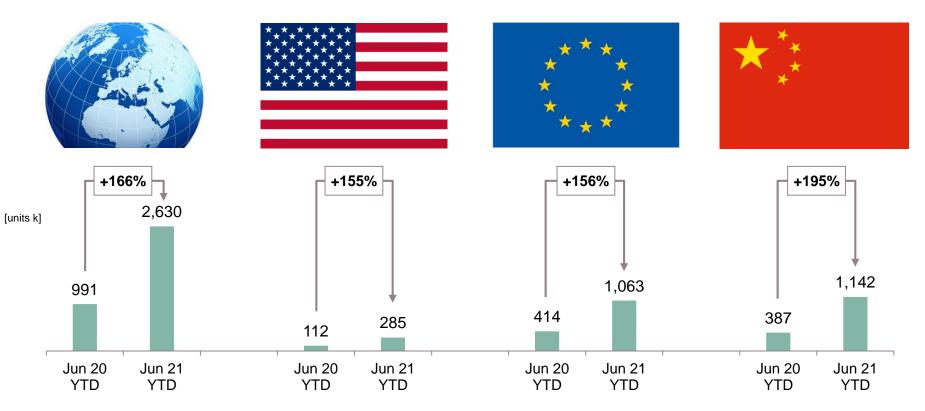


## **Electro-mobility**



During H1 CY21, xEV (PHEV + BEV) sales more than doubled y-y in all regions; market figures indicate no slow down of e-mobility boom

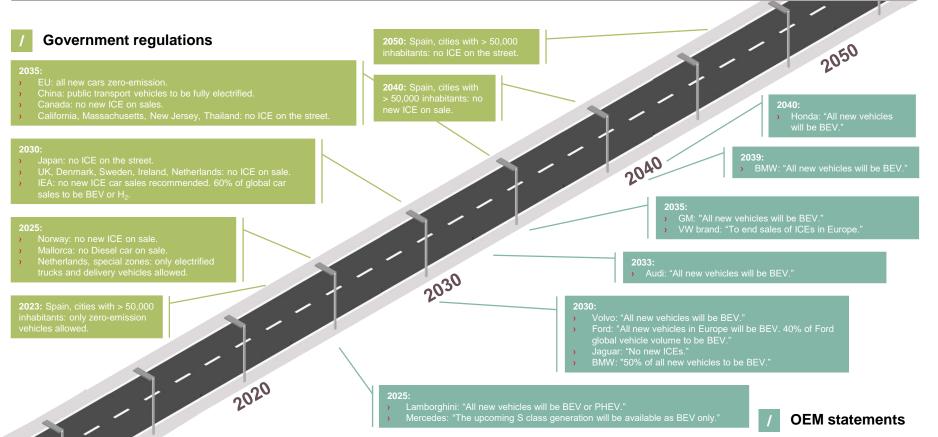




Source: IHS Markit: PEV Volumens, preliminary numbers. July 2021

### The road to emission-free cruising: Governments and OEMs indicated when to ban the ICE





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



#### 48 V / Mild Hybrids **Full & Plug-in Hybrids and Battery Electric Vehicles** \$834 \$32 \$330 \$0 \$572 \$90 \$23 \$17 \$14 \$7 \$61 \$38 \$396 \$396 Non-ICE хEV хEV хEV xEV ICE хEV хEV хEV хEV Total Total Non-Power-Power-Sensors **MCUs** Power\*\* Others\*\* Power-Power-Sensors MCUs Power\*\* Others\*\* semi semi train\* train BoM train\* train BoM 2020 2.3m vehicles 6.1m vehicles 2022e 5.8m vehicles 12.2m vehicles 2025e 18.8m vehicles 21.0m vehicles 2030e 27.3m vehicles 32.0m vehicles

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

Sources: 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

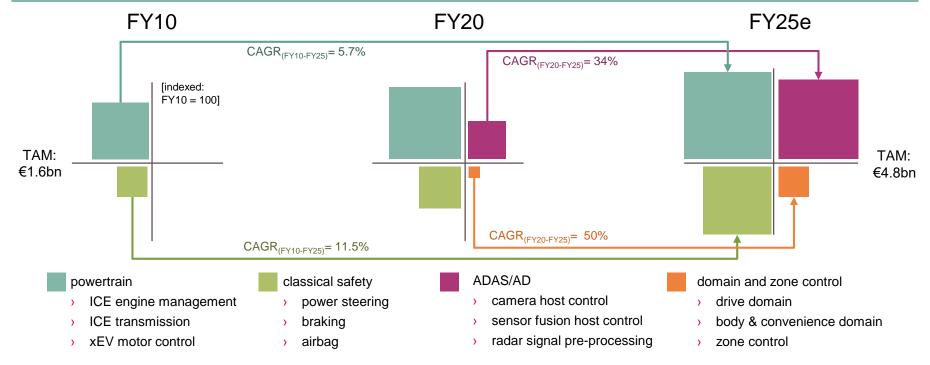


BoM contains all type of semiconductors (e.g. radar modules include  $\mu$ C); sensor fusion does not include memory. BoM are projected figures for the respective time frame Sources: Strategy Analytics: *Automated Driving Semiconductor Market Estimate*. August 2020; Infineon.

## The Infineon AURIX<sup>™</sup> µC family has become the first-choice automotive architecture for high-growth and safety-critical applications



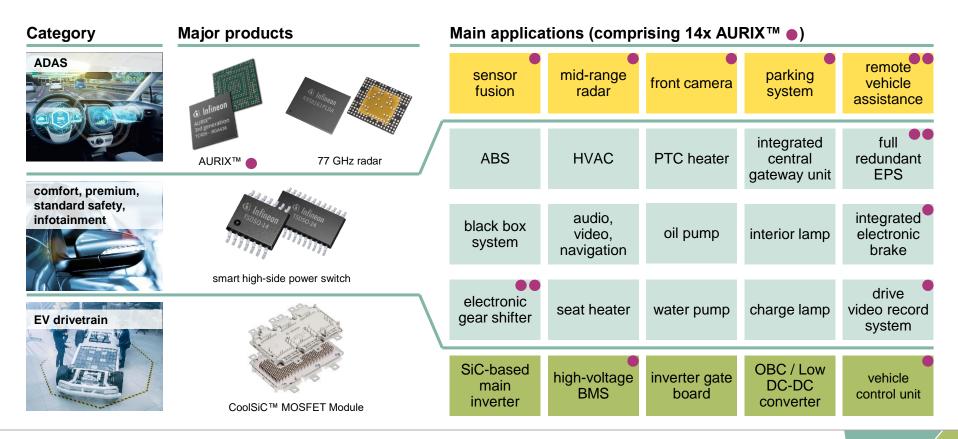
#### Infineon AURIX™ revenue development over time



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

Design-win at an Asian OEM: Infineon semiconductors worth more than €500 in an upper mid-range EV platform with SAE L2 automation





