

## Second Quarter FY 2021 Quarterly Update

Infineon Technologies AG Investor Relations





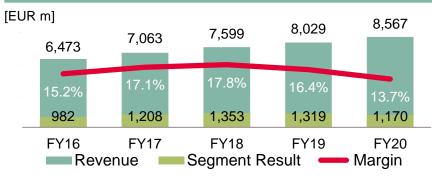
### Infineon at a glance

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



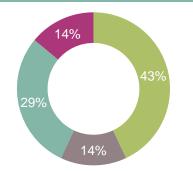
- IoT (edge comp., data center, 5G, sensing, connectivity)
- electro-mobility
- assisted driving, autonomous driving
  - energy efficiency, renewables, EV infrastructure
- security

#### Financials

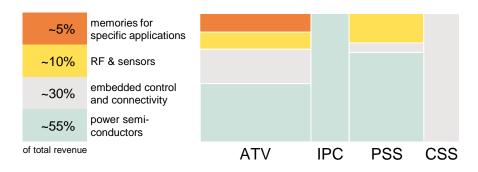


Illustrative aggregated FY20 revenue by segment

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



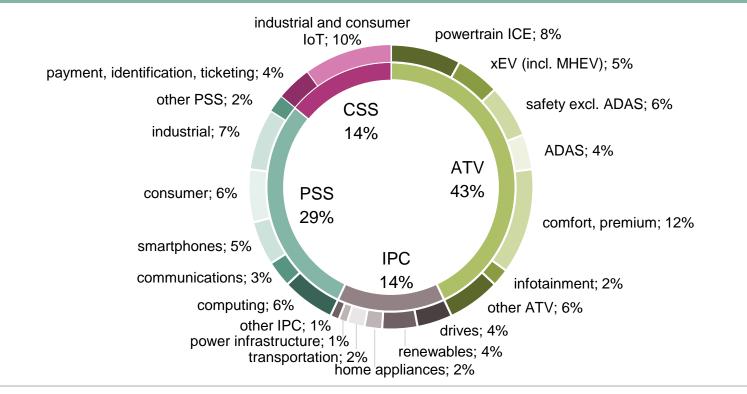
#### Illustrative aggregated FY20 revenue by product category



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

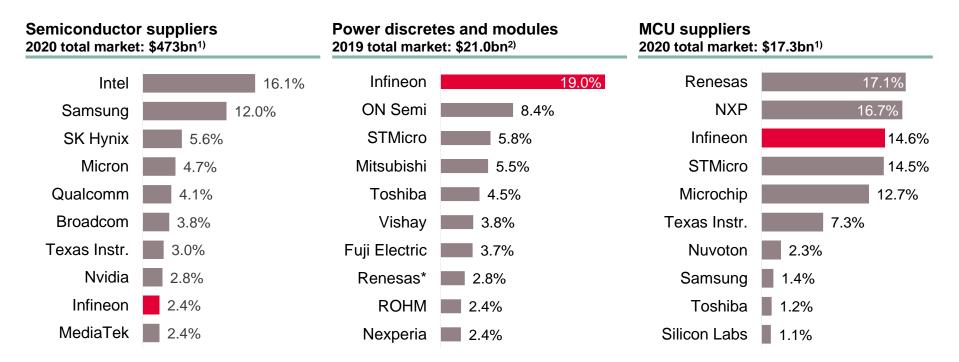


#### Illustrative aggregated FY20 revenue of ~€9,600m by target application



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



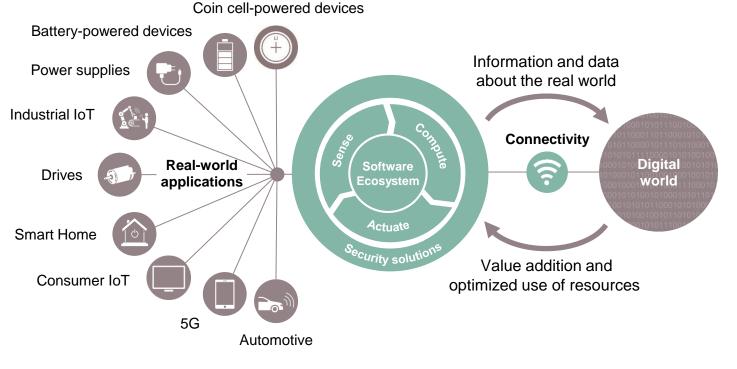


\* Renesas acquired Integrated Device Technology in March 2019. Both companies were combined as Renesas in the 2019 ranking.

- 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





Sense: sensors Compute: microcontrollers, memories

Actuate: power semiconductors

Connectivity: Wi-Fi, Bluetooth, USB



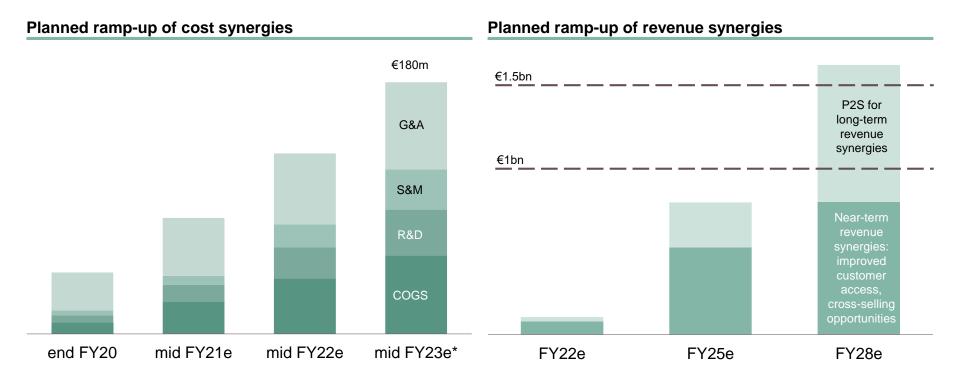
	Outlook Q3 FY21*	Outlook FY21*	
Revenue	€2.6bn – €2.9bn	<b>~ €11.0bn +/- 3%</b> (prev.: ~ €10.8bn +/- 5%)	
Segment Result Margin	At the mid-point of the revenue guidance: <b>~ 18%</b>	At the mid-point of the revenue guidance: <b>~ 18%</b> (prev.: ~17.5%)	
Investments in FY21	~ €1.6bn		
D&A in FY21	€1.5bn – €1.6bn**		
Free cash flow in FY21	> €1.2bn (prev.: > €800m)		

\* 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.

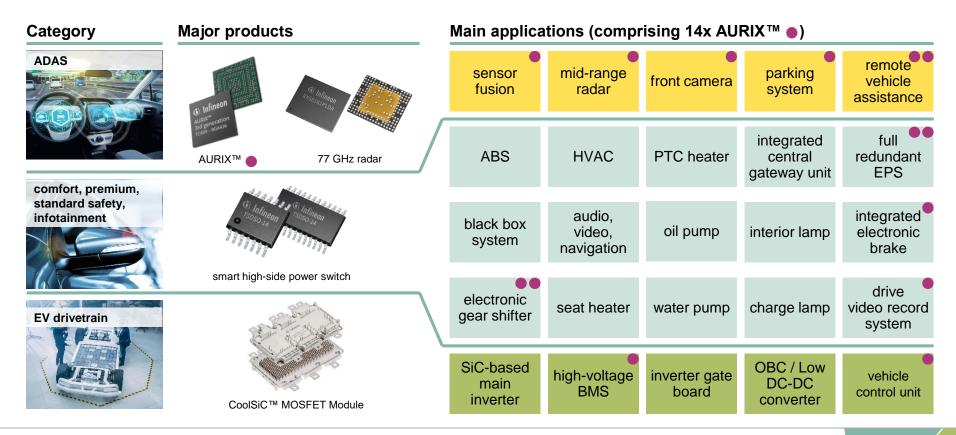
\* Expected cost synergies of €180m p.a. gradually ramping up over approximately three years after closing (16 April 2020).



	<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%

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

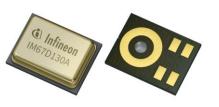






Infineon expands the application range of its MEMS microphones into automotive

XENSIV™ IM67D130A MEMS microphone





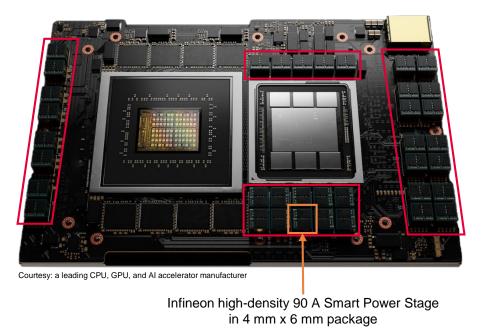
- The newly launched IM67D130A MEMS microphone enables the use of sound as a complementary sensor for
  - improved speech recognition
  - advanced driver assistance systems
- The outstanding acoustic characteristics allow the microphone to capture distortion-free audio signals in loud environments for
  - interior applications: hands-free systems, emergency calls, in-cabin communication, active noise cancellation
  - exterior applications: siren detection, road condition recognition

### 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



# Infineon radar turn-key solution addresses IoT market via combining XENSIV<sup>™</sup> 60 GHz radar and highly integrated PSoC<sup>™</sup> 6 MCU

