AIXTRON Investor Presentation

IR Presentation – Q1/2018

(FSE: AIXA, ISIN DE000A0WMPJ6)

AIXTRON

Forward-Looking Statements

This document may contain forward-looking statements regarding the business, results of operations, financial condition and earnings outlook of AIXTRON. These statements may be identified by words such as "may", "will", "expect", "anticipate", "contemplate", "intend", "plan", "believe", "continue" and "estimate" and variations of such words or similar expressions. These forward-looking statements are based on the current assessments, expectations and assumptions of the executive board of AIXTRON, of which many are beyond control of AIXTRON, based on information available at the date hereof and subject to risks and uncertainties. You should not place undue reliance on these forward-looking statements. Should these risks or uncertainties materialize, or should underlying expectations not occur or assumptions prove incorrect, actual results, performance or achievements of AIXTRON may materially vary from those described explicitly or implicitly in the relevant forward-looking statement. This could result from a variety of factors, such as those discussed by AIXTRON in public reports and statements, including but not limited those reported in the chapter "Risk Report". AIXTRON undertakes no obligation to revise or update any forward-looking statements as a result of new information, future events or otherwise, unless expressly required to do so by law. This document is an English language translation of a document in German language. In case of discrepancies, the German language document shall prevail and shall be the valid version.

Due to rounding, numbers presented throughout this report may not add up precisely to the totals indicated and percentages may not precisely reflect the absolute figures for the same reason.

Our Vision

Technology. Materials. Performance.

Technology.

We are the **recognized technology leader** in complex material deposition.

Materials.

We **enable our customers** to successfully shape the markets of the future, exploiting the potential offered by **new materials**.

Performance.

We **deliver the performance** driving **economic success** through our expertise, our employees and the quality of our products.

Who we are

- Headquarters based near Aachen, Germany
- Worldwide presence in 7 countries
- R&D and production facilities in Germany and UK
- ~ 600 employees

- Company founded in 1983 – 35 years of experience
- Technology leader in deposition systems
- More than 2,700 deposition systems installed worldwide

Global Presence

Technology Portfolio for Complex Material Deposition

OLED: OVPD®/PVPD®

APEVA

Carbon – PECVD

NANO: Innovation Pool

Photonics
(e.g. VCSEL for 3D Sensing, Lasers for CE, Datacom)

Specialty LED
(MicroLED-, Fine Pitch Displays; Horticulture; Purification; IR & UV LEDs)

AIXTRON
Our technology. Your future.

GaN Power
(e.g. Wireless Charging; RF, Fast Charging)

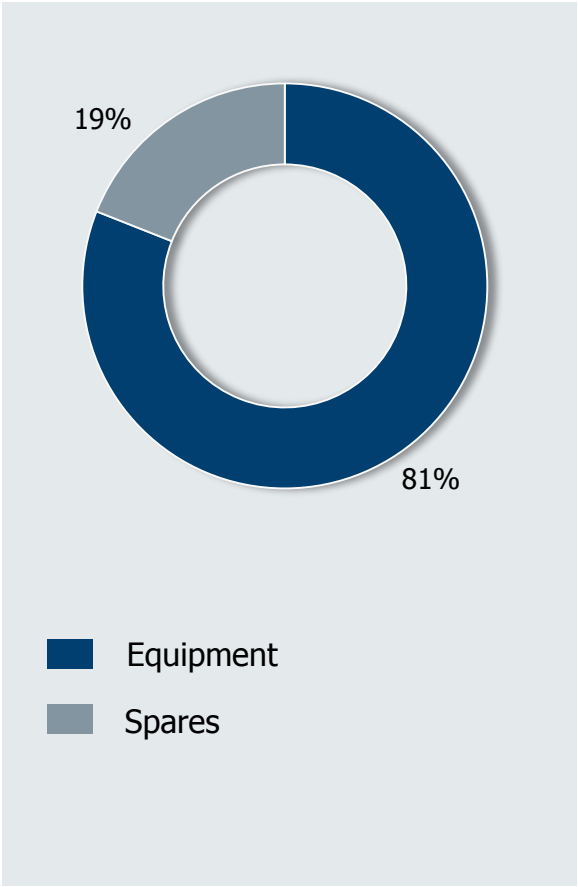
SiC Power
(e.g. EVs, Charging Stations, Infrastructure)