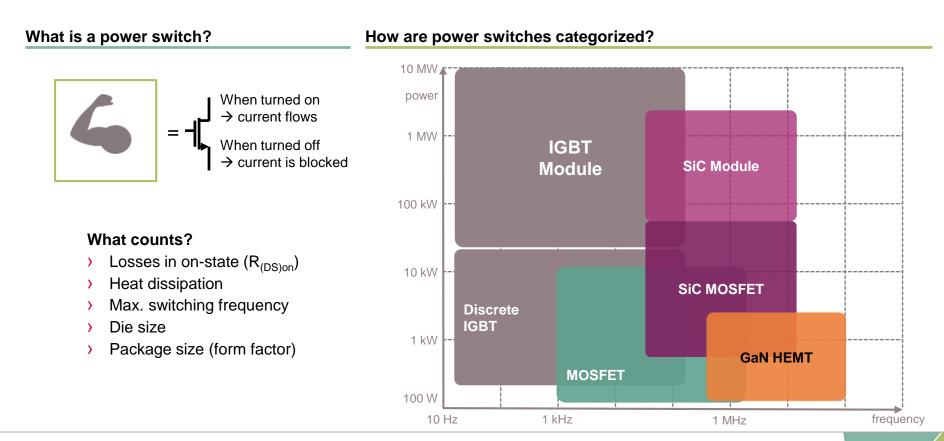


## Infineon's Power Strategy



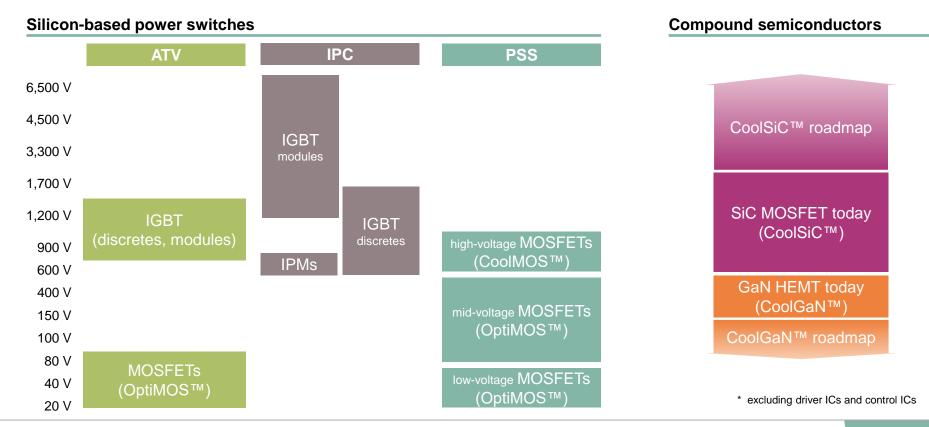


## Infineon's portfolio covers the entire range of power and frequency



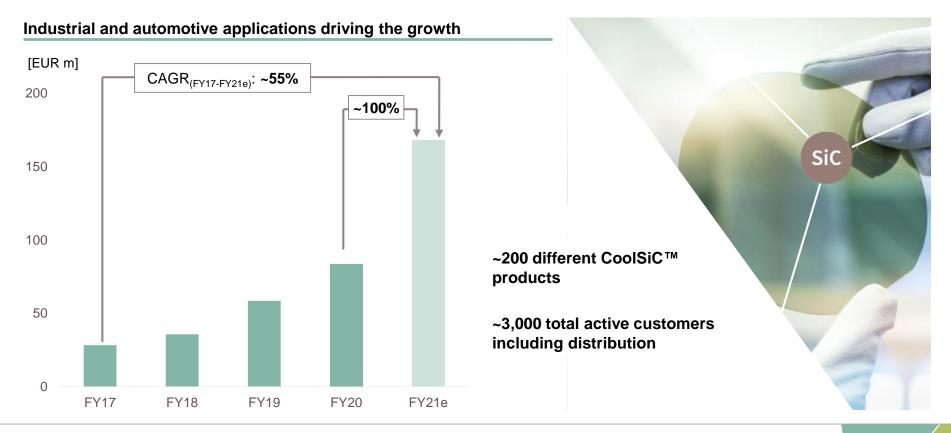
# Overview of Infineon's discrete and module power semiconductor portfolio\*





# Raised forecast: dubling the revenue in FY21 – more than half of the incremental growth contributed by automotive







## Strong CoolSiC<sup>™</sup> portfolio expansion: by packages and by voltages

#### Broadest and best-in-class SiC portfolio

	Industrial				Automotive grade					
package options	CoolSiC™ Diode	CoolSiC	™ Hybrid	CoolSiC™ MOSFET			CoolSiC™ CoolSiC™ CoolSi Diode Hybrid MOSF			
de opt.	Discrete	Discrete	Module	Discrete	IPM	Module	Discrete	Discrete	Discrete	Module
voltages	<b>A</b>	A Start	AND CONTRACT					A	A.	
600 V										
650 V										
1200 V										
1700 V										
	Continuous expansion of portfolio									

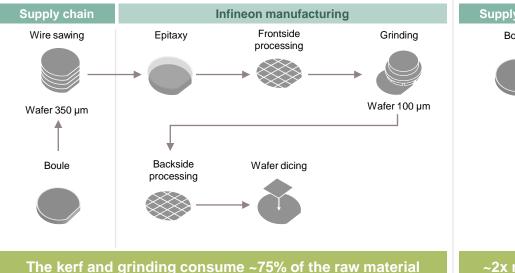


### Traditional wire sawing wastes ~3/4 of the raw material

#### Current status of SiC device manufacturing

The supplier cuts the boule into 350  $\mu$ m thick wafers thereby losing almost half of the material as kerf. The resulting wafers are processed and ground to ~100  $\mu$ m before finishing them. Thereby losing another half of the material.

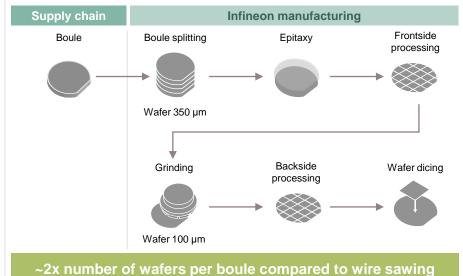
#### → ~¾ of raw material lost



#### Phase 1: boule splitting in volume prod. starting FY22

We source boules and use our splitting technology to cut it into wafers. The process is kerf-free and therefore losses are minimal. The resulting 350  $\mu$ m thick wafers are processed according to the current process flow.

#### → Raw material losses reduced by half



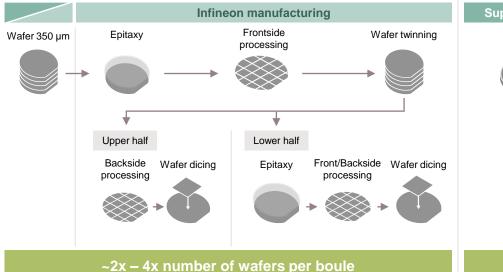
# Boule splitting plus wafer twinning or advanced boule splitting quadruples output out of a given boule



#### Phase 2: wafer twinning

The starting material are either wafer from the phase 1 boule splitting process or sourced wafer. The 350  $\mu$ m thick wafer is processed and instead of grinding it down to 100  $\mu$ m the lower part is split off and processed again.

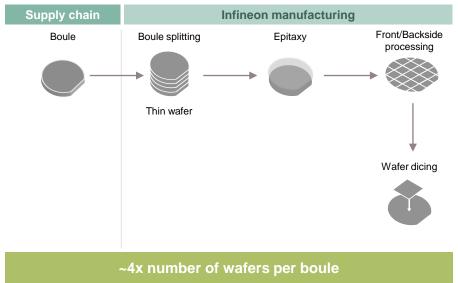
 $\rightarrow$  Combining boule and wafer twinning  $\rightarrow$  minimal raw material losses



#### Phase 3: advanced boule splitting

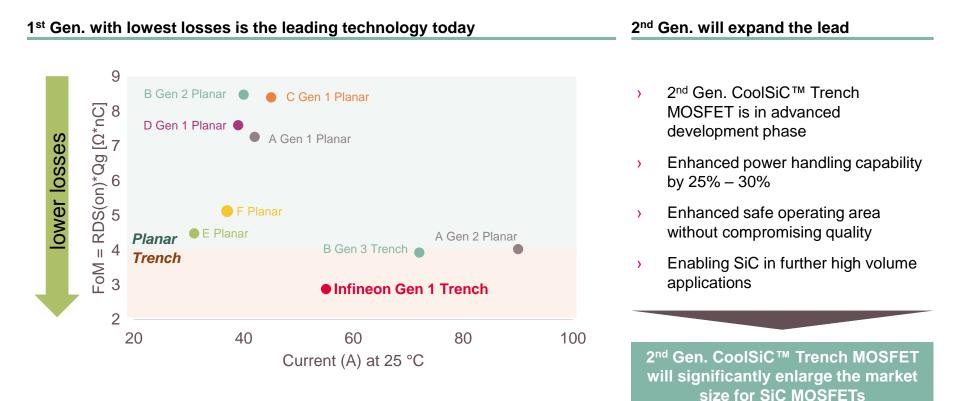
The advanced boule splitting results in thin wafers that can be processed directly.

#### $\rightarrow$ Most efficient process with minimal raw material losses



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





SystemPlus Consulting: SiC Transistor Comparison 2020. November 2020

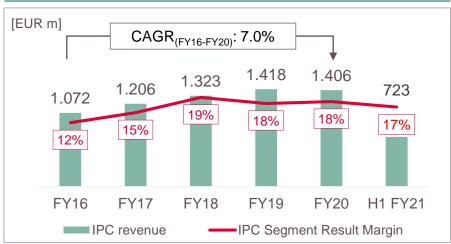


## **Industrial Power Control**



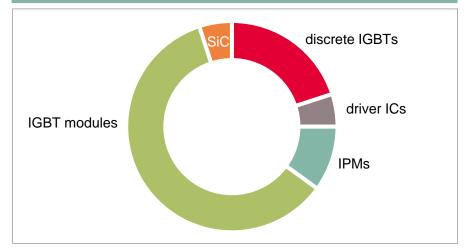


### IPC at a glance



#### **IPC revenue and Segment Result Margin**

#### FY20 revenue split by product group



#### Key customers

ABB	ALSTOM	BOMBARDIER		Danfoss	F:T•N
	Inovance		OMRON	Rockwell Automation	Schneider Blectric
SEMIKRDN innovation + service	SIEMENS	SUNGROW	TOSHIBA	Vestas	YASKAWA

## Market outlook for IPC division's target applications



Applications (% of FY20 segment revenue)	Market Outlook for CY21	Market Outlook for CY22
Automation and Drives 	<ul> <li>Industrial Drives recovering in high single digits with demand growing mainly in GC region</li> </ul>	<ul> <li>Recovery expected to last well into FY22 due to demand exceeding supply and long lead times</li> </ul>
Renewable Energy Generation 24%	<ul> <li>Wind: demand remains on a high level (incentive-driven pull-in effects in CY20 without impact on CY21 shipments)</li> <li>PV: ongoing double-digit y-y growth in installations</li> </ul>	<ul> <li>Wind: installations forecasted at similar level as in CY21</li> <li>PV: ongoing double-digit y-y growth in installations</li> </ul>
Home appliance	<ul> <li>Catch-up of delayed purchases and energy efficiency incentive programs will drive growth</li> </ul>	<ul> <li>Demand still driven by energy efficiency incentive for China room air conditioners</li> </ul>
Transportation ≈ ⊑	<ul> <li>Diminished COVID-related travel activities caused further push-out of construction of passenger trains and e-Busses</li> </ul>	<ul> <li>Infrastructure program in China (HST grid density) expected to drive growth for rail; emission free cities regulations growth driver for delivery vehicles and eTrucks</li> </ul>
Power Infrastructure ~9%	<ul> <li>Growing demand in EV charging infrastructure, Industrial UPS and energy storage systems</li> <li>Delays in Transmission &amp; Distribution projects</li> </ul>	<ul> <li>Strong growth of xEV driving charging infrastructure; continuous installation of renewable energy generation driving Energy Storage Systems</li> </ul>
Others 8%	Growth driven by general market recovery	<ul> <li>Long term positive outlook driven by general trend of electrification in emerging applications (e.g. e-Marine)</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		
Infineon	32.5%	Mitsubishi		32.7%	Infineon	35.6%	
Fuji Electric	11.7%	ON Semi	17.9%		Mitsubishi	11.9%	
ON Semi	7.9%	Infineon	11.5%		Fuji Electric	10.5%	
Toshiba	6.1%	Fuji Electric	7.8%		Semikron	7.3%	
Mitsubishi	5.7%	Semikron	7.0%		Vincotech	3.5%	
STMicro	5.4%	ROHM Semi	4.2%		Hitachi	3.1%	
Littelfuse	4.7%	Sanken Electric	2.9%		Danfoss	2.5%	
Renesas	4.5%	STMicro	2.4%		Starpower	2.5%	
MagnaChip	3.7%	Hangzhou Silan	1.1%		Toshiba	2.4%	
Hangzhou Silan	2.2%	Jilin Sino-Micro	0.8%		ABB Semi	1.8%	

