Company presentation

Infineon Technologies AG
March 2024
A world leader in semiconductor solutions

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

Our values
We commit
We partner
We innovate
We perform

Our mission
We make life easier, safer and greener.

Part of your life. Part of tomorrow.
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1. Infineon at a glance
2. Microcontroller
3. Padua Site
Driving decarbonization and digitalization. Together.

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

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

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

We make life easier, safer, and greener. Together with our customers and partners. For a better tomorrow.
Infineon is committed to binding CO$_2$ reduction targets

1 Carbon neutrality$^1$ by 2030 – primarily by avoiding emissions
2 Realization of 70 percent of the required savings and compensations by 2025

$^1$ Carbon neutrality is defined in terms of Scope 1 and Scope 2 emissions.
Corporate Social Responsibility: We create a net ecological benefit

In various areas of application (automotive electronics, industrial drives, photovoltaics as well as wind energy), our products can achieve CO₂ savings during their lifetime of around 117 million tons of CO₂ equivalents. Compared with the European electricity mix, this is around 12.5 percent of the annual net electricity production of the European Union.

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

2 This figure is based on internally established criteria, which are described in the explanatory notes. The figure relates to the 2022 calendar year and takes into account the following application areas: automotive electronics, industrial drives, photovoltaics as well as wind energy. CO₂ savings are calculated based on the potential savings generated by technologies in which semiconductors are used. The CO₂ savings are allocated based on Infineon’s market share, semiconductor share and the lifetime of the technologies concerned, based on internal and external experts’ estimations. Despite the fact that carbon footprint calculations are subject to imprecision due to the complex issues involved, the results are nevertheless clear.
Infineon is a global leader in power systems and IoT

Global leader
in automotive, power management, energy efficient technologies and IoT

~58,600
employees\(^1\)

Market position

<table>
<thead>
<tr>
<th>Category</th>
<th>Market Position</th>
<th>Source</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automotive</td>
<td>#1</td>
<td>TechInsights</td>
<td>March 2023</td>
</tr>
<tr>
<td>Power</td>
<td>#1</td>
<td>Omdia</td>
<td>September 2023</td>
</tr>
<tr>
<td>Microcontroller</td>
<td>#5</td>
<td>Omdia</td>
<td>August 2023</td>
</tr>
</tbody>
</table>

\(^1\) As of 30 September 2023
Infineon is a global player, clear leader in automotive semiconductors and power discretes and modules

**Automotive semiconductors**
Total market in 2022: USD 59.4bn

<table>
<thead>
<tr>
<th>Company</th>
<th>Market Share (2022)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infineon</td>
<td>12.4%</td>
</tr>
<tr>
<td>NXP</td>
<td>11.6%</td>
</tr>
<tr>
<td>STMicro</td>
<td>8.8%</td>
</tr>
<tr>
<td>Texas Instr.</td>
<td>8.3%</td>
</tr>
<tr>
<td>Renesas</td>
<td>7.9%</td>
</tr>
</tbody>
</table>

**Power discretes and modules**
Total market in 2022: USD 30.9bn

<table>
<thead>
<tr>
<th>Company</th>
<th>Market Share (2022)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infineon</td>
<td>20.6%</td>
</tr>
<tr>
<td>onsemi</td>
<td>8.8%</td>
</tr>
<tr>
<td>STMicro</td>
<td>7.6%</td>
</tr>
<tr>
<td>Mitsubishi</td>
<td>4.2%</td>
</tr>
<tr>
<td>Fuji Electric</td>
<td>4.0%</td>
</tr>
</tbody>
</table>

**Microcontroller**
Total market in 2022: USD 27.0bn

<table>
<thead>
<tr>
<th>Company</th>
<th>Market Share (2022)</th>
</tr>
</thead>
<tbody>
<tr>
<td>STMicro</td>
<td>17.3%</td>
</tr>
<tr>
<td>Renesas</td>
<td>16.5%</td>
</tr>
<tr>
<td>NXP</td>
<td>16.5%</td>
</tr>
<tr>
<td>Microchip</td>
<td>13.4%</td>
</tr>
<tr>
<td>Infineon</td>
<td>12.6%</td>
</tr>
</tbody>
</table>