MOCVD Core Technology

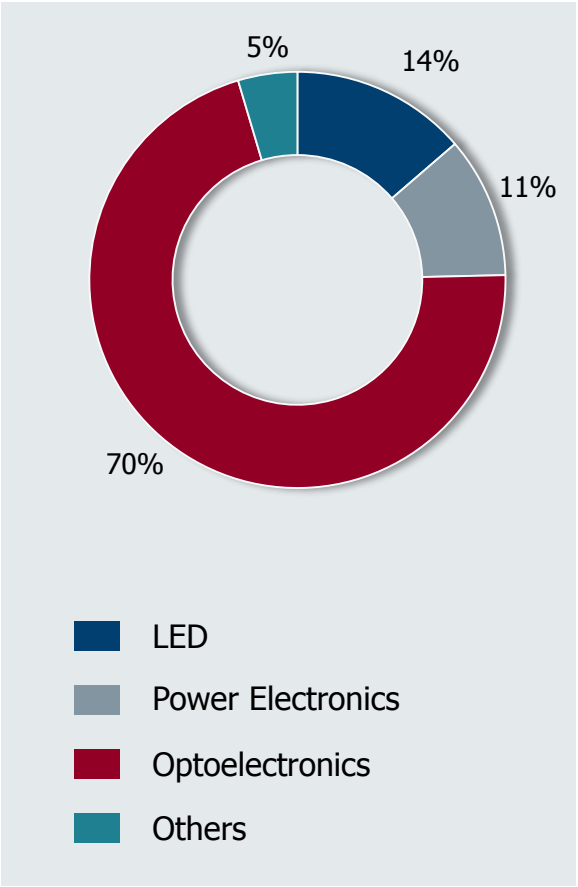
Revenue Analysis*

* Rounded figures; may not add up

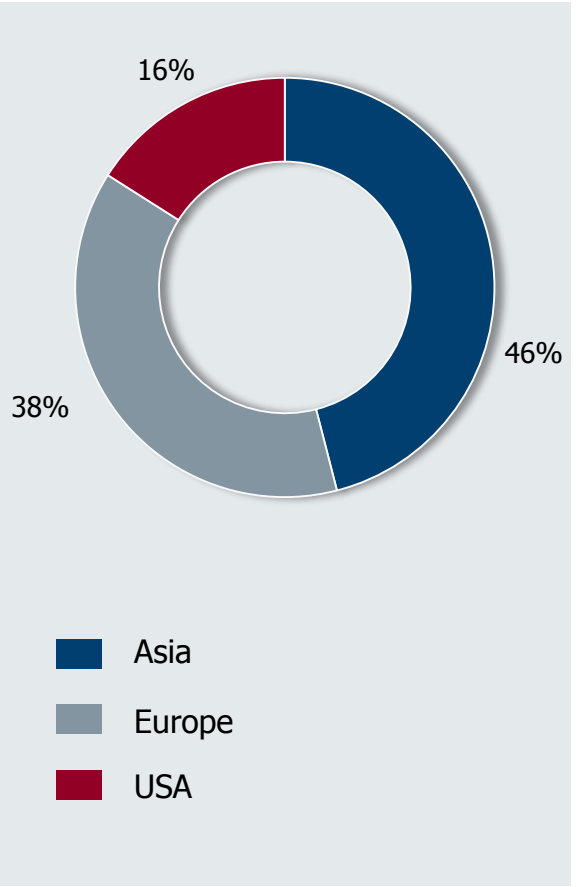
Q1/2018: by equipment & spares



Q1/2018: by end application (equipment only)



Q1/2018: by region



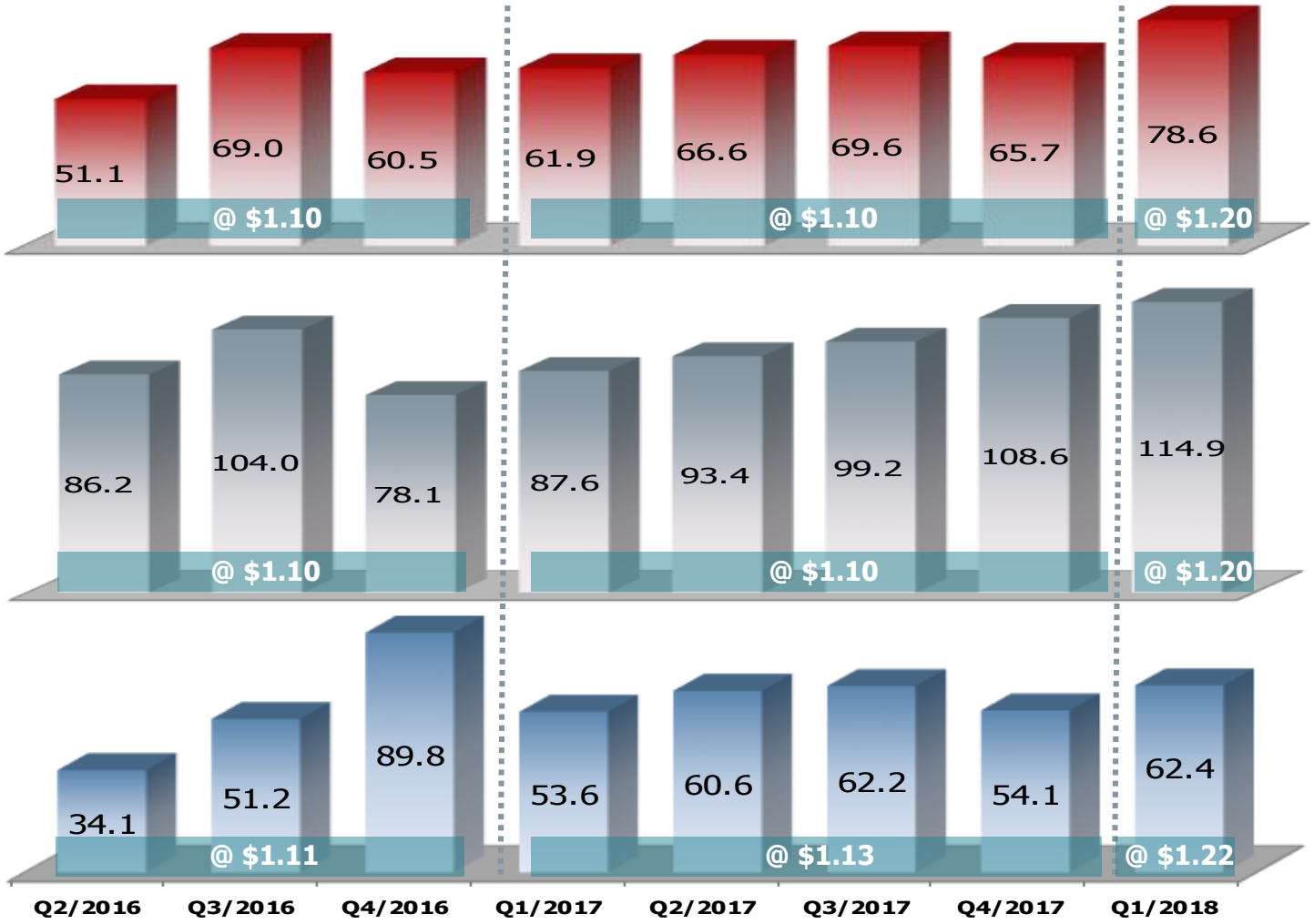
24 - Month Business Development

(€ million)

Order Intake
(incl. equipment, service, spare parts)

Order Backlog
(equipment only)

Revenues
(incl. equipment, service, spare parts)



USD order intake and backlog were recorded at the prevailing budget rate (2017: $1.10/€; 2018: $1.20/€)
USD revenues were converted at the actual period average FX rate (2017: $1.13/€; 2018: $1.22/€)

Consolidated Income Statement*

* Rounded figures; may not add up

(€ million)	Q1/18	Q1/17	+/- %	Q1/18	Q4/17**	+/- %
Revenues	**62.4**	**53.6**	**16**	**62.4**	**54.1**	*15*
Cost of sales	35.6	40.0	-11	35.6	33.1	*8*
Gross profit	**26.8**	**13.6**	**97**	**26.8**	**21.0**	*28*
%	*43*	*25*	*18pp*	*43*	*39*	*4pp*
Selling expenses	2.3	2.6	-13	2.3	2.2	*2*
General & admin expenses	4.3	4.3	0	4.3	2.6	*68*
R&D	13.7	19.7	-30	13.7	16.5	*-17*
Net other operating income	-1.4	-0.2	n.m.	-1.4	24.7	*95*
EBIT	**7.9**	**-12.7**	**n.m.**	**7.9**	**24.4**	*-68*
%	*13*	*-24*	*37pp*	*13*	*45*	*-32pp*
Net result	**12.3**	**-13.5**	**n.m.**	**12.3**	**27.2**	*-55*
%	*20*	*-25*	*45pp*	*20*	*50*	*-30pp*

** Q4/2017 Other operating income, EBIT and net profit were significantly influenced by the positive effects from the sale of the ALD/CVD product line.