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



## Infineon serves all applications in the field of renewable energy

#### Onshore



- Application: Full Converter & Partial/DFIG\* converter based wind turbine
- > Output: 1 MW 6 MW
- > Power semi content: €2,000 €3,250 per MW

## **String inverter**



- Application: residential, commercial and utilityscale PV plants
- Output: 1 kW 200 kW
- > Power semi content: €2,500 €5,000 per MW

\*DFIG – Doubly fed induction generator \*\* HVDC - High-voltage direct current transmission

#### Offshore



- > Application: Full Converter based wind turbine
- > Output: 3 MW 14 MW
- > Power semi content: €3,250 €3,500 per MW

## HVDC\*\*



- > Application: HVDC VSC
- > Output: 100 MW 4 GW
- > Power semi content: €5,200 €18,000 per MW

### **Central inverter**

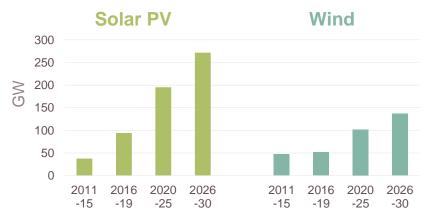


- > Application: utility-scale PV plants
- > Output: 600 kW 1,250 kW
- > Power semi content: €2,000 €3,000 per MW



## We are the #1 semiconductor enabler of renewable energies

### Average annual solar PV and wind capacity additions\*



Source: World Energy Outlook 2020, Average annual solar PV and wind capacity additions in the Sustainable Development Scenario to 2030 p. 109

## **Enabling Technologies**



- Reduces System Size
- Reduced power losses up to 50% compared to a traditional IGBT

### All leading renewable energy players are our customers\*

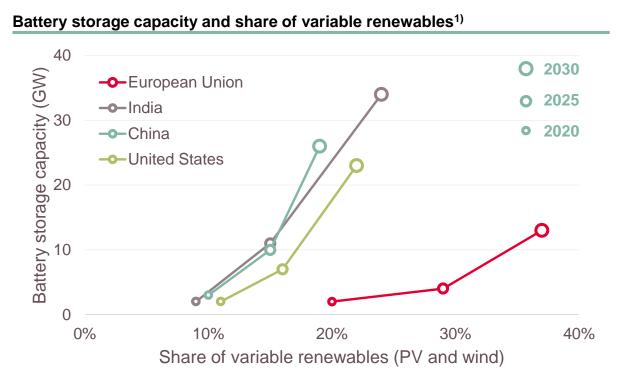
PV inverter	Wind	
1   Huawei	✓ 1   Siemens/Gamesa	$\checkmark$
2 Sungrow	✓ 2 Vestas	$\checkmark$
3 SMA	✓ 3 Goldwind	$\checkmark$
4 TBEA Sunoasis	✓ 4 GE	$\checkmark$
5 Wuxi Sineng	✓ 5 Enercon	$\checkmark$
6 ABB	✓ 6 Envision	$\checkmark$
7 Kstar	✓ 7   Nordex	$\checkmark$
8 Goodwe	✓ 8   Senvion	$\checkmark$
9 Growatt	✓ 9   United Power	$\checkmark$
<b>10</b>   Power Electr.	10   Mingyang	$\checkmark$



Increased lifetime of IGBT Modules Highest reliability for remote places

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





#### **Key drivers**

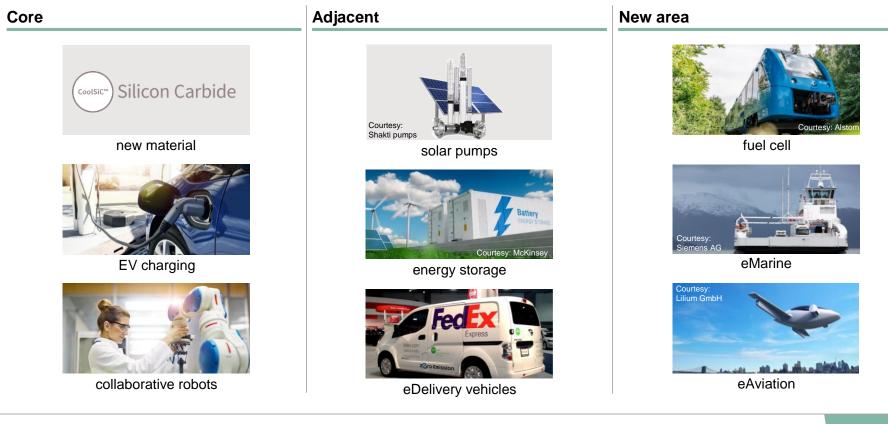
- Decentralization of power generation
- Peak shaving of energy generation and energy consumption
- Limited capacity and flexibility of today's grids
- Reduction of standby cost of fossil power plants

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

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

## What comes next? Mid- to long-term structural growth opportunities





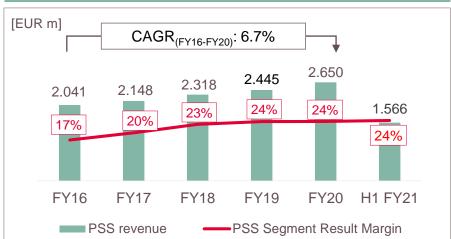


Power & Sensor Systems



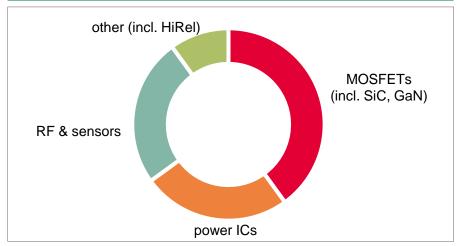


## PSS at a glance



### 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 H2 CY21	Market Outlook for CY22
Computing ~20%	<ul> <li>Acceleration towards cloud computing to continue</li> <li>Pandemic-driven stay at home and work at home effects continue to favor notebook sales</li> </ul>	<ul> <li>Structural drivers expected to stay in cloud computing and good momentum for enterprise servers</li> <li>Demand for CY22 supported by limited supply in CY21 (catch-up effects)</li> </ul>
Communication	<ul> <li>In general, long-term drivers due to 5G still intact</li> <li>However, trade tensions generate some uncertainty around speed of roll-out in China and other regions</li> </ul>	<ul> <li>5G cycle will continue to drive telecom equipment spending in CY22</li> </ul>
Smartphones ~19%	<ul> <li>Strong rebound expected driven mainly by economic recovery and migration towards 5G phones</li> <li>Potential risk due to reduced smartphone growth due to shortages, regional weaker demand (India/ China), 5G slower boost than expected</li> </ul>	<ul> <li>5G replacement cycle expected to continue to drive demand growth</li> </ul>
Consumer ~20%	<ul> <li>Consumer electronics, including e.g. game consoles, clear beneficiaries from stay at home</li> <li>Battery-powered tools continue to show strong momentum</li> <li>Consumer spending may be re-allocated to more leisure-oriented activities</li> </ul>	<ul> <li>Demand expected to decline in some consumer areas as TVs in light of re-allocation of consumer spending</li> </ul>
* does not sum up to 100% due to other a	Automotive and other industrial segments show strong recovery; however, automotive production has taken hits from chip shortages	<ul> <li>Demand in renewable energy, EV charging and automotive expected to be healthy</li> <li>Tailwinds from stimuli packages for EV and green energy in US and EU</li> </ul>

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







- > 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

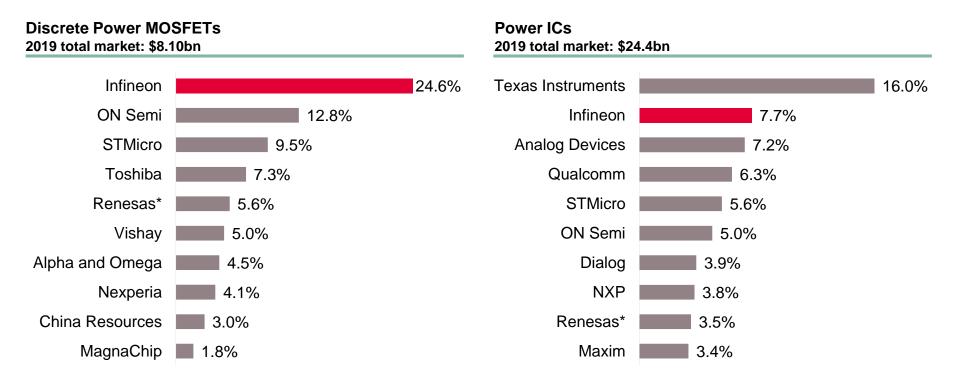


## **PSS** – Power



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





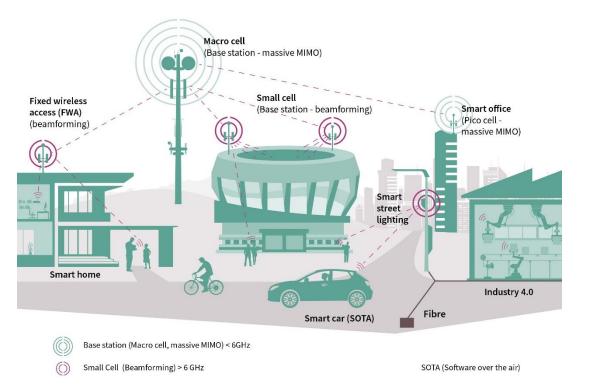
\* Renesas acquired Integrated Device Technology in March 2019. Both companies were combined as Renesas in 2019.