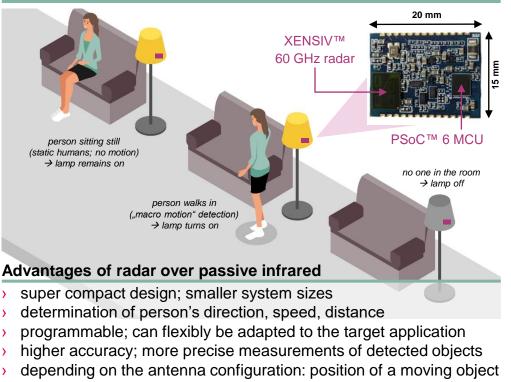


#### Key facts

- Infineon offers complete turn-key solution comprising of sensor, MCU and software libraries (apps, SDKs)
- > BLE functionality monolithically integrated on MCU
- Radar sensor remotely controlled via smartphone app
- IoT target applications: 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
- optionally: radar solution can perfectly be combined with Infineon's XENSIV™ PAS CO2 sensor for air quality monitoring



#### Example application: presence detection



### 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







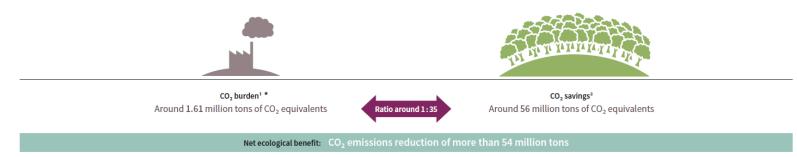
## ESG: targets and achievements



# 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

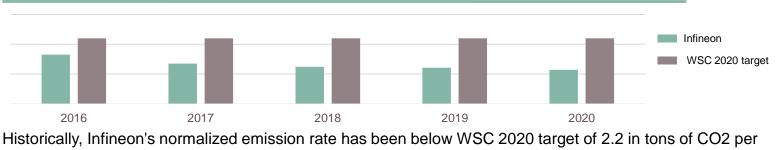


### Infineon will become carbon-neutral by 2030

## 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
 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 collaboration with	Dow Jones Sustainability Index	81 Dow Jones Sustain- ability™ World and Europe Index listing	0 to 100	11/2020
E Tridie Barrister	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	-	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

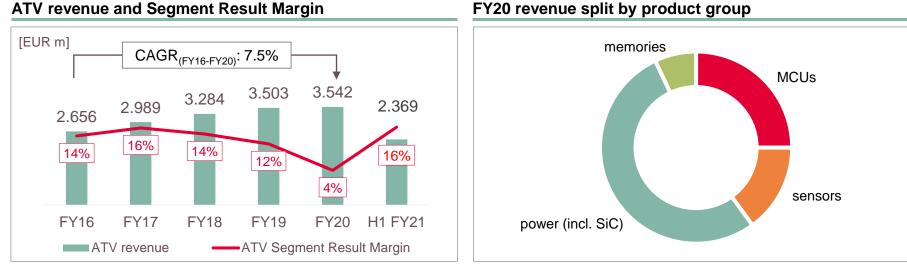


## Automotive





### ATV at a glance



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

**Key customers** 







- $\,$   $\,$  Incentives and  $\rm CO_2$  regulations should keep demand high
- > Improving consumer sentiment around sustainability theme
- > Steady investments in EV charging infrastructure further lowers reservation towards EVs

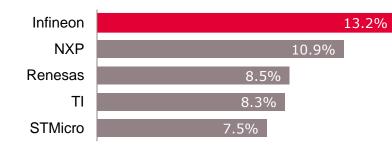




- > Further increase in L1 and L2 penetration expected
- > L2+ shipments still at the inital phase

### 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			Power semiconductors			
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**



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



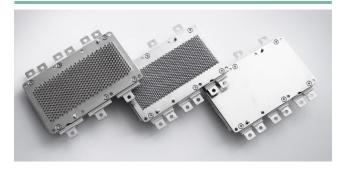
#### NIO: EC6



#### GAC Trumpchi: Aion S EV



#### Scalable Infineon HybridPACK™ Drive portfolio



XPeng: P5



#### > > 20 BEV platforms in production with Infineon HybridPACK<sup>™</sup> Drive

- > 1m pieces shipped with an unparalleled quality performance
- > Available with Si and SiC chips
- Scalable module portfolio meets costperformance sweet spots between 120 kW and 250 kW
- Optimized versions for 400 V and 800V battery voltage

#### SAIC: MG EZS EV



# 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 xEV 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 18.8m vehicles 2025e 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

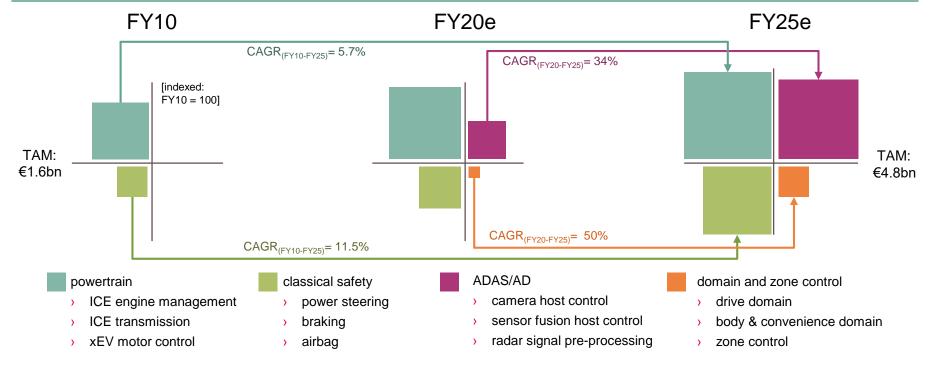


BoM contains all type of semiconductors (e.g. radar modules include  $\mu$ C); sensor fusion does not include memory. BoM are projected figures for the respective time frame Sources: Strategy Analytics: *Automated Driving Semiconductor Market Estimate*. August 2020; Infineon.

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



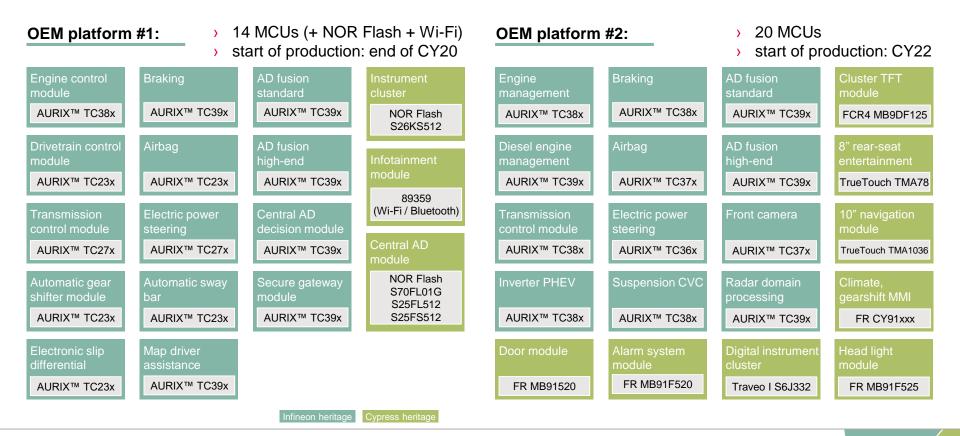
#### Infineon AURIX™ revenue development over time