Balance Sheet*

* Rounded figures; may not add up

(€ million)	31/03/18	31/12/17	31/03/17
Property, plant & equipment	63.8	64.3	68.9
Goodwill	71.1	71.2	74.5
Other intangible assets	1.6	1.8	5.2
Others	9.1	4.0	2.1
Non-current assets	**145.7**	**141.3**	**150.6**
Inventories	46.2	43.0	49.9
Trade receivables	30.0	19.3	29.6
Others	7.5	5.0	5.6
Cash & Cash Deposits	223.2	246.5	193.6
Current Assets	**306.9**	**313.8**	**278.6**
Shareholders' equity	**380.7**	**368.9**	**356.7**
Non-current liabilities	**1.5**	**2.0**	**4.2**
Trade payables	14.3	14.3	15.2
Advance payments from customers	28.5	30.3	30.5
Others	27.5	39.7	22.6
Current liabilities	**70.3**	**84.2**	**68.3**
Balance Sheet total	**452.6**	**455.1**	**429.2**

Consolidated Statement of Cash Flows*

* Rounded figures; may not add up

(€ million)	Q1/18	Q1/17	Q1/18	Q4/17**
Net Result	**12.3**	**-13.5**	**12.3**	**27.2**
Adjust for Non Cash Items	-3.0	7.3	-3.0	-24.6
Changes in Working Capital	-30.4	40.8	-30.4	11.0
Cash Flow from Operating Activities	**-21.1**	**34.6**	**-21.1**	**13.6**
Capital Expenditures	**-1.6**	**-1.3**	**-1.6**	**1.1**
Fixed Asset disposals/FX / Other	**-0.5**	**0.3**	**-0.5**	**30.1**
Total Cash Flow	**-23.2**	**33.6**	**-23.2**	**42.6**
Cash & Deposits	**223.2**	**193.6**	**223.2**	**246.5**

** Q4/2017 Net Result, Fixed Asset disposals/FX/Other and Total Cash Flow were significantly influenced by the positive effects from the sale of the ALD/CVD product line.

Market Prospects

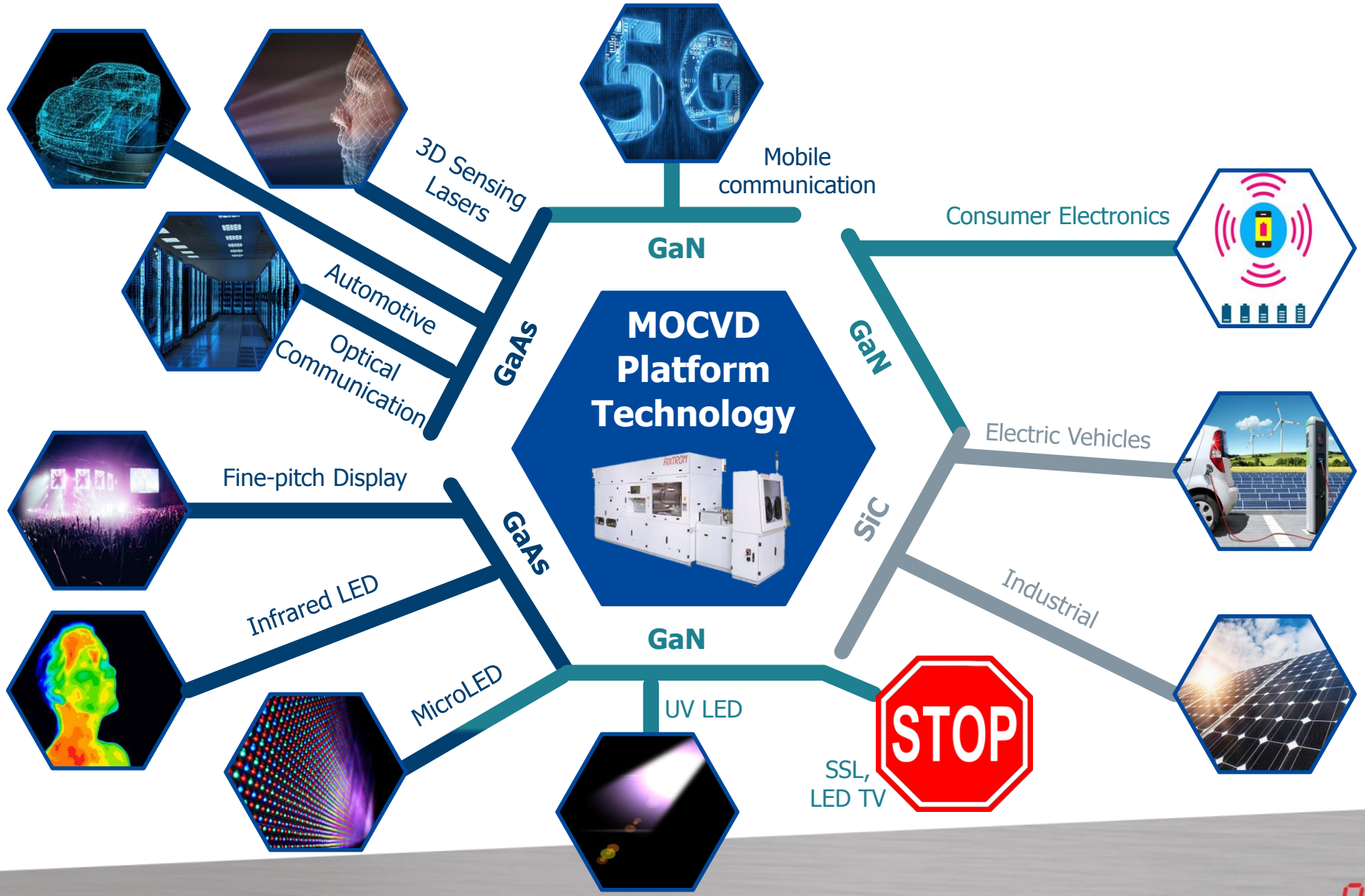
Short- to Mid-Term

- Increasing application of compound semi-conductor-based lasers for the 3D sensor systems in mobile end device as well as sensors for infrastructure applications.
- Further increasing use of LEDs and special LEDs (esp. red-orange-yellow, UV or IR) with displays and others applications.
- Further increasing demand for lasers for ultra-fast optical data transmission of large volumes, such as for video streaming and Internet-of-Things (IOT) applications.
- Increasing use of wide-band gap GaN- or SiC-based components for energy-efficient communication and performance control in cars, entertainment electronics and mobile devices.
- Progress in the further development of large-area OLED components that require an efficient deposition technology.