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



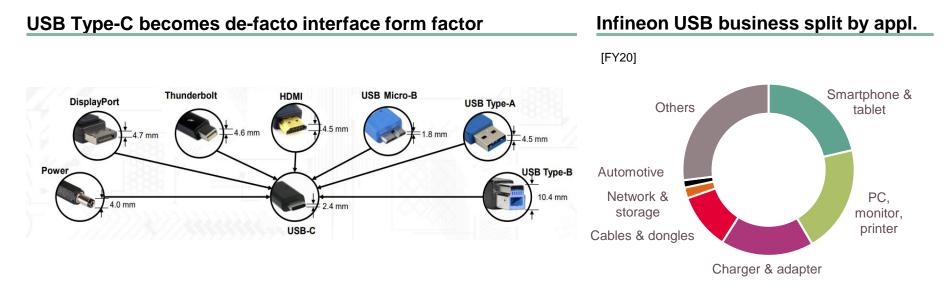
Smart and connected - the communication of tomorrow with 5G



- 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





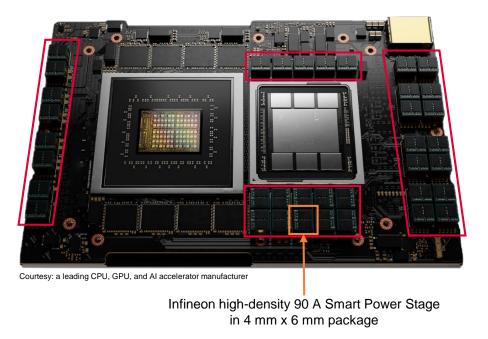
- > Infineon USB business dominated by USB Type-C and USB Type-C PD
- > USB Type-C PD in automotive is a nascent segment with good growth opportunities
- > USB Type-C PD offers revenue synergies for Infineon in AC-DC chargers and adapters

## Infineon provides leading-edge DC-DC power conversion for highperformance acceleration boards



## Next-generation accelerator boards are driving the need for ultra-high density and robust power conversion solutions

- Exponential increase in compute power driven by AI training and high-performance compute (HPC) systems resulting in power consumption of > 1 kW per board
- 15% to 25% higher DC-DC power semiconductor content with every xPU generation
- Infineon's robust and high-efficiency power management solutions are optimized to support high-performance xPUs, ASICs and SoCs with superior power density
- Infineon's high-density Smart Power Stages enable system designs with highest power density and quality



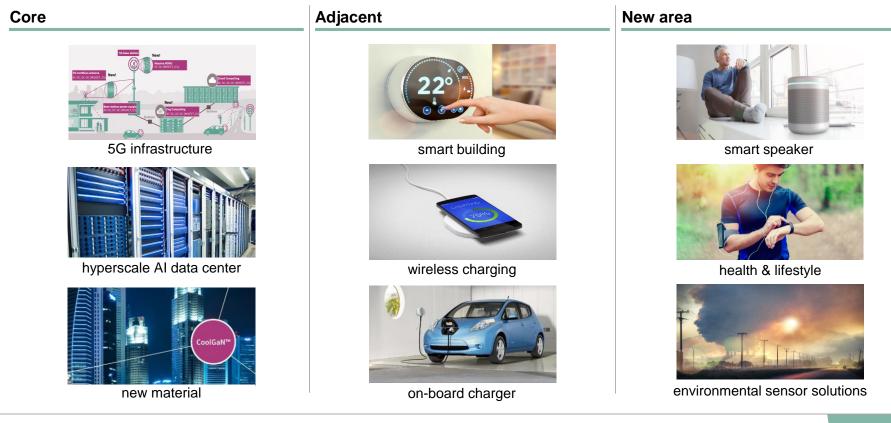
## e-mobility beyond cars: Infineon covers the vast majority of semiconductor content in eScooters



Application in eScooters	Power semis	Control & connect	Sensors	Security
battery management system	<ul> <li>protection FET</li> <li>cell balancing IC</li> </ul>	> PSoC™ MCU	<ul> <li>&gt; current sensor</li> <li>&gt; pressure sensor</li> <li>&gt; gas sensor</li> </ul>	<ul> <li>battery authentication</li> </ul>
charging	<ul><li>MOSFET</li><li>gate driver</li></ul>	<ul> <li>&gt; XMC<sup>™</sup> MCU</li> <li>&gt; XMC<sup>™</sup>-SC MCU</li> </ul>		
connectivity		<ul><li>&gt; Wi-Fi</li><li>&gt; Bluetooth</li></ul>		<ul> <li>eSIM</li> <li>communication</li> <li>authentication</li> </ul>
HMI & control			<ul> <li>&gt; positioning sensor</li> <li>&gt; capacitive-sensing</li> </ul>	<ul> <li>&gt; CIPURSE<sup>™</sup> security controller for mobile payment</li> </ul>
sensor Systems			<ul> <li>radar sensor</li> <li>ToF 3D sensor</li> <li>positioning sensor</li> </ul>	
motor drive	<ul><li>MOSFET</li><li>gate driver</li></ul>	<ul> <li>&gt; XMC<sup>™</sup> MCU</li> <li>&gt; AURIX<sup>™</sup> MCU</li> </ul>	<ul> <li>positioning sensor</li> </ul>	

## What comes next? Mid- to long-term structural growth opportunities





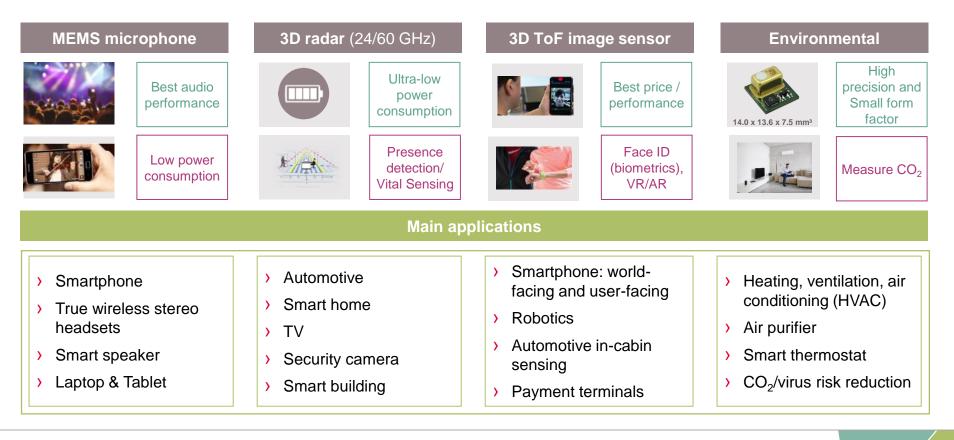


## PSS – RF and Sensing



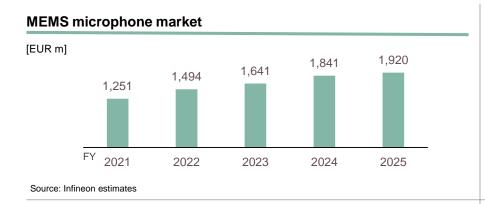


## Main applications addressed by PSS sensors portfolio





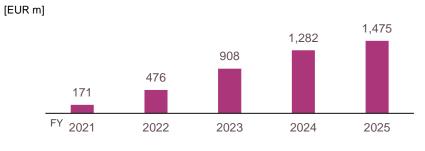
## Sensor markets targeted by PSS offer attractive growth potential



# [EUR m] FY 2021 2022 2023 2024 2025

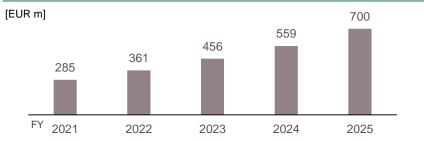
Source: Infineon estimates

#### 3D ToF image sensor market



Source: Infineon estimates

#### Environmental sensor market\*



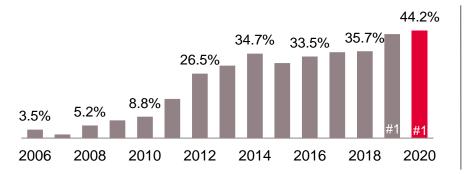
\* Infineon is addressing smart building, smart home, smart appliances, consumer IoT devices and automotive. Source: Infineon estimates