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

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





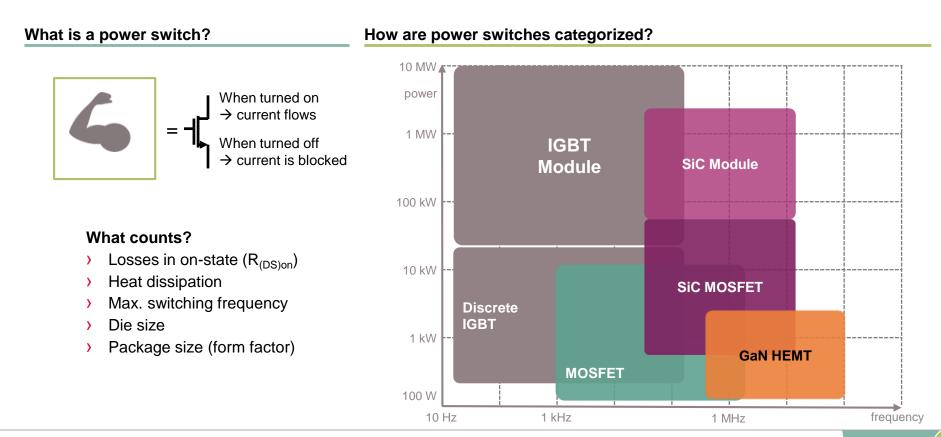


## Infineon's Power Strategy

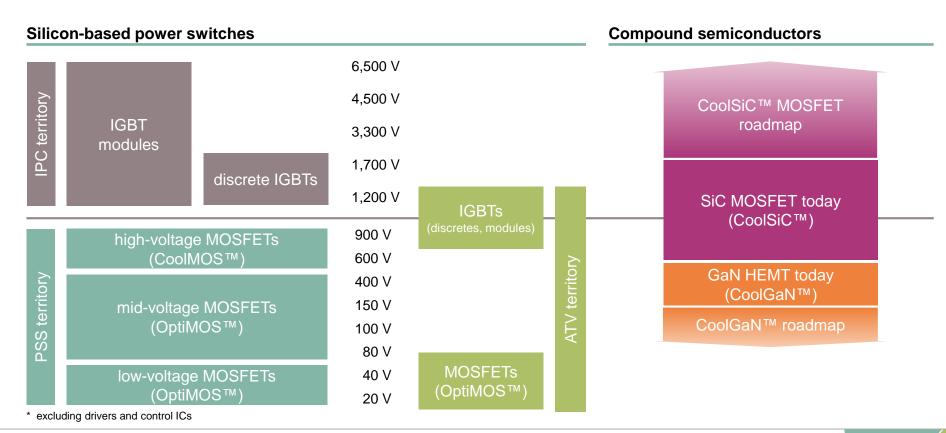




### Infineon's portfolio covers the entire range of power and frequency

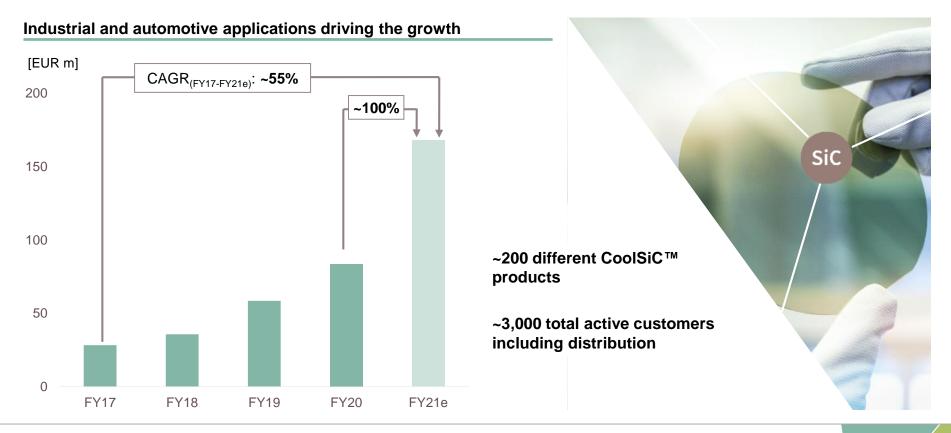






# Raised forecast: dubling the revenue in FY21 – more than half of the incremental growth contributed by automotive







### 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™ Diode	CoolSiC™ Hybrid	CoolSiC™ MOSFET		
an 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										

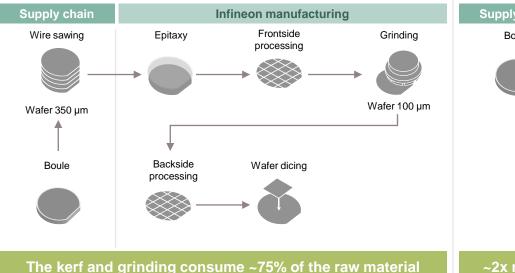


### Traditional wire sawing wastes ~3/4 of the raw material

#### 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.

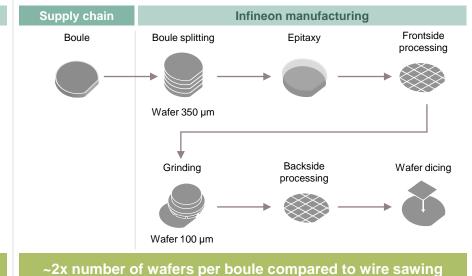
#### → ~¾ of raw material lost



#### 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



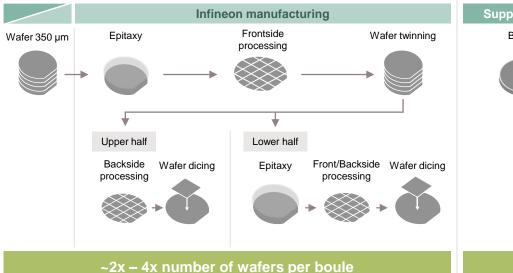
# Boule splitting plus wafer twinning or advanced boule splitting quadruples output out of a given boule



#### 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.

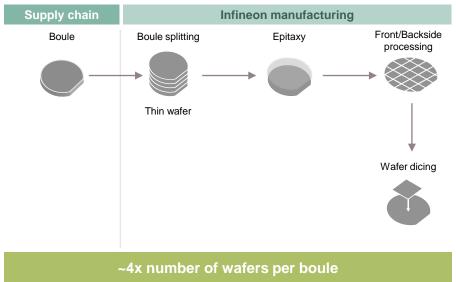
 $\rightarrow$  Combining boule and wafer twinning  $\rightarrow$  minimal raw material losses



#### Phase 3: advanced boule splitting

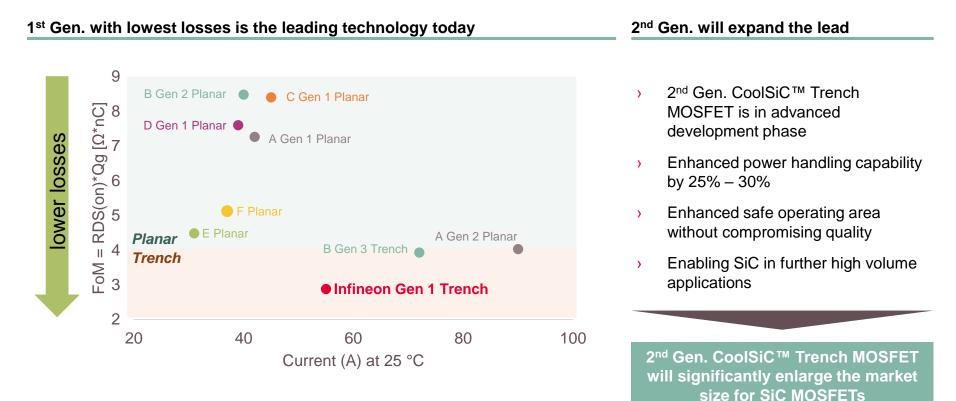
The advanced boule splitting results in thin wafers that can be processed directly.

#### $\rightarrow$ 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

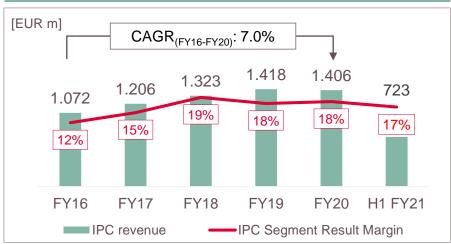


## **Industrial Power Control**



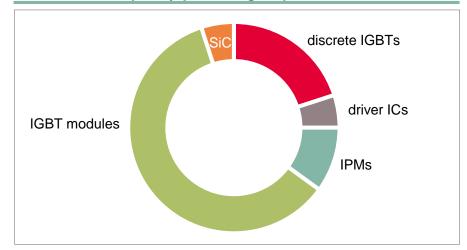


### IPC at a glance



### IPC revenue and Segment Result Margin

FY20 revenue split by product group



### Key customers

ABB	ALSTOM	BOMBARDIER		Danfoss	FAT•N
GOLDWIND	Inovance	Midea	OMRON	Rockwell Automation	Schneider Electric
SEMIKRDN innovation + service	SIEMENS	SUNGRØW	TOSHIBA	Vestas	YASKAWA



Applications (% of FY20 segment revenue)	Market Outlook for CY21				
Automation and Drives ~30%	Industrial Drives recovering in high single digits with demand growing mainly in GC region				
Renewables ~24%	<ul> <li>Wind: installations forecasted to increase to all-time-high</li> <li>PV: market forecast continuously corrected upward</li> </ul>				
Home appliance	Catch-up of delayed purchases and energy efficiency incentive programs will drive growth				
Transportation ≈ ⊑	<ul> <li>Diminished COVID-related travel activities caused further push-out of construction of passenger trains and e-Busses</li> </ul>				
Power Infrastructure Company ~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>				
Others 8%	Growth driven by general market recovery				

## 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**

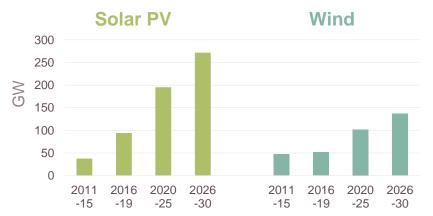


- > Application: utility-scale PV plants
- > Output: 600 kW 1,250 kW
- > Power semi content: €2,000 €3,000 per MW



### 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\*

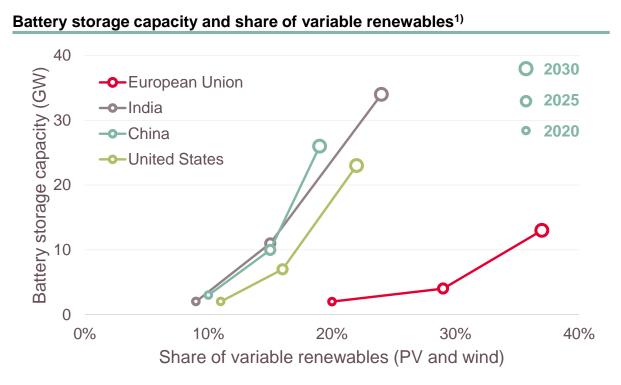
PV inverter	Wind	
<b>1</b>   Huawei	✓ 1   Siemens/Gamesa	$\checkmark$
2 Sungrow	✓ 2 Vestas	$\checkmark$
3 SMA	✓ 3 Goldwind	$\checkmark$
4 TBEA Sunoasis	✓ 4 GE	$\checkmark$
5 Wuxi Sineng	✓ 5 Enercon	$\checkmark$
6 ABB	✓ 6 Envision	$\checkmark$
7 Kstar	✓ 7 Nordex	$\checkmark$
8 Goodwe	✓ 8 Senvion	$\checkmark$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