Long-Term

- Development of new applications based on materials with wide-band-gap such as high-frequency chips or system-on-chip architectures with integrated power management.
- Increased use of compound semi-conductor-based sensors for autonomous driving.
- Increased development activities for specialized application of solar cells made of compound semi-conductors.
- Development of new materials with the help of carbon nanostructures (carbon nanotubes, -wires and graphene).
- Development of alternative LED applications, such as visual-light communication technology or micro LED displays.

AIXTRON – Enabling Emerging Global Mega Trends



Application: Short Term – Compound Semis in Next-Gen CE


Photonics


Specialty LED


GaN Power

APEVA

NANO: Innovation Pool

AIXTRON Enables GaAs Applications

RF Switches
MMIC

Base Station
for
3G / 4G

Logic processor

AIXTRON
also in...

OLED
Flexible Display
CNT based LiB

RF Power transistors

HMIC Pin diode

3D gesture sensors
Iris scan
Proximity sensor
Camera autofocus
Environmental scan
HDMI interconnects
Body functions
Night vision camera

Displays
Wireless charger
Camera Flash
Pulsed power transistor
GaN ICs
Noise cancelation
Wireless PAs
Fast charger
MMIC
RF
energy solution
Base station for 5G

AIXTRON Enables GaN Applications

Potential New Applications

Application: Mid Term – Compound Semis in Connected E-Vehicles


Photonics


Specialty LED


GaN Power


SiC Power

APEVA

NANO: Innovation Pool

AIXTRON Enables GaAs Applications

Vehicle speed sensing (IR)

Night vision IR

Emergency break assist (IR)

Adaptive cruise control (IR)

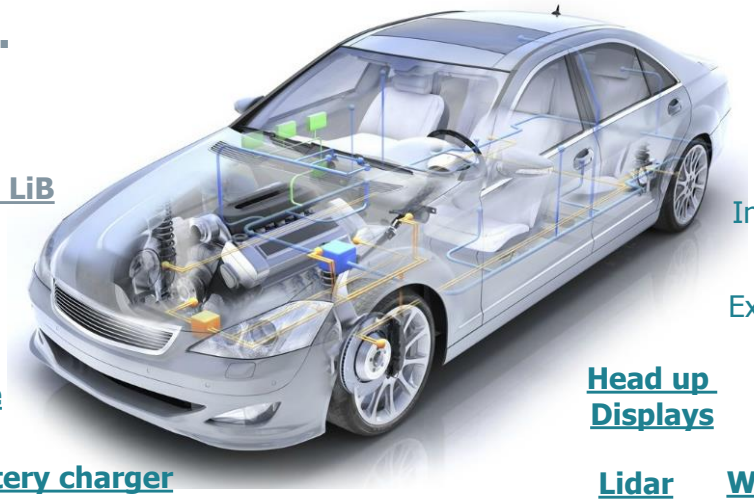
Pedestrian detection (IR)

Driver condition monitoring (VCSEL)

AIXTRON also in...

OLED

CNT based LiB



Interior Lighting LED

Exterior Lighting LED

Charging infrastructure

Head up Displays

48V system

On board battery charger

Lidar

Wireless charger

DC/DC conversion

Headlights

Infotainment

Main inverter

AIXTRON Enables SiC Applications

AIXTRON Enables GaN Applications

Potential New Applications

AIXTRON

Application: Long Term – Compound Semis in Smart Homes


Photonics


Specialty LED


GaN Power


SiC Power

APEVA

NANO: Innovation Pool

AIXTRON Enables GaAs Applications

Night vision IR

Terrestrial CPV

FTTH

AIXTRON also in...

OLED

CNT based LiB

Charging infrastructure

Main inverter

DC/DC conversion

3D gesture sensors

Motion sensors

Environmental sensors

5G Home Internet

Smart Lighting LED

Wireless PAs

Fast charger

LiDAR

AR Gaming

Med-Tech wearables

Infotainment

Wireless charger

AIXTRON Enables SiC Applications

AIXTRON Enables GaN Applications

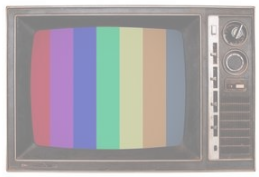
Potential New Applications

AIXTRON – Instrumental in Evolving Display Technologies

APEVA

Specialty LED

CRT



1950's →

Plasma LCD

2000's →

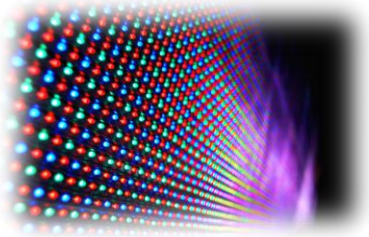
LED Backlit Display

2006 →

OLED Display

2010 →

MicroLED Display



Under Development →

Overview: GaN/SiC as Wide Band Gap (WBG) Power Electronics

Consumer Electronics & IT	Automotive	Energy	Industrial
Power Management		**Power Switching**	
30V	**600V**	**1.2 kV**	**≥2kV**
• Electronic appliances • Computing • Wireless charging • Power supplies • PFC	• Infotainment • GPS • Connected car • Autonomous driving • EMI/EMC • Adaptive cruise control	• General automotive electronic • HEV/EV • Charging station • Inverter / motor drives • Converter • Radar test applications	• Power Grid / Smart meter / appliances • Solar / Wind inverters • Solar / Wind power DC distribution • storage • UPS	• UPS • Industrial machines • Building • Mining, oil, gas power generation • Shipping/Rail
				