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

## Unparalleled audio characteristics of our XENSIV<sup>™</sup> MEMS microphones made Infineon #1 in 2019 with further m/s gain in 2020



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



 2020 MEMS die market share

 total market: 6.0bn units

 Infineon
 44.2%

 Knowles
 38.3%

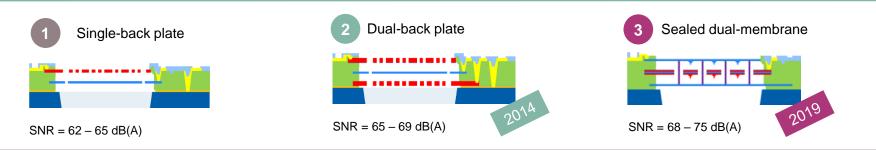
 MEMSensing
 6.8%

 Omron
 3.5%

 NJRC
 2.6%

Based on or includes research from Omdia: MEMS Microphones Dice Market Shares 2021. July 2021

### Technological progression of Infineon XENSIV<sup>™</sup> MEMS microphones





### **Presence detection**

- Room Occupancy Devices
   e.g. human localization and counting
- Occupancy based heating and ventilation
   e.g. reduction of CO<sub>2</sub> level to prevent spreading of diseases

#### > Device switch on/off

e.g. reduction of energy consumption (e.g. lamp, TV, air conditioning...)

Directional audio effects on individuum
 e.g. to improve audio quality (e.g. smart speaker, TV)

#### > Home surveillance

e.g. detection of intruders

#### Health monitoring

#### Sleep monitoring

Sleep detection, sleep quality, apnea & snoring detection (radar combined with MEMS microphone)

#### Vital sensing for home Fitness

Heart rate and breathing rate measurement (person standing still after exercise)

## Segmentation with radar enables smart devices to recognize each person in the room



# Infineon 3D ToF is a versatile technology for many consumer applications





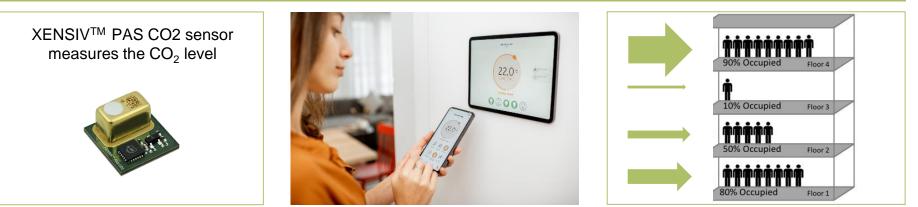
## Infineon XENSIV<sup>™</sup> PAS CO2 sensor enables highly-precise CO<sub>2</sub> measuring in an extremely small size



## Photoacoustic spectroscopy (PAS) technology based on Infineon's high (SNR) signal-to-noise ratio MEMS microphone

- → Infineon XENSIV<sup>™</sup> PAS CO2 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 performance and fast design-to-market

## XENSIV<sup>™</sup> PAS CO2 leads to demand-oriented and energy efficient control of air conditioning systems



## Infineon system solution addresses IoT market via combining XENSIV<sup>™</sup> sensors, PSoC<sup>™</sup> 6 MCU and connectivity

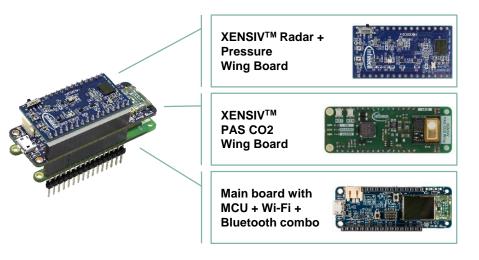


### Key facts

- Infineon offers system solutions comprising of sensor, MCU, connectivity and software libraries (apps, SDKs)
- > BLE functionality monolithically integrated on MCU
- IoT target applications for radar: entrance control or presence detection for smart home and smart building
- Radar solutions are anonymous and therefore respecting privacy
- First orders for presence detection received from several Asian customers
- Radar solution can perfectly be combined with Infineon's XENSIV<sup>™</sup> PAS CO2 sensor for air quality monitoring



## Example offering: Combination of sensors, microcontrollers and connectivity in development kit



## Advantages of radar over passive infrared

- super compact design; smaller system sizes
- determination of person's direction, speed, distance
- programmable; can flexibly be adapted to the target application
- higher accuracy; more precise measurements of detected objects

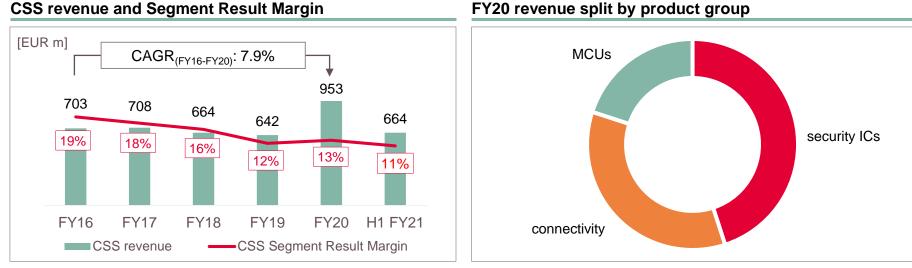


## **Connected Secure Systems**



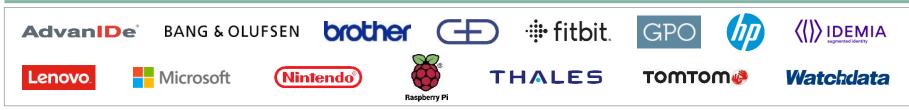


## CSS at a glance



## FY20 revenue split by product group

#### Key customers



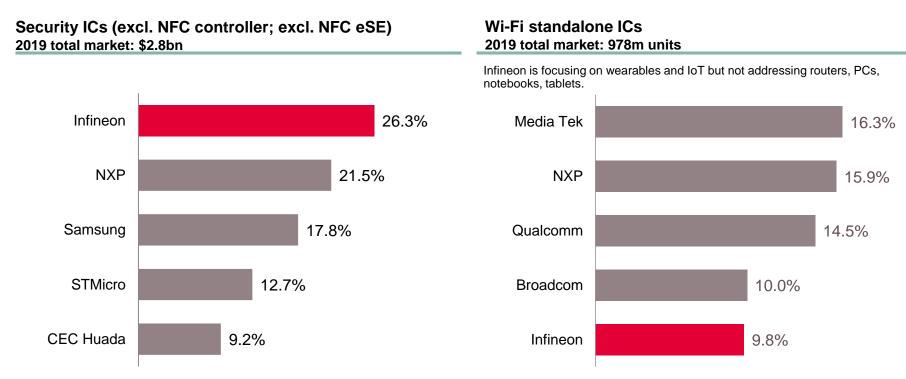
Market outlook for target applications remains positive but foundry supply constraints might limit growth potential in 2022



Applica (% of FY20 segm			Market Outlook for CY21		Market Outlook for CY22
Industrial	Industrial IoT	<ul> <li>,</li> </ul>	Growth driven by general market recovery in industrial automation and energy efficiency incentive programs for home appliances	)	Growth momentum in industrial segments to continue into 2022
	)	New features and technologies enter production across several devices	)	Further growth momentum across smart home devices expected	
and Consumer IoT	and Consumer	, ,	Increasing penetration rate of eSIM Automotive driven by increasing connectivity requirements Connectivity technologies to improve in-car user experience	<ul> <li>,</li> </ul>	Increasing penetration rate of eSIM Automotive and in- car connectivity to continue along with further recovery of overall light vehicle sales
~70% Gaming *** Wearables	,	Market growth driven by launch of new console models	)	The market is assumed to decline slightly from a high level after CY21	
	Wearables	<ul> <li>,</li> <li>,</li> </ul>	New product launches expected to boost demand Further implementation of low-power processing and connectivity technologies across new models	<ul> <li>,</li> </ul>	Growth in wearables market is assumed to stretch in 2022 driven mainly by smart watches
Payment, ID, Ticketing	Payment	( ا	High demand for contactless payment solutions expected to continue while supply constrains might poise risks	<ul> <li>,</li> </ul>	Further migration and high demand for contactless payment solutions expected to continue however under risk of foundry supply constraints
~30% Iden	Identification	, ,	Prolonged restrictions on intercontinental travel expected to further affect the issuance of passports, partially compensated by a major eID project roll-out	, ک	Positive trend expected driven by recovery in passports issuance as well as project roll-out for other eDocuments