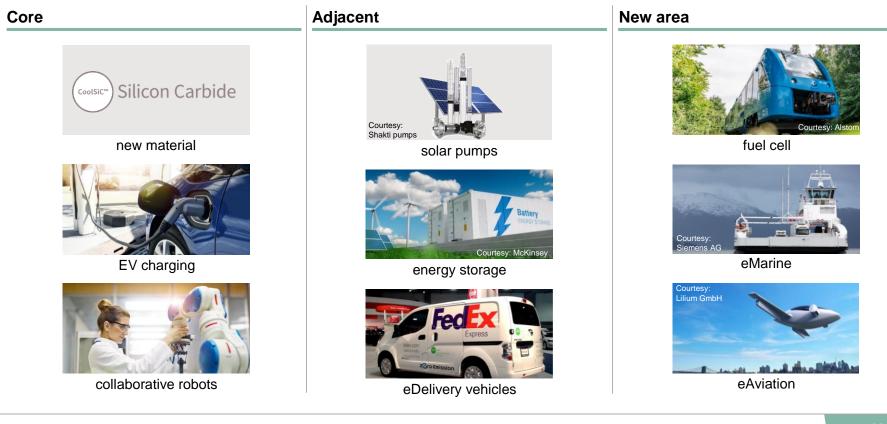
- Decentralization of power generation
- Peak shaving of energy generation and energy consumption
- Limited capacity and flexibility of today's grids
- Reduction of standby cost of fossil power plants

**~€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





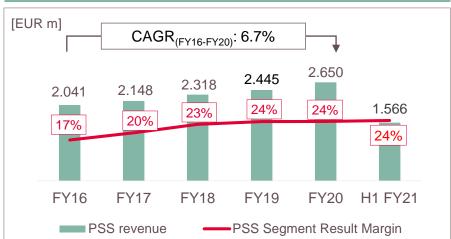


Power & Sensor Systems

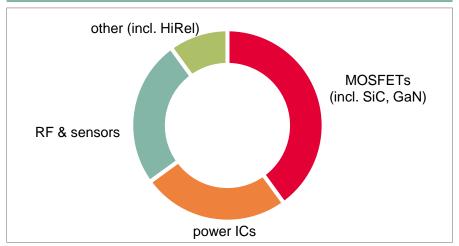




### PSS at a glance



### PSS revenue and Segment Result Margin FY20 revenue split by product group



### **Key customers**





Applications (% of FY20 segment revenue)	Market Outlook for CY21
Computing ~20%	<ul> <li>Acceleration towards cloud computing to continue</li> <li>Pandemic-driven stay-at-home and WFH effects continue to favor notebook sales</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>
Smartphones ~19%	Strong rebound expected driven mainly by economic recovery and migration towards 5G phones
Consumer ~20%	Consumer electronics, including e.g. game consoles, clear beneficiaries from stay-at-home
Industrial	<ul> <li>Automotive and other industrial segments show strong recovery. However, automotive production has taken hits from chip shortages</li> </ul>
* does not sum up to 100% due to other appli	Battery-powered tools continue to show strong momentum cations not shown here

# 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

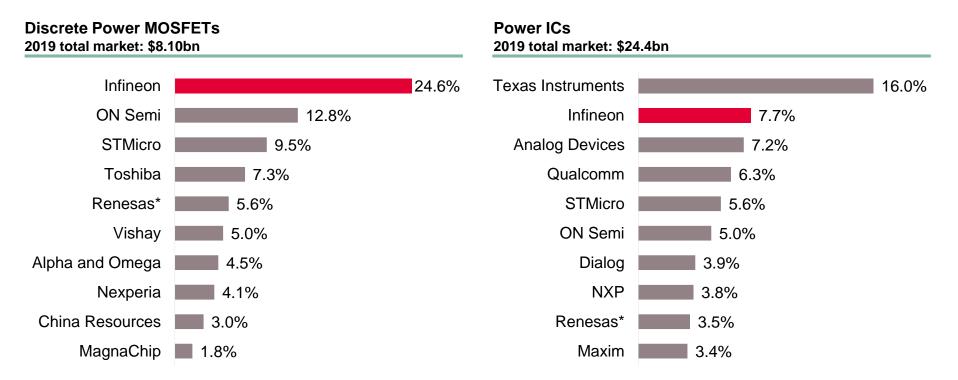


## **PSS** – Power



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





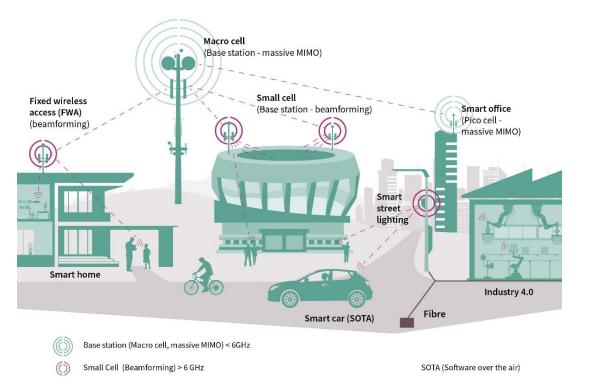
\* Renesas acquired Integrated Device Technology in March 2019. Both companies were combined as Renesas in 2019.

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



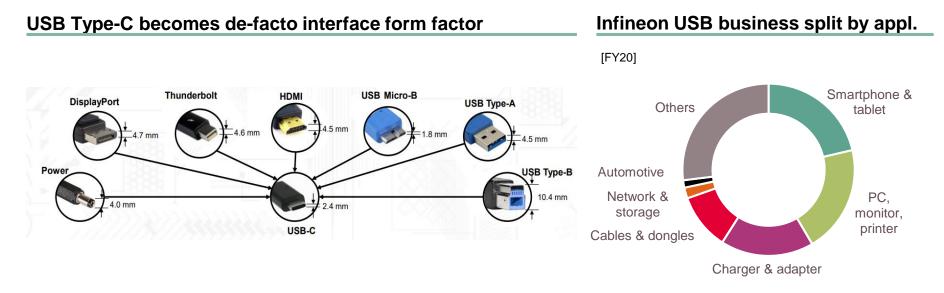
Smart and connected - the communication of tomorrow with 5G



- 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

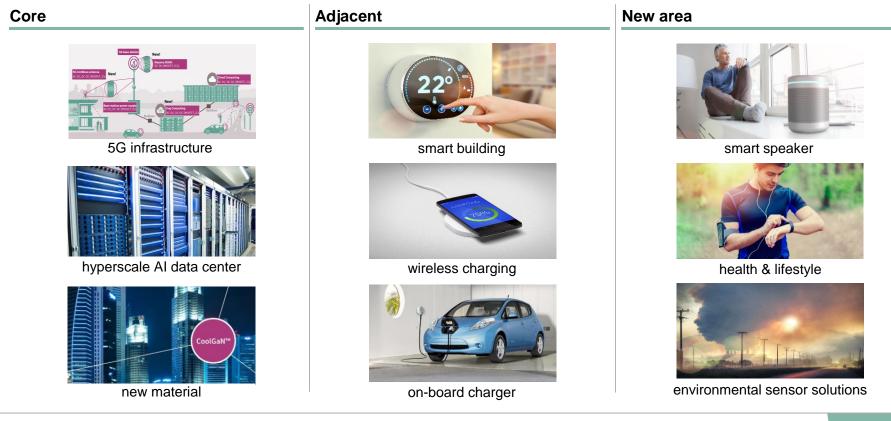




- > Infineon USB business dominated by USB Type-C and USB Type-C PD
- > USB Type-C PD in automotive is a nascent segment with good growth opportunities
- > USB Type-C PD offers revenue synergies for Infineon in AC-DC chargers and adapters