GaN	**GaN / SiC**		**SiC**	

Volume segment Niche segment

Devices: GaN/SiC Power Electronics – Superior Performance

Source: icons from www.flaticon.com

More Efficient

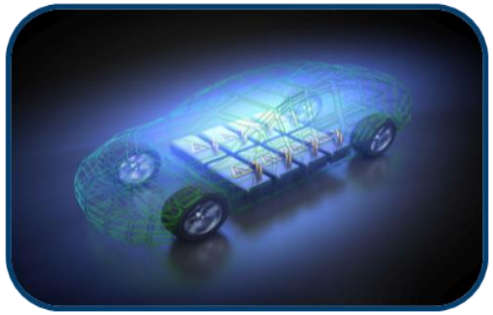
Smaller

Energy Saving

Less Heat

Light Weight

Lower System Cost



Electric Vehicles

EV-charging

Data Centers

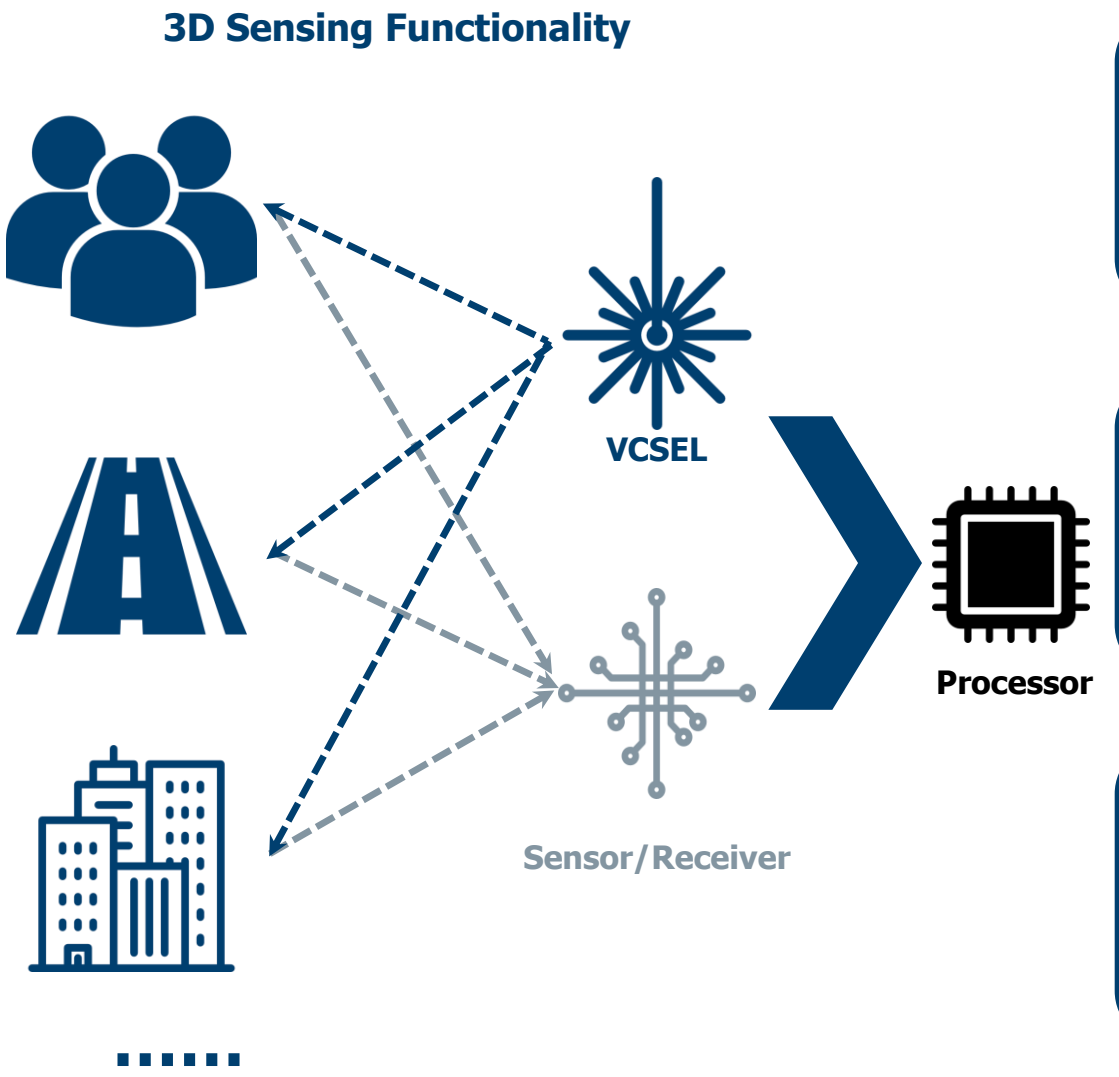
Renewable Energy

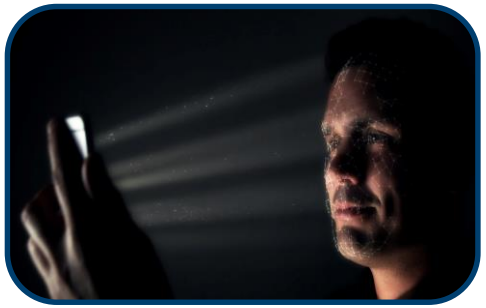
Wireless Charging

Fast Charging

Devices: VCSEL – Internet of Things Creates New Opportunities

Source: icons from www.flaticon.com





Facial Recognition

Autonomous Driving

Tailor-made clothing/shoes

Interior Design

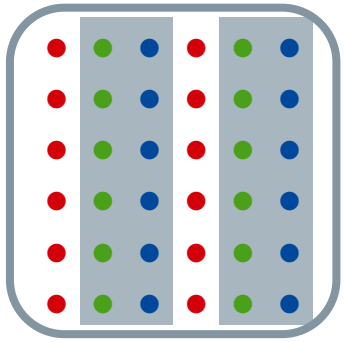
Mapping

Industry 4.0

Devices: ROY LEDs for RGB Displays; UV LEDs for Niche Markets

Source: LEDinside

ROY LED



RGB Fine-Pitch Indoor Display (Pixel Pitch ≤2.5mm)

RGB Stadium Outdoor Display (Pixel Pitch ≥10mm)