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



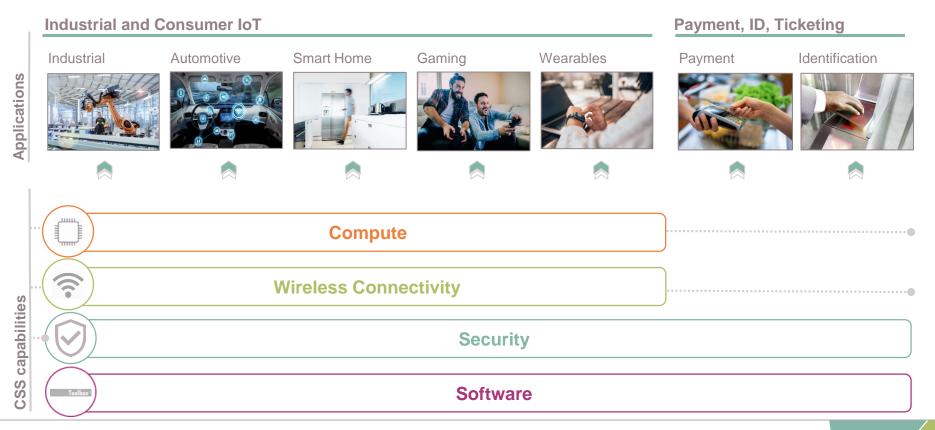


ABI Research: Smart Card and Embedded Security IC Technologies. October 2020

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

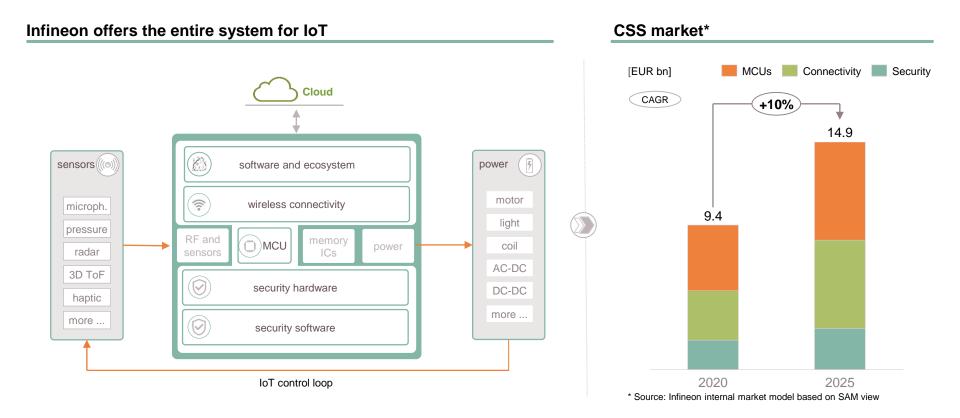
# CSS empowers the world to easily connect through smart and trusted solutions





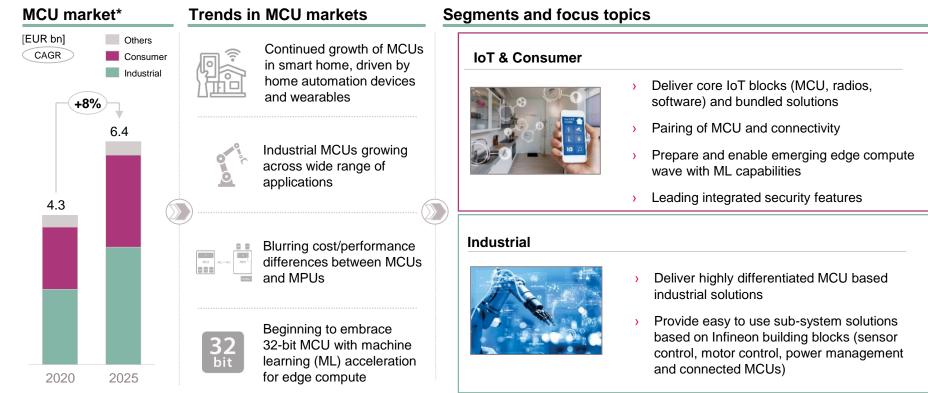
Compute, connectivity, security and software ecosystem capabilities enable Infineon to address a growing market driven by the IoT





## MCUs – Dynamic market environment; CSS is well set to tackle trends in IoT & Consumer as well as Industrial markets

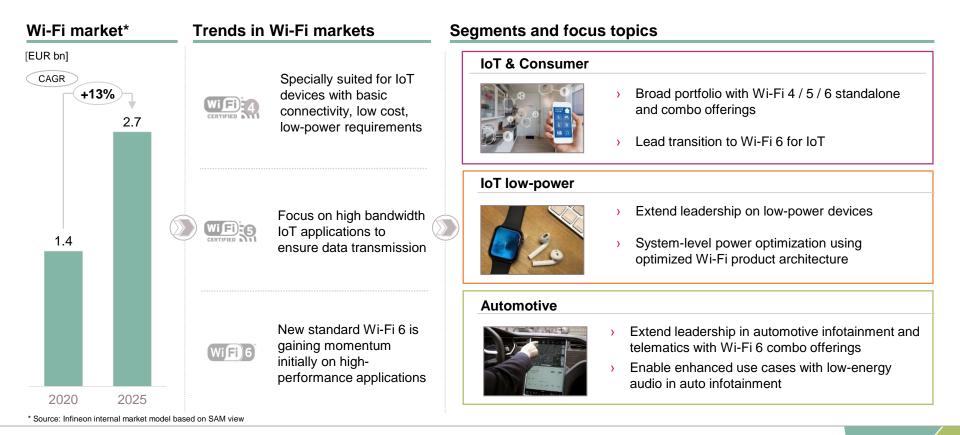




\* Source: Infineon internal market model based on SAM view

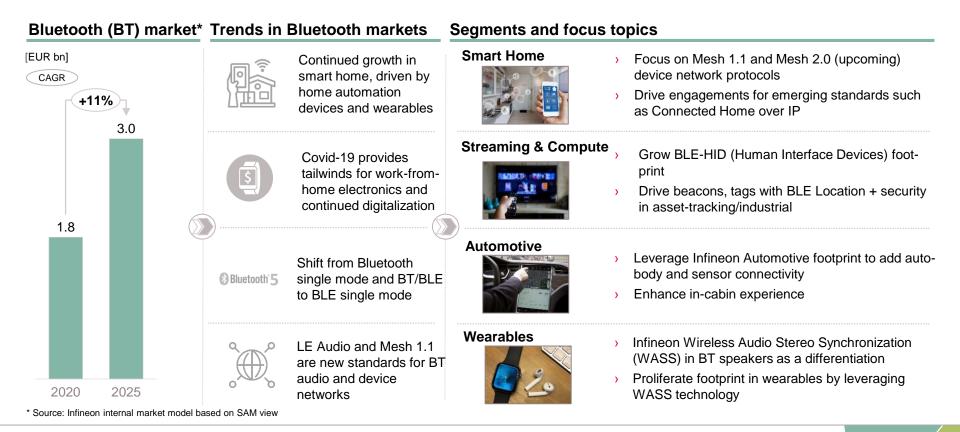
# Wi-Fi – Market driven by a dynamic environment of specifications; CSS is addressing main growth trends





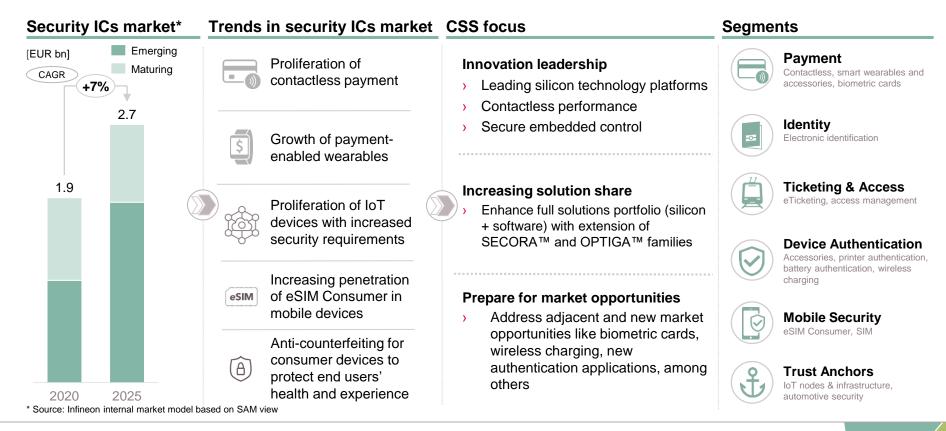
## Bluetooth – Market driven by further penetration of Bluetooth use cases across devices; CSS focus topics enable this development





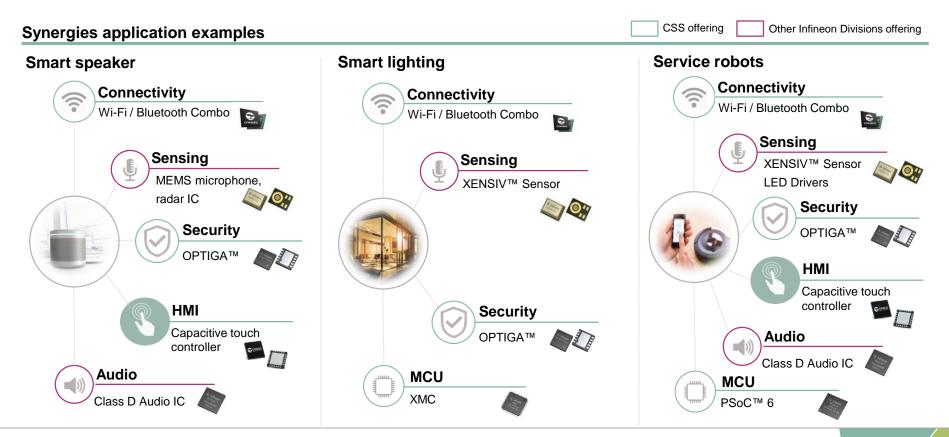
Security – Several long-term key trends driving value, generating emerging opportunities, shaping CSS' focus in the security field





## Significant synergy potential of a combined company product portfolio





# Infineon's new AIROC<sup>™</sup> Wi-Fi 6/6E and Bluetooth<sup>®</sup> 5.2 solutions bring reliable, high-performance connectivity to smart homes