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





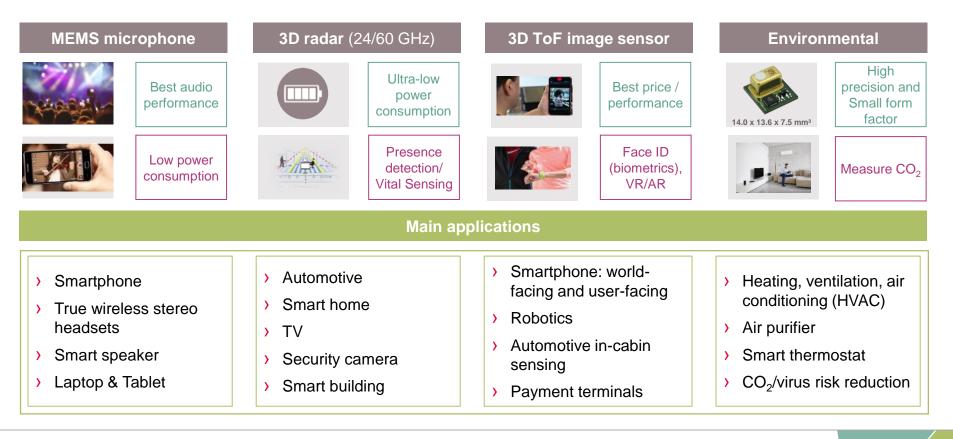


## PSS – RF and Sensing



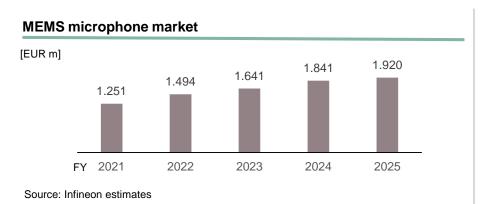


## Main applications addressed by PSS sensors portfolio

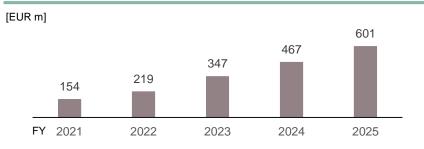




### Sensor markets targeted by PSS

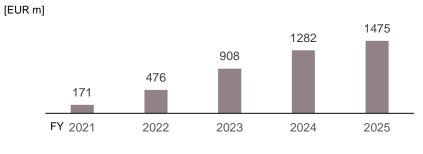


#### Radar IC market (24 GHz and 60 GHz only)



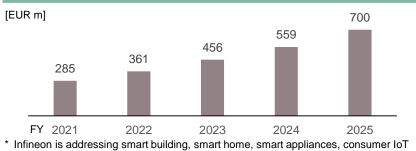
Source: Infineon estimates

### 3D ToF image sensor market



Source: Infineon estimates

#### **Environmental sensor market\***



devices and automotive. Source: Infineon estimates



### **MEMS** microphone

- Strong first quarter and bounce back of the smartphone market in CY 2021 contribute to good MEMS microphone demand growth.
- Hearables are also a major growth driver. Popular features like active noise cancellation or transparent hearing require 4 to 9 microphones. Traditional wired headsets included only 1 microphone.

### 3D ToF image sensor

 Consumer market in non-phone category is showing increasing interest for implementation of 3D ToF cameras in latest electronic equipment. This is driven by applications like service robots, multicopter and AR headsets for education, leisure or medical.

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

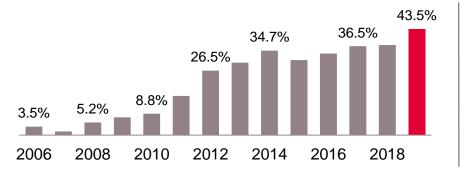
- > Home appliance will drive 60 GHz radar growth in the consumer market (smart lamp, speaker, thermostat a.o.).
- 60 GHz radar successfully launched as replacement for passive-infrared approach getting traction in the market.
- New applications like In-cabin-monitoring systems and smart trunk opener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

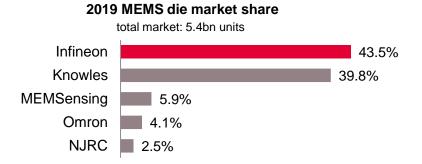
### **Environmental sensors**

- > Trend for indoor air quality measurement due to health, comfort and energy saving reasons.
- XENSIV<sup>™</sup> PAS CO2 sensor supports reducing the risk of virus transmission by ensuring better and safe indoor air quality.
- > Smart home & smart building market are showing huge interest in usage of CO2 sensors in different applications.



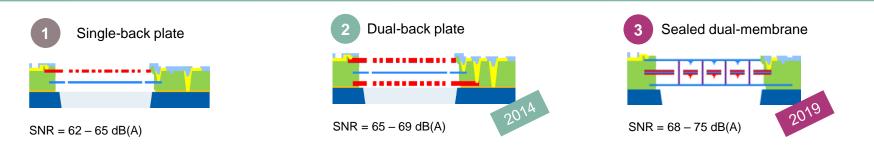
### Infineon's market share development in MEMS microphones (by units)





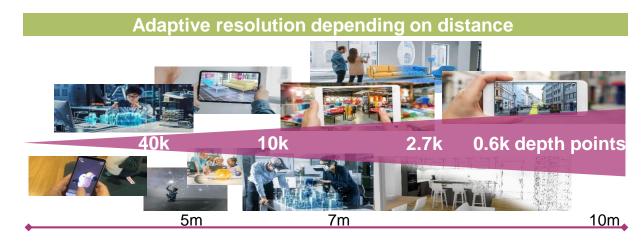
Based on or includes research from Omdia: *MEMS Microphones Dice Market Shares 2020*. October 2020

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



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.



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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

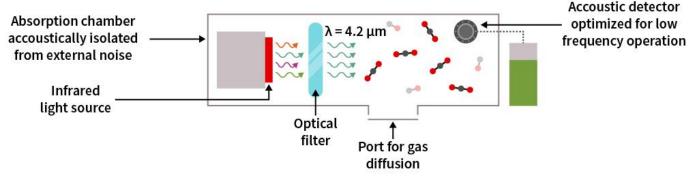


# Infineon XENSIV<sup>™</sup> PAS CO2 sensor enables highly-precise CO<sub>2</sub> measuring and will ramp-up for mass market in mid 2021

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

- > Infineon XENSIV<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 and fast design-to-market

#### All XENSIV<sup>™</sup> PAS CO2 sensor components are developed in-house, enabling full control of the system









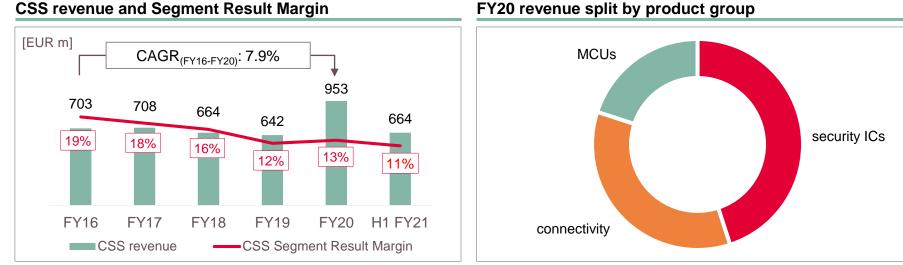


## **Connected Secure Systems**





### CSS at a glance



### FY20 revenue split by product group

#### Key customers



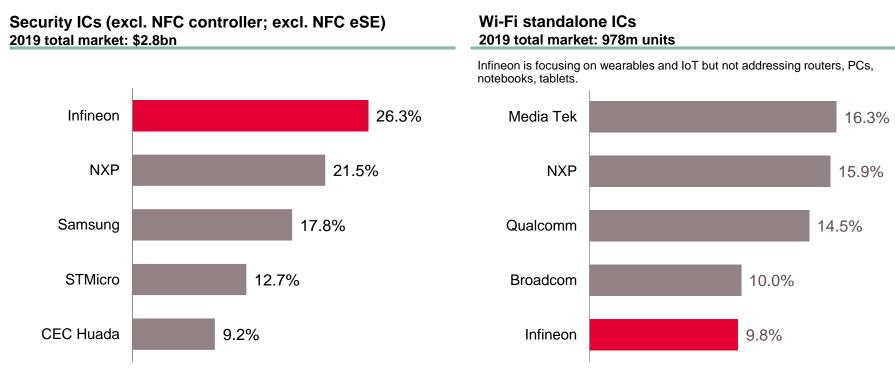
Market outlook for CSS division's target applications – brightening but foundry supply constraints limit upside potential in the near-term



Applica (% of FY20 segr		Market Outlook for CY21 (not considering supply constraints)
Industrial and Consumer IoT ~70%	Industrial IoT	<ul> <li>Growth driven by general market recovery in industrial automation and energy efficiency incentive programs for home appliances</li> </ul>
	Smart Home	$\langle \bullet \rangle$ > New features and technologies enter production and proliferate across several devices
	Automotive	<ul> <li>Increasing penetration rate of eSIM Automotive driven by increasing connectivity requirements</li> <li>Connectivity technologies to improve in-car user experience</li> </ul>
	Gaming	Market growth driven by launch of new console models
	Wearables	New product launches expected to boost demand
	( <b>3</b> ):	Further implementation of low-power processing and connectivity technologies across new models
Payment, ID, Ticketing	Payment (1)	High demand for contactless payment solutions expected to continue
~30%	Identification	<ul> <li>Prolonged restrictions on international travel expected to further affect the issuance of passports, partially compensated by a major eID project roll-out</li> </ul>