UV LED

Curing

Water Disinfection

Air Purifier

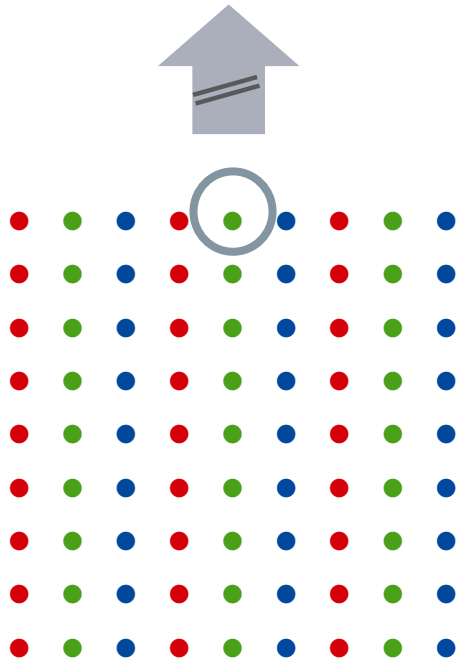
Devices: MicroLED – The Perfect Future Display Technology

Source: LEDinside

RGB MicroLED Display

1/100

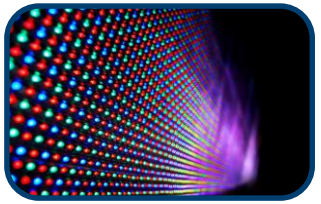
RGB LED Display



- Self-Emissive
- Low Power Consumption
- Perfect Contrast
- High Brightness
- Fast Response

Wearables

AR/VR



Signage

Smartphones/Tablets/TVs

Carbon Nanomaterials – PECVD

Graphene and Carbon Nanotube Deposition Systems

- Proprietary thermal and plasma enhanced chemical vapor deposition technology
- Excellent uniformity and reproducibility with fast turnaround cycle times
- BM platform: BM R&D (2-inch), BM Pro (4-inch and 6-inch), BM GB (4-inch glovebox), BM HT (high temperature, 1,700C), BM300T (300mm)
- Graphene and carbon nanotube films for electronics, energy storage, thermal management, sensors and flexible/transparent applications

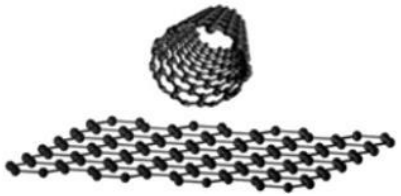
Product features

- Fast response heater and turnaround
- Thermal CVD
- Substrate and top heating

- Closed loop infrared wafer temperature control
- Plasma enhanced CVD with frequency control
- Flexible processing for different applications

- Low cost of ownership
- Easy maintenance and cleaning
- User management features and growth library

Material Properties + AIXTRON Technology → Enabling Applications



Graphene (2D) and Carbon nanotube (1D)

Unique combination of high electrical/ thermal conductivity, mobility, flexibility and transparency