#### Key facts

- Infineon is expanding its AIROC<sup>™</sup> wireless portfolio of highperformance, reliable and secured offerings with combined Wi-Fi 6/6E and Bluetooth<sup>®</sup> 5.2 combo capabilities
- > Key advantages of the new solution include:
  - Doubled wireless coverage range compared to Wi-Fi 4 and 5
  - 40% more coverage than typical Wi-Fi 6/6E solutions
  - Over 20% power savings, enabling longer battery life
  - Improved connection robustness with enhanced interference mitigation
  - Multi-layer security protections enabling a higher level of security for IoT applications

### Selected target applications







streaming devices

game consoles

smart speakers



infotainment

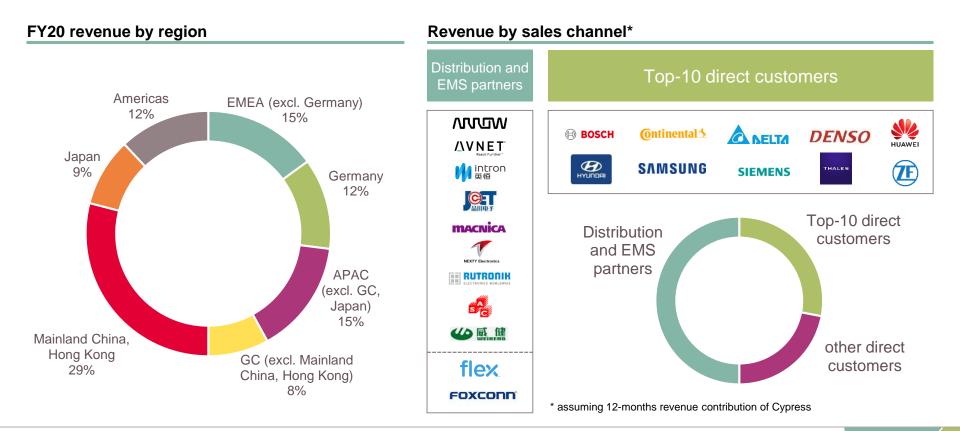




## Selected financial figures

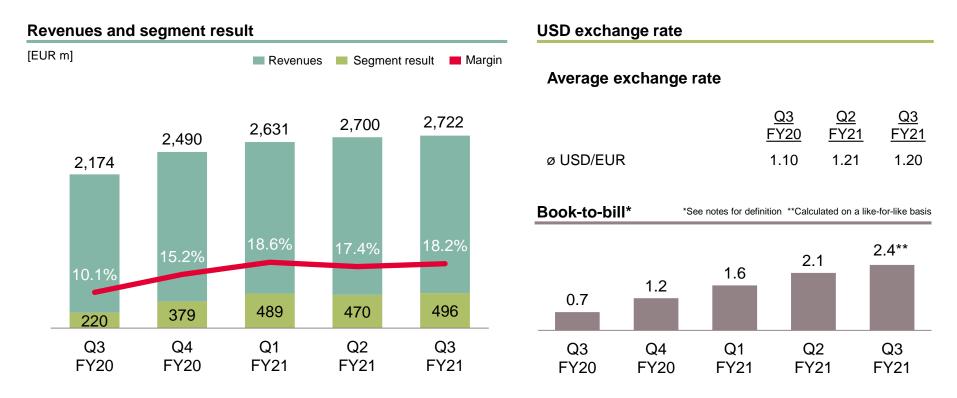






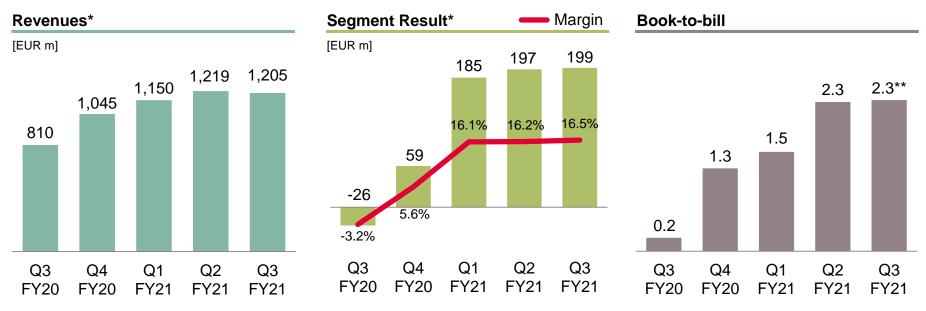
### Group financial performance







### Automotive (ATV)



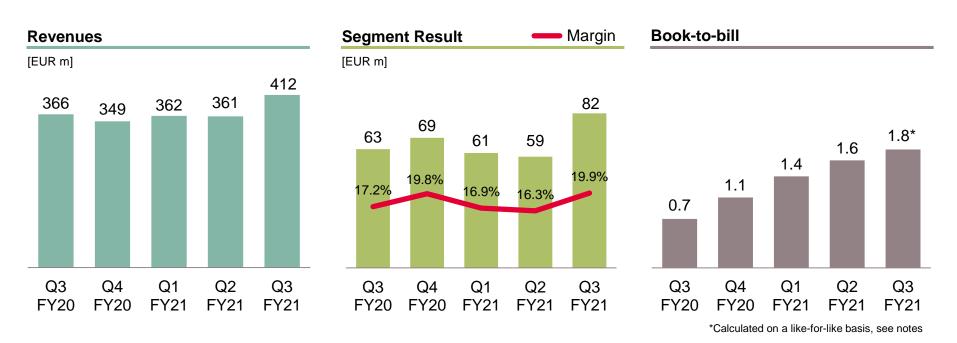
\*\*Calculated on a like-for-like basis, see notes

> Significant demand across all product areas, however ...

- > ... supply constraints, in particular temporary shutdowns at Austin and Melaka sites, capped revenue growth; profitability was preserved
- > In an overall restrained car market, the adoption of electric vehicles remains on a strong trajectory

\* 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.

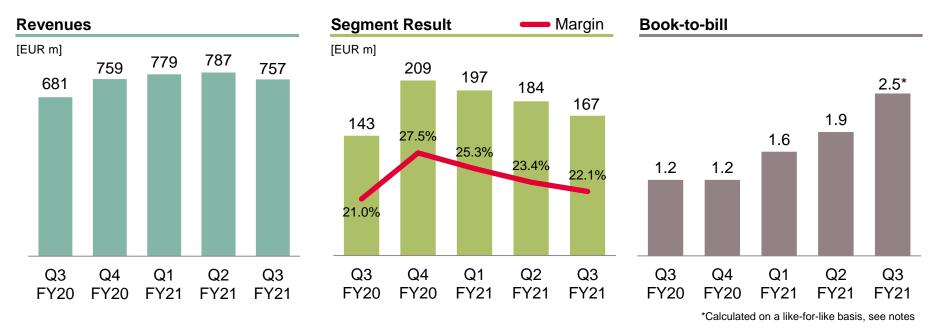
# Industrial Power Control (IPC)



- All application areas contributed to the strong sequential growth, in particular industrial drives and renewable energies
- > Ongoing recovery for industrial drives, driven by robust business optimism
- > Energy transition provides strong structural backdrop to several IPC target areas (renewables; energy storage; EV charging)



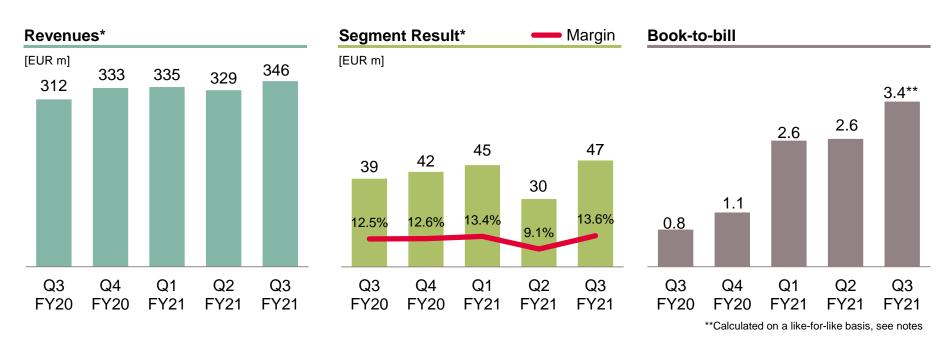
### Power & Sensor Systems (PSS)



- > Sequential revenue decline caused by:
  - Temporary drop of demand for RF and sensor components for smartphones
  - > Supply limitations resulting from constraints at our Austin and Melaka fabs and from external contract manufacturers
- > Strong demand across the entire range of power products from server power stages to MOSFETs and ICs for battery-operated tools



# Connected Secure Systems (CSS)

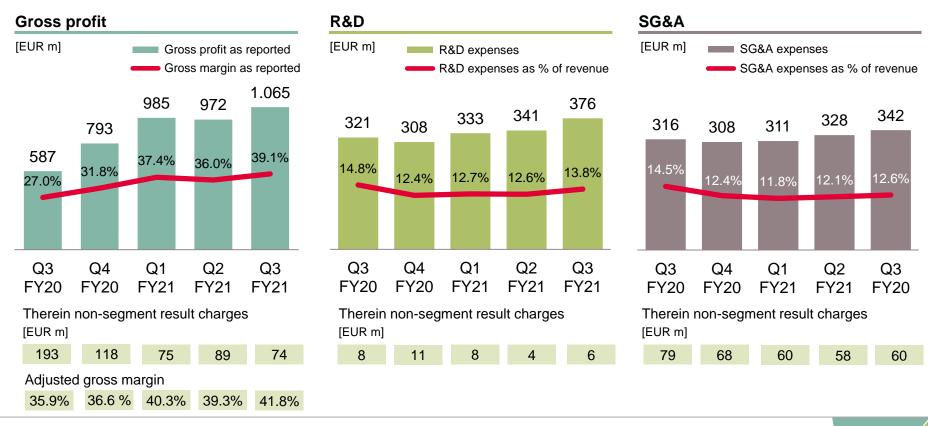


- > Some limited supply improvements and higher project business in identity solutions supported quarterly revenue growth
- > Brisk demand for general-purpose MCUs, Wi-Fi and Bluetooth components and security solutions
- > Ongoing design-win momentum for smart and connected devices

\* 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.