3 Based on or includes research from Omdia: Annual 2001-2022 Semiconductor Market Share Competitive Landscaping Tool – 3Q23. November 2023. Results are not an endorsement of Infineon Technologies AG. Any reliance on these results is at the third party’s own risk.
Infineon at a glance

Growth areas

Energy  
green and efficient

Mobility  
clean and safe

IoT  
smart and secure

Financials

<table>
<thead>
<tr>
<th>[EUR m]</th>
<th>FY17</th>
<th>FY18</th>
<th>FY19</th>
<th>FY20</th>
<th>FY21</th>
<th>FY22</th>
<th>FY23</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td>7,063</td>
<td>7,599</td>
<td>8,029</td>
<td>8,567</td>
<td>11,060</td>
<td>14,218</td>
<td>16,309</td>
</tr>
<tr>
<td>Segment result</td>
<td>1,208</td>
<td>1,353</td>
<td>1,319</td>
<td>1,170</td>
<td>2,072</td>
<td>3,378</td>
<td>4,339</td>
</tr>
<tr>
<td>Segment result margin</td>
<td>17%</td>
<td>18%</td>
<td>16%</td>
<td>14%</td>
<td>19%</td>
<td>24%</td>
<td>27%</td>
</tr>
</tbody>
</table>

FY23 revenue by segment

- Automotive (ATV) 51%
- Green Industrial Power (GIP) 13%
- Power & Sensor Systems (PSS) 13%
- Connected Secure Systems (CSS) 13%

Employees

58,600  
employees worldwide

69  
R&D and

17  
manufacturing locations

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

2024-03-21
Close customer relationships are based on system know-how and application understanding

<table>
<thead>
<tr>
<th>Automotive</th>
<th>Green Industrial Power</th>
<th>Power &amp; Sensor Systems</th>
<th>Connected Secure Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>·APTIV·</td>
<td>Astemo</td>
<td>Alpitronic</td>
<td>Amazon</td>
</tr>
<tr>
<td>BorgWarner</td>
<td>BOSCH</td>
<td>Bloomenergy</td>
<td>arlo</td>
</tr>
<tr>
<td>BYD</td>
<td>Continental</td>
<td>GOLDWIND</td>
<td>cpi card group</td>
</tr>
<tr>
<td>DENSO</td>
<td>FORVIA</td>
<td>LG</td>
<td>Fitbit</td>
</tr>
<tr>
<td>HYUNDAI</td>
<td>HEBODA</td>
<td>OMRON</td>
<td>GPO</td>
</tr>
<tr>
<td>Valeo</td>
<td>Visteon</td>
<td>Schneider Electric</td>
<td>Harman</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rockwell Automation</td>
<td>IDEMIA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SEMIKRON DANFOSSE</td>
<td>Perfect Pro tienen</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SIEMENS</td>
<td>Raspberry Pi</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SINGROW</td>
<td>SAMSUNG</td>
</tr>
<tr>
<td></td>
<td></td>
<td>YASKAWA</td>
<td>SONY</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Vestas</td>
<td>Thales</td>
</tr>
</tbody>
</table>

EMS-Partners

- flex
- JABIL

Distribution partners

- Arrow
- AVNET
- Future Electronics
- intron
- Jingchuan
- MACNICA
- Marubun
- Nexty Electronics
- Wenneng
- WPG
ATV at a glance