Serving R&D market today

AIXTRON BM Pro

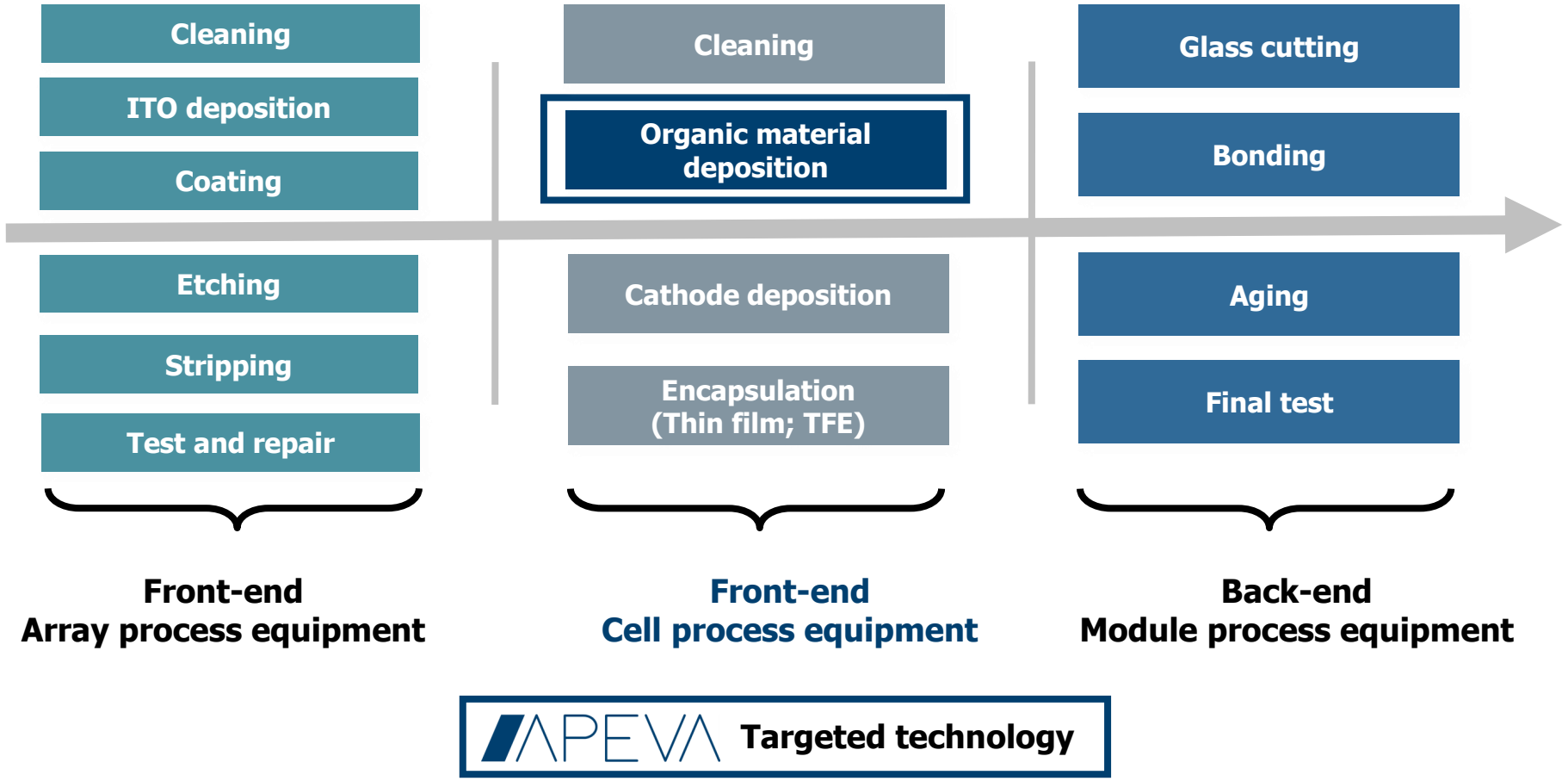
Production ready for tomorrow

AIXTRON BM Pro 300

Organic Electronics – OVPD® – APEVA

Source: DisplaySearch, AIXTRON

OLED manufacturing process

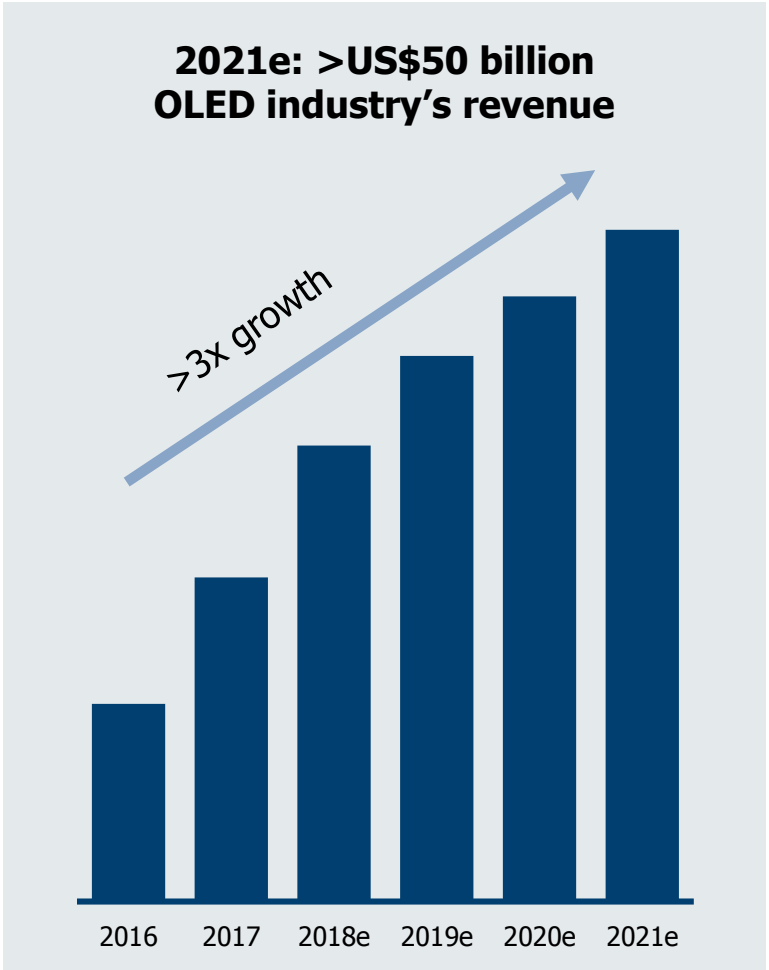


OVPD® – APEVA: Disruptive OLED Manufacturing Technology

Source: UBI Research, Display Supply Chain

OVPD® enables production of next generation displays

- ✓ Higher quality displays
- ✓ High material utilization efficiency
- ✓ Lower production cost and smaller footprint
- ✓ Free scalability