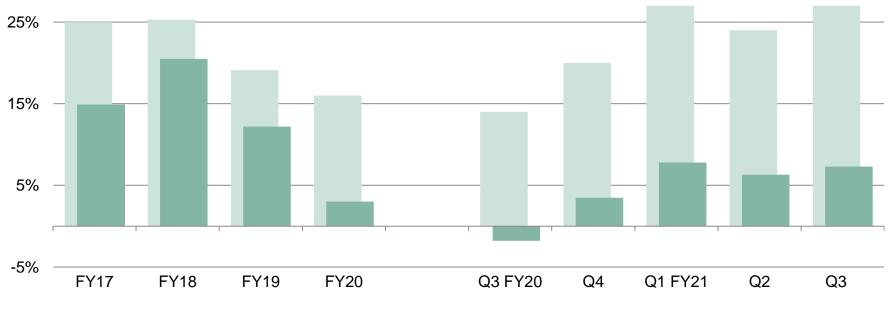


#### Gross margin and Opex





#### RoCE and adjusted RoCE



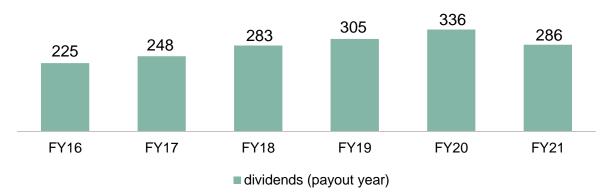
Adjusted RoCE (excl. effects from International Rectifier and Cypress acquisition, Deferred Tax Effects, RF Power sale) RoCE



#### Earnings-per-share and total cash return

#### Development of earnings-per-share (EPS) from continuing operations [EUR cent] 28 27 24 20 19 18 15 13 8 -11 ■ EPS basic EPS adjusted Q3 FY20 Q4 Q1 FY21 Q2 Q3 Total cash return to shareholders

[EUR m]

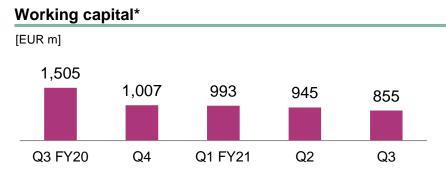


> Dividend for FY20: €0.22 per share

Dividend payout of €286m for FY20 on 2 Mar 2021

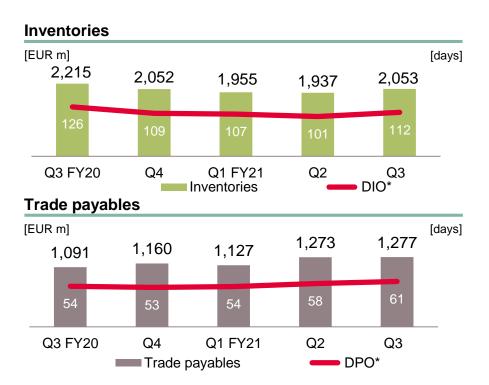


# Working Capital, in particular trade working capital components



**Trade receivables** 



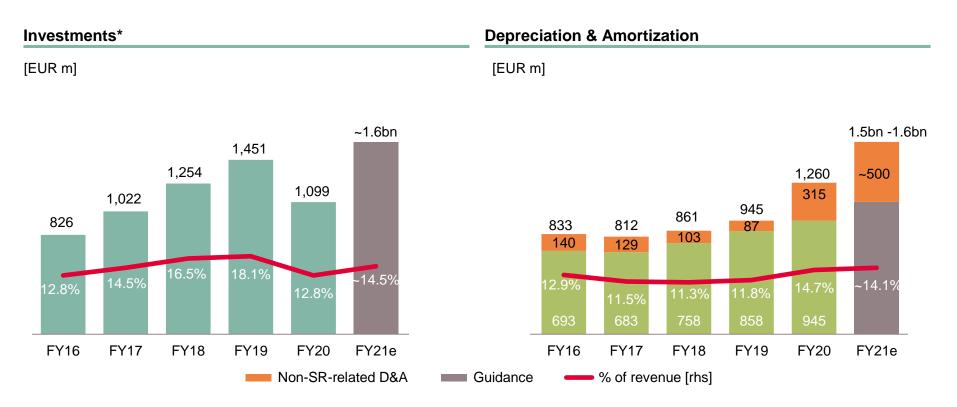


\* For definition please see page "Notes".

\*\* 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

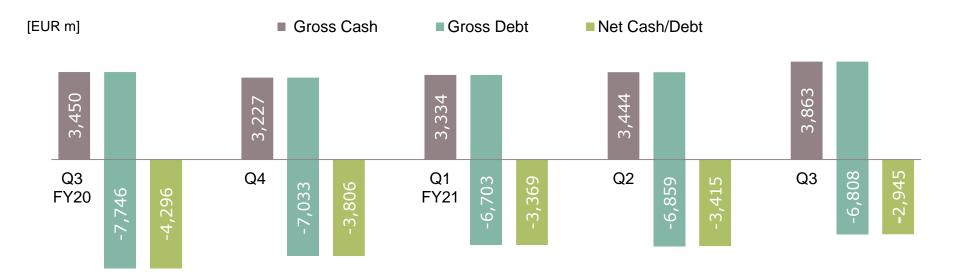




\* For definition please see page "Notes".

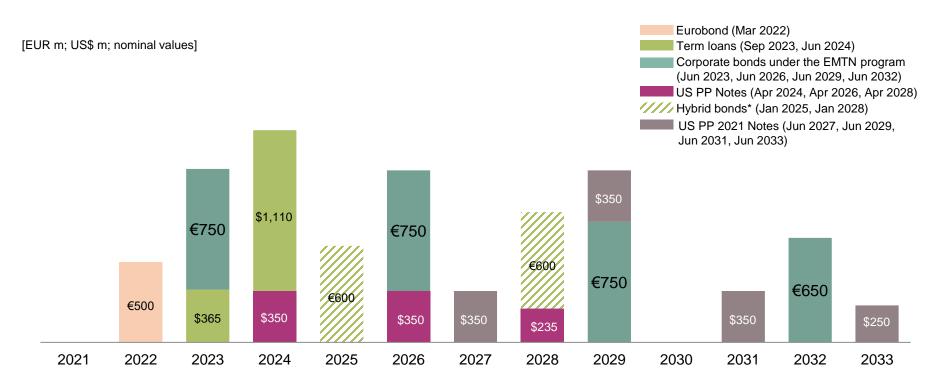
### Liquidity development





### Maturity profile





Graph excludes pre-existing Cypress convertibles of ~\$382m repayment value, maturing latest 2022, and additional debt with maturities between 2021 and 2023 totaling €6m. \* 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.



# Part of your life. Part of tomorrow.

# Glossary (1 of 2)



ABB	accelerated book building	EC	
ABS	anti-blocking system		
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		
BMS	battery management system		
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	loT	
DIF	dual-interface (contact-based and contactless)		
DIY	do it yourself		
DPM	digital power management	iPol	
eCall	emergency call		
		IF	

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 biploar transistor	
loT	Internet of Things	
IPM	intelligent power module	
IVN	in-vehicle networking	
iPol	image processing line	
IRFPolP	International Rectifier	

# Glossary (2 of 2)



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	

PTC	positive temperature coefficient	
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 market	
тсо	total cost of ownership	
ToF	time-of-flight	
ТРМ	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

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
1 Sep 2021	Chicago → virtual	Jefferies Annual Semiconductor Conference
2 Sep 2021	Frankfurt $\rightarrow$ virtual	Commerzbank Corporate Conference
2 Sep 2021	London → virtual	dbAccess European TMT Conference
5 Oct 2021	London // virtual	Infineon Capital Markets Day "IFX Day 2021"
10 Nov 2021*		Q4 FY21 and FY 2021 Results



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

#### 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.

Like-for-like calculation in Q3 FY21: In the light of continued strong order intake, Infineon has temporarily switched from automatic to manual order confirmation. As a result, comparatively fewer orders are being confirmed. To provide a comparable view, the book-to-bill figure has been adjusted by assuming the same confirmation rate of newly received orders as in the previous quarter.

#### ESG footnotes:

- 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.

#### For further reading



ATV Business Update Call Peter Schiefer 5 October 2020



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

IPC Business Update Call Dr. Peter Wawer 6 May 2021



https://www.infineon.com/2021ipccall

CSS Business Update Call Thomas Rosteck 3 March 2021



https://www.infineon.com/2021csscall

PSS Business Update Call Andreas Urschitz 1 July 2021



https://www.infineon.com/2021psscall





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