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



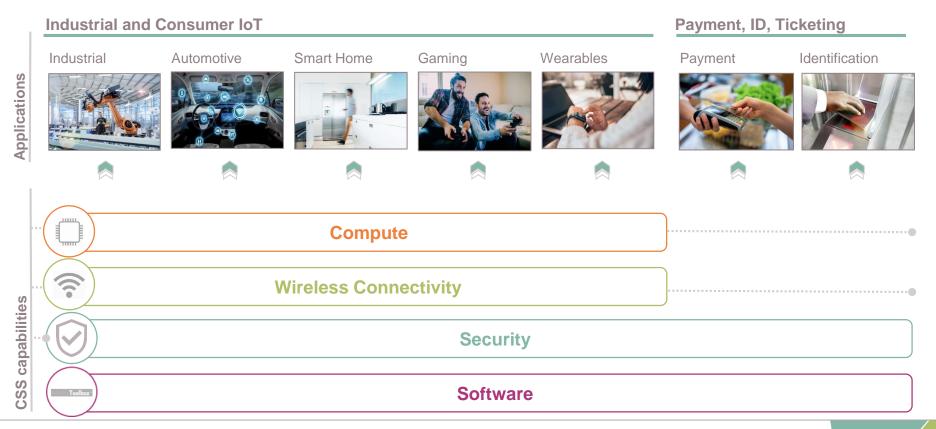


ABI Research: Smart Card and Embedded Security IC Technologies. October 2020

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

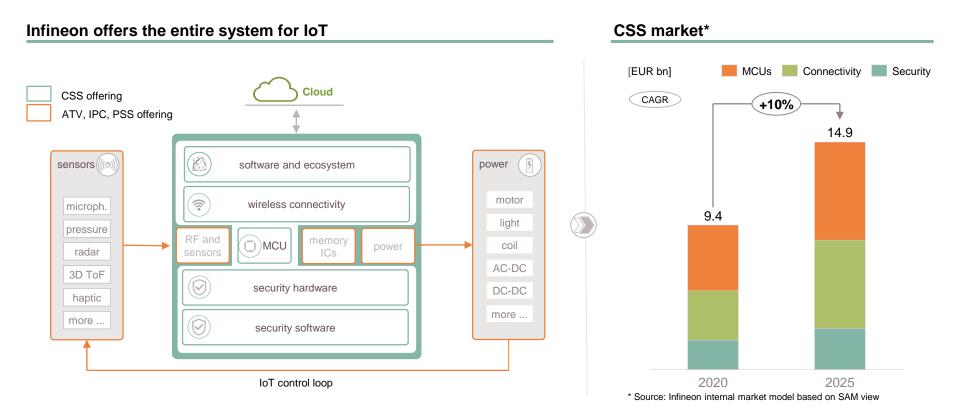
# CSS empowers the world to easily connect through smart and trusted solutions





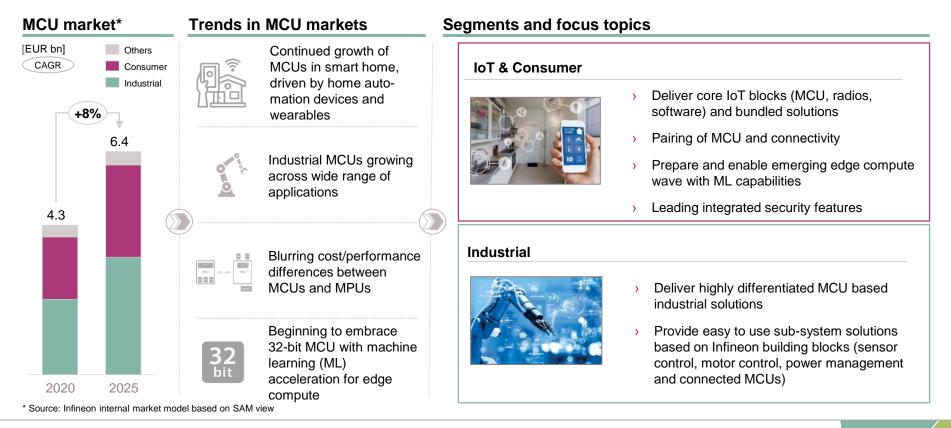
Compute, connectivity, security and software ecosystem capabilities enable Infineon to address a growing market driven by the IoT





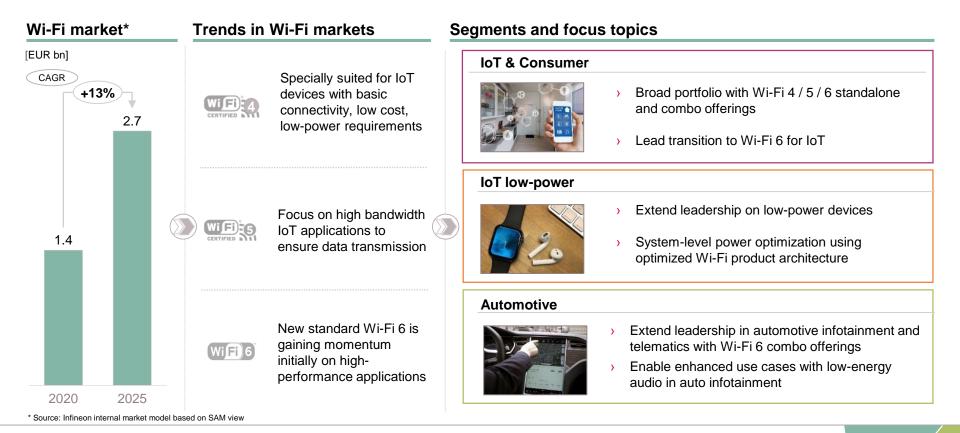
# MCUs – Dynamic market environment; CSS is well set to tackle trends in IoT & Consumer as well as Industrial markets





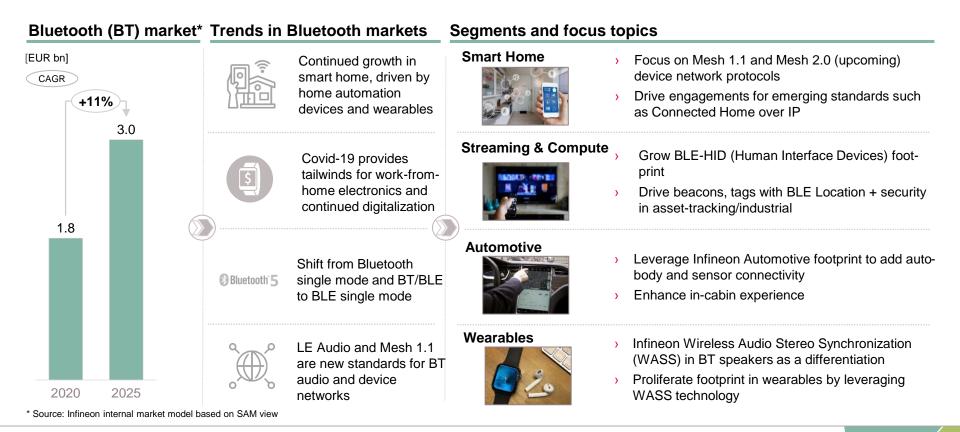
# Wi-Fi – Market driven by a dynamic environment of specifications; CSS is addressing main growth trends





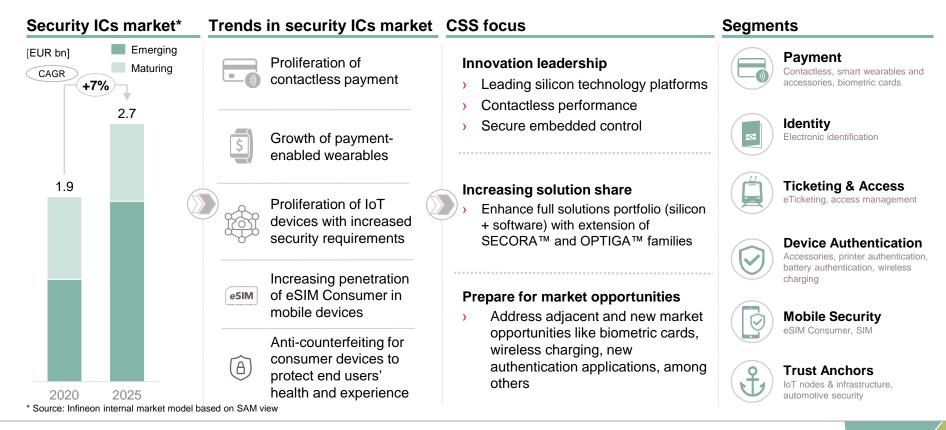
# Bluetooth – Market driven by further penetration of Bluetooth use cases across devices; CSS focus topics enable this development





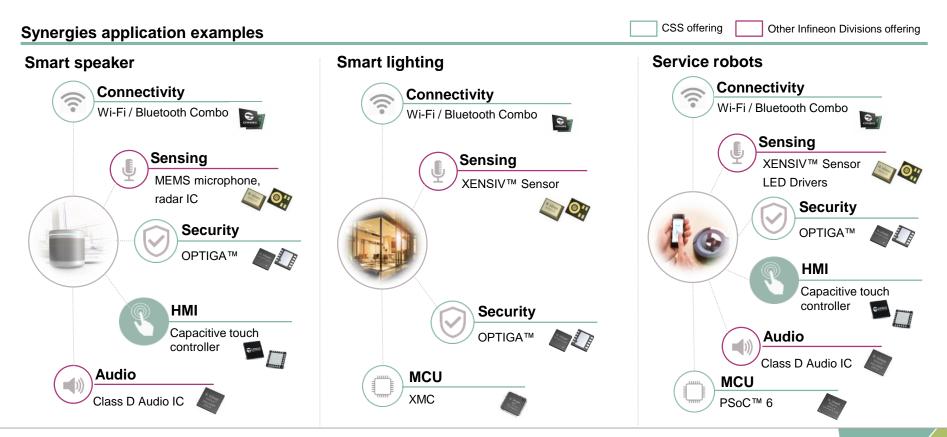
Security – Several long-term key trends driving value, generating emerging opportunities, shaping CSS' focus in the security field