ATV revenue and Segment Result Margin

<table>
<thead>
<tr>
<th>Year</th>
<th>ATV Revenue [€ m]</th>
<th>ATV Segment Result Margin</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY19</td>
<td>3,503</td>
<td>12%</td>
</tr>
<tr>
<td>FY20</td>
<td>3,521</td>
<td>4%</td>
</tr>
<tr>
<td>FY21</td>
<td>4,841</td>
<td>16%</td>
</tr>
<tr>
<td>FY22</td>
<td>6,516</td>
<td>23%</td>
</tr>
<tr>
<td>FY23</td>
<td>8,242</td>
<td>28%</td>
</tr>
</tbody>
</table>

CAGR 23.9% (FY19 – FY23)

FY23 revenue split by product group

- Memory ICs
- MCUs
- Power (incl. SiC)
- Sensors

Key customers

- APTIV
- Astemo
- BorgWarner
- BOSCH
- BYD
- Continental
- DENSO
- FORVIA
- Hyundai Motor Group
- KEBODA
- Valeo
- veoneer
- vitesco TECHNOLOGIES
- ZF
Automotive semiconductors are essential to realize the automotive megatrends:

- **Green Mobility**
- **Automated Driving**
- **Connectivity**
- **Advanced Security**

Infineon enables clean, safe, smart cars.
Infineon is globally positioned with its network of Frontend and Backend manufacturing facilities

17 locations¹

¹ As of 30 September 2023  Frontend  Backend
Our global Research and Development activities

About 12 percent of Infineon’s annual revenue goes into Research and Development (R&D). In fiscal year 2023, R&D investments amounted to about 2 billion euros.

29,700 patents and patent applications in the overall portfolio show a high level of innovative strength and longterm competitiveness. In fiscal year 2023 alone, Infineon registered about 1,850 new patent applications.

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

69¹ sites in 25 countries and regions:

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

¹ as of 30 September 2023.
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Automotive Microcontroller | We make green mobility smart

Green

Zero emission becomes real

Mobility

A driver becomes a passenger

Smart

A car becomes a smarter car
ATV MC at a glance

Facts & Figures

1,417
Employees worldwide
As of July 2023

2,8 b€
Projected revenue in the
2023 fiscal year

ACEE
33%
PSE
30%
SBS
37%

Americas
66 employees located in
the United States

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

Asia Pacific
509 employees located in
India, Japan, and Singapore

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

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

Source: Revenue and market shares based on Bluebook 2023
MC consists of three product lines serving different application segments

ACEE
ADAS, Chassis & EE Architecture

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

PSE
Propulsion Systems & Electrification

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

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

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

Radar system
Braking
Classic PT
Electrification
Body Control Module
OLED Curved Display
Infineon AURIX Microcontrollers
AURIX™: Infineon’s TriCore Processor

AURIX™ TriCore unites the elements of a RISC processor core, a microcontroller and a DSP in one single MCU!
AURIX
TC37x - Block Diagram
AURIX™: Industry Focus Applications

- **Power & Energy**
  - Solar Inverter
  - Wind Inverter
  - Renewable Energies
  - Off-board charger

- **Smart Vehicles**
  - Off high way
  - Fun vehicles, e.g. skidoo, jet ski
  - Agricultural
  - Earth moving e.g. terex
  - Construction e.g. caterpillar (CAV)
  - Special vehicles
  - Crane systems
  - Train system
  - Avionics
  - Boats

- **Factory Automation**
  - PLC, µPLC
  - Servo Drives
  - Robotics / eRobotics
  - In-factory vehicles

- **Others**
  - Drones
  - Radar applications
  - Medical
  - Elevators
  - RTOS & Cloud Connectivity

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AURIX™ for industrial applications: one product family, multiple use cases!
# AURIX™: Commercial, Construction, Agricultural Vehicles (CAV) & Transportation Applications

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

2024-03-21
AURIX™ - xEV Application Examples
... Why AURIX at University of Padua?

Arduino (hardware)

Da Wikipedia, l'enciclopedia libera.

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

Con Arduino si possono realizzare in maniera relativamente rapida e semplice...

32-bit AURIX™ TriCore™ Microcontroller

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