## Significant synergy potential of a combined company product portfolio



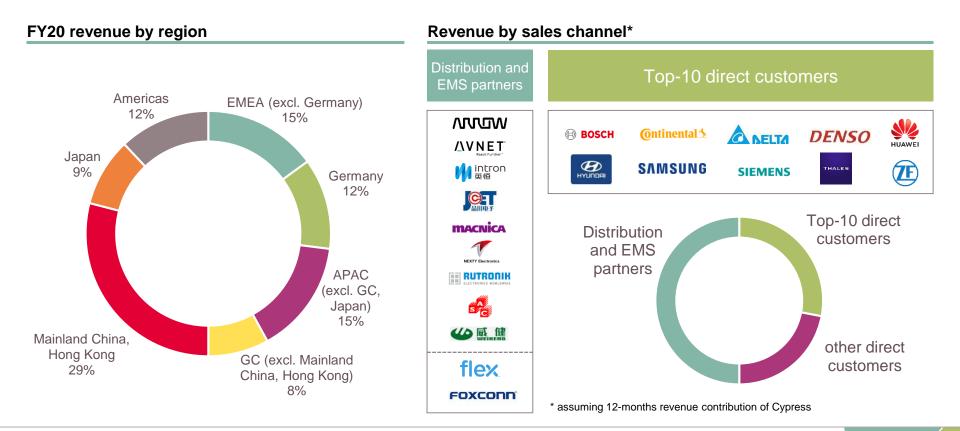




## Selected financial figures







# Group financial performance

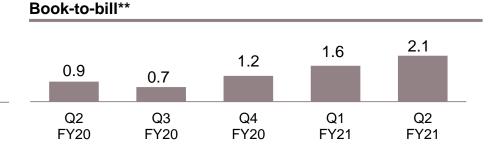


### Revenue\* and gross margin development

2,700 2,631 2,490 2,174 1,986 36.0% 34.5% 31.8% 27.0% 489 470 379 274 220 Q2 Q3 Q4 Q1 Q2 FY20 FY20 FY20 **FY21** FY21 Revenue Segment Result Gross Margin

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

- > Cyclical dynamics coinciding with a structural upturn
- Demand is outstripping supply in almost all semiconductor areas
- > Many products are on allocation and inventories are lean
- Accelerating adoption rates for structural drivers like electro-mobility and IoT

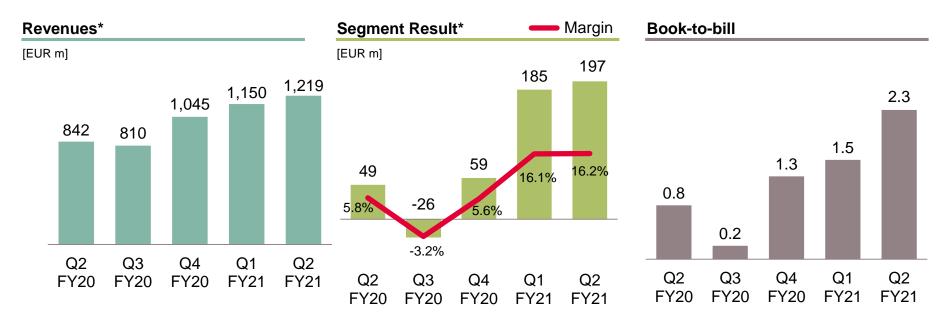


#### 2021-05-04

[EUR m]



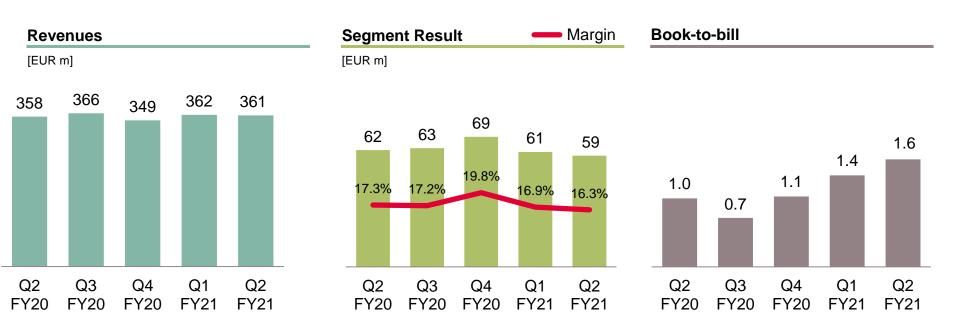
# Automotive (ATV)



- > Positive revenue contribution from almost all areas particular strong demand for electric vehicles components
- > Stable margin: negative impacts of Austin power outage and of annual price adjustments compensated by lower underutilization charges
- > Scarce manufacturing capacities, in particular at foundries and subcons, put a speed limit to the automotive recovery.
- > EV and ADAS remain very robust structural trends

\* 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.

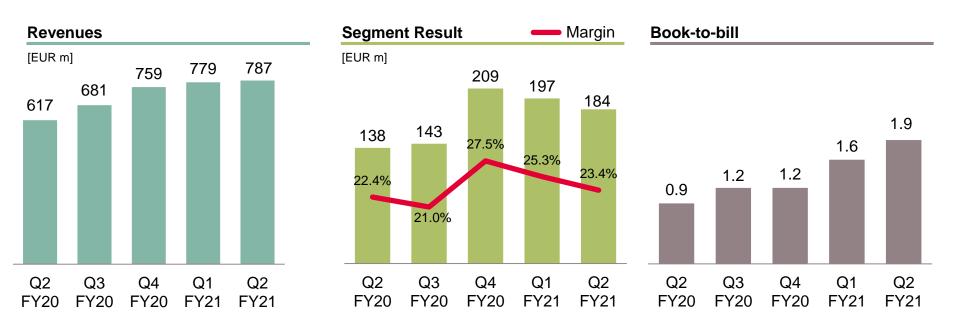
# Industrial Power Control (IPC)



- > Sequential revenue decline in transportation compensated by revenue increases in all other application areas
- > Renewables positive momentum continues
- > Market conditions for industrial applications continue to brighten
- > Home appliances remain strong, driven by pent-up demand and energy-saving regulations



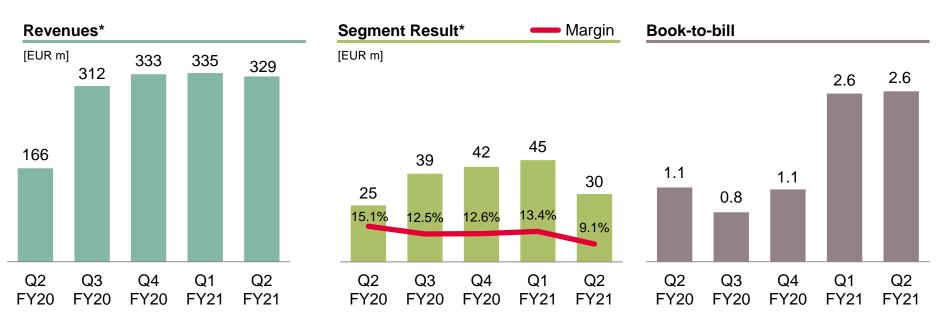
# Power & Sensor Systems (PSS)



- > Strong demand in multiple end markets, from power tools to telecom servers, overcompensating the seasonal decline in smartphone
- > Supply constraints, in particular from foundries, capped further upside
- > Digitalization leads to disruptive innovations in consumer and industrial applications smart and "sensorified" devices, edge computing, 5G networks and cloud data centers provide attractive growth opportunities



# Connected Secure Systems (CSS)

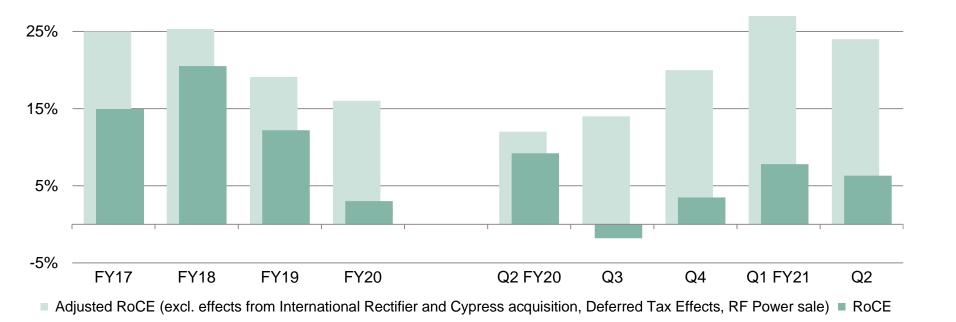


- > CSS severely affected by supply constraints power outage in Austin adds further tightness to the scarce foundry capacities
- > Increased demand for security solutions e.g. contactless payment and device authentication, dampened revenue impact
- Unabated secular trend towards smart connected devices vibrant demand especially for general-purpose microcontrollers and connectivity (Wi-Fi/Bluetooth)

\* 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.



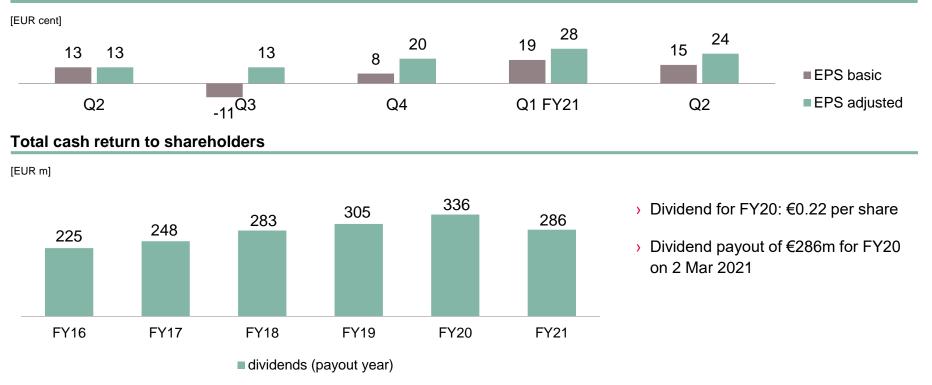
# RoCE and adjusted RoCE





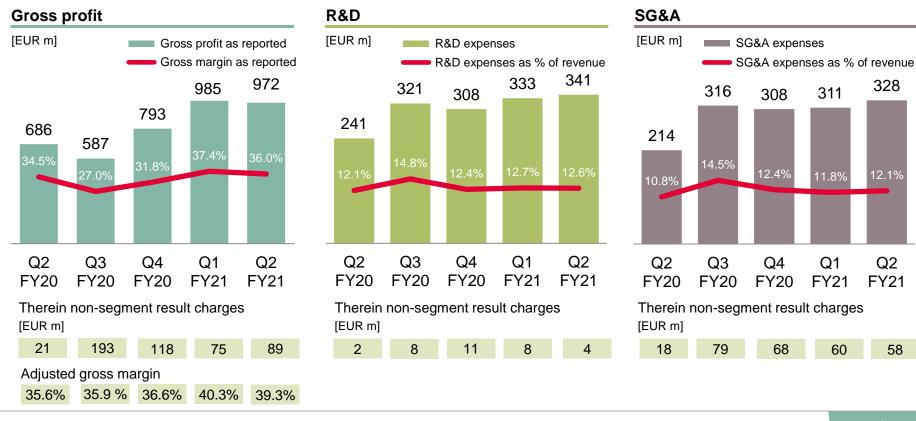
# Earnings-per-share and total cash return

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



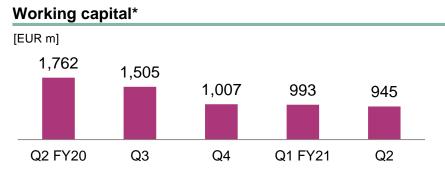


# Gross margin and Opex

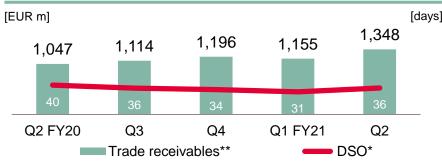


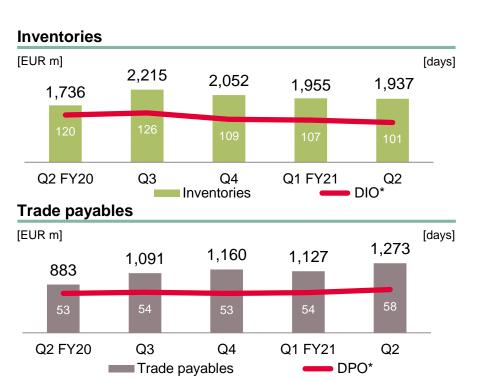


# Working Capital, in particular trade working capital components



**Trade receivables** 



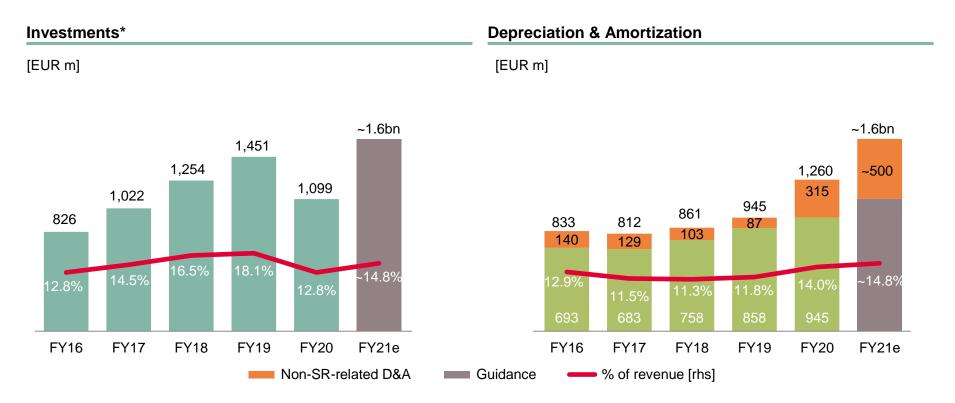


\* For definition please see page "Notes".

\*\* 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

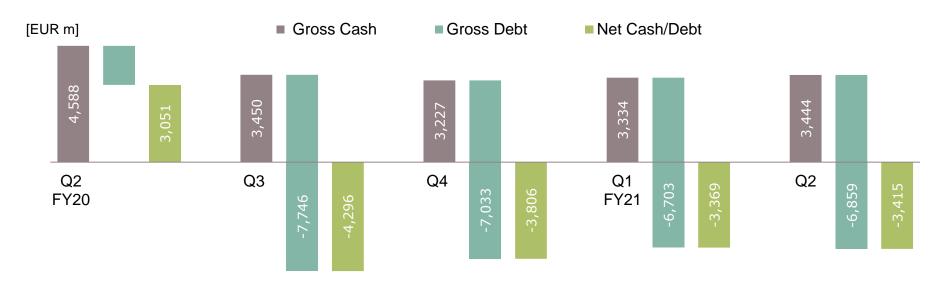




\* For definition please see page "Notes".



# Liquidity development

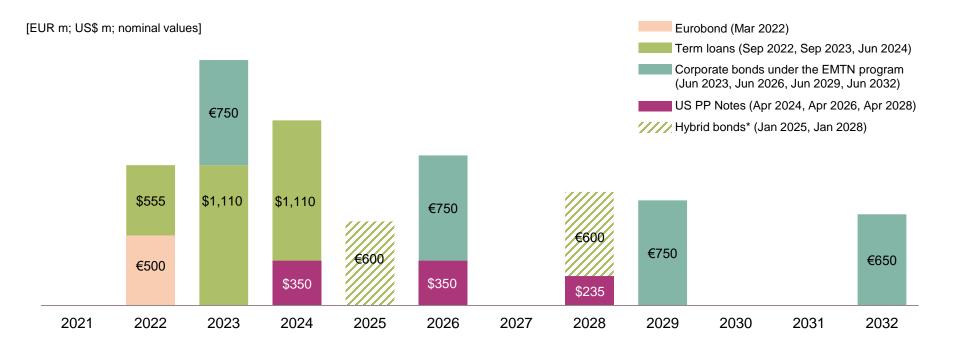


> Q4 FY20: early repayment (USD 555m) of bank debt incurred for the Cypress acquisition.

- > 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.
- Q2 FY21: Gross cash increased, as strong free cash flow more than offset dividend payment; gross debt only driven by stronger US-Dollar impacting USD-denominated debt

# 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 €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.



# 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	eSI	
AD	automated driving	ES	
ADAS	advanced driver assistance system	EV	
AEB	automatic emergency braking	FHI	
AFS	advanced frontlight system	FPG	
AI	artificial intelligence		
AR	augmented reality		
ASP	average selling price	GP	
BEV	battery electric vehicle		
BGA	ball grid array	HE	
BLE	Bluetooth Low Energy		
BMS	battery management system		
BoM	bill of material	HS	
BT	Bluetooth		
CL	contactless	HW	
CPU	central processing unit	IC	
CRC	cyclical redundancy check	ICE	
DC	direct current	IGE	
DC-DC	direct current - direct current		
DIF	dual-interface (contact-based and contactless)		
DIY	do it yourself		
DPM	digital power management	iPo	
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	
НМІ	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		
ТАМ	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
6 May 2021	Nuremberg → virtual	IPC Business Update Call along with virtual PCIM trade show
19 May 2021	Tarrytown → virtual	Berenberg US Conference
25 May 2021	New York → virtual	3 <sup>rd</sup> Annual Mizuho Auto Technology Seminar
26 May 2021	Milan → virtual	Equita 16 <sup>th</sup> European Conference
27 May 2021	London → virtual	JPMorgan European TMT Conference
1 Jun 2021	New York → virtual	Cowen TMT Conference
8 – 9 Jun 2021	Paris → virtual	23rd Exane BNP Paribas European CEO Conference
10 Jun 2021	San Francisco → virtual	Bank of America Global Technology Conference
16 Jun 2021	Berlin → virtual	dbAccess Berlin Conference
17 Jun 2021	London → virtual	GS European Digital Economy Conference
1 Jul 2021	Barcelona // virtual	PSS Business Update Call along with MWC trade show
3 Aug 2021*		Q3 FY21 Results
1 Sep 2021	Chicago → virtual	Jefferies Annual Semiconductor Conference
2 Sep 2021	Frankfurt → virtual	Commerzbank Corporate Conference
2 Sep 2021	London → virtual	dbAccess European TMT Conference
4/5 Oct 2021	London // virtual	Infineon Capital Markets Day "IFX Day 2021"

\* preliminary



- 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

Book-to-bill ratio - Definition

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



IPC Business Update Call Dr. Peter Wawer 6 May 2021



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

ATV Business Update Call Peter Schiefer 5 October 2020



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

Sustainability Report 2020 23 November 2020



https://www.infineon.com/sustainability\_report

CSS Business Update Call Thomas Rosteck 3 March 2021



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





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