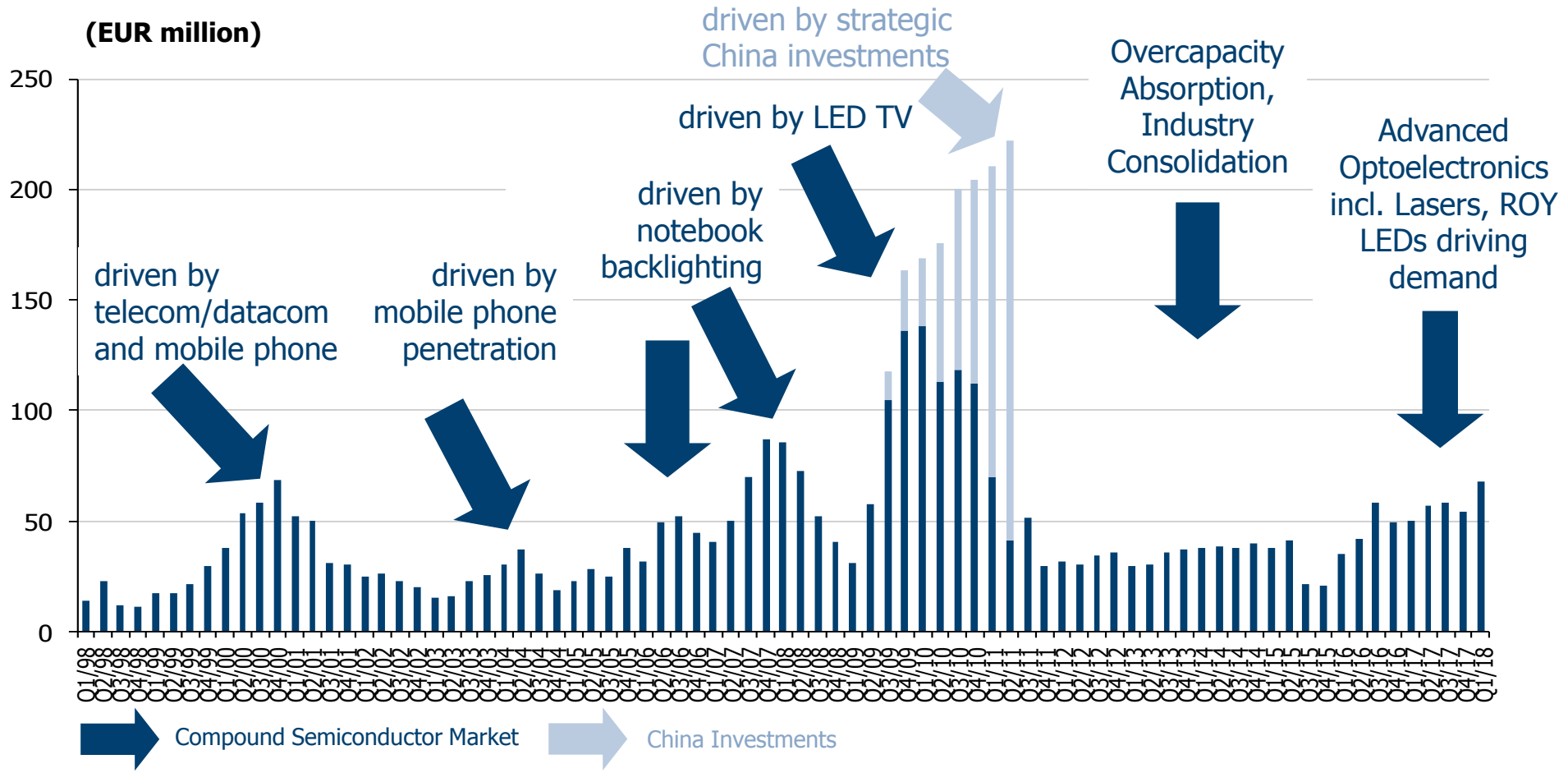


AIXTRON Competitive Landscape

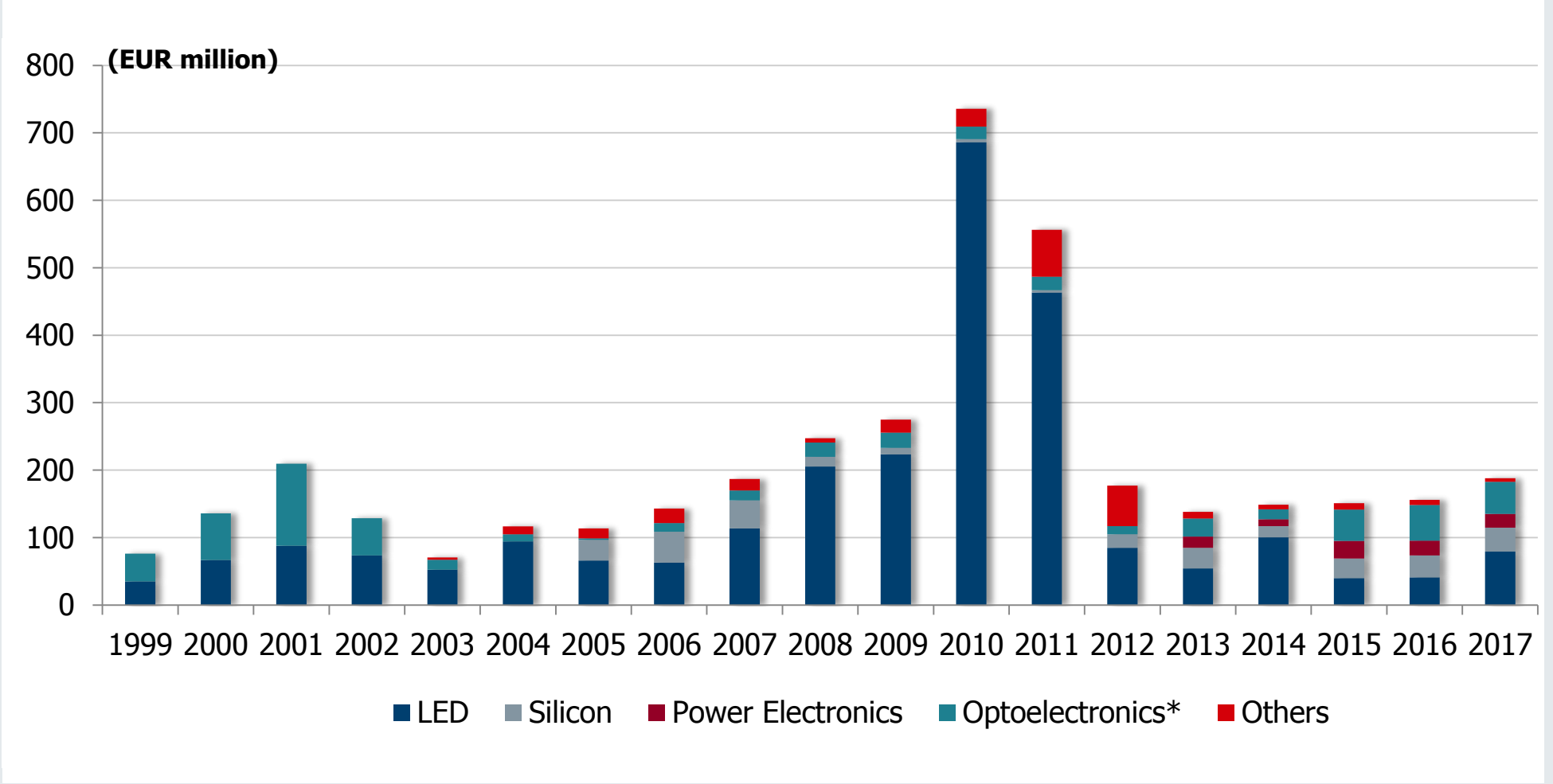
		USA	Europe	China	Korea	Japan
Opto	GaAs/InP Optoelectronics, ROY LED	Veeco				TAIYO NIPPON SANSO The Gas Professionals
	GaN LED	Veeco		AMEC, TOPEC		TAIYO NIPPON SANSO The Gas Professionals
Power	GaN Power	Veeco				TAIYO NIPPON SANSO The Gas Professionals
	SiC Power		LPE			TEL TOKYO ELECTRON, NuFLARE
OLED		APPLIED MATERIALS			WONIK IPS, SFA, JUSUNG ENGINEERING, AP Systems	Canon CANON TOKKI CORPORATION, ULVAC

Our technology. YOUR FUTURE.

Equipment Order Intake per Quarter



Annual Equipment Revenues by Application (excl. spares)



* Optoelectronics includes applications in Consumer Optoelectronics, Telecom/Datacom, Solar, etc.

Consolidated Income Statement*

* Rounded figures; may not add up

(€ million)	2017	2016	2015
Revenues	230.4	196.5	197.8
Cost of sales	156.4	140.2	147.9
Gross profit	74.0	56.3	49.8
%	*32 %*	*29 %*	*25 %*
Selling expenses	10.2	13.8	11.5
General & admin expenses	17.1	17.1	16.3
R&D	68.8	53.9	55.4
Net other operating income	27.0	7.2	6.7
EBIT	4.9	-21.4	-26.7
%	*2 %*	*-11 %*	*-14 %*
Result before tax	5.5	-21.0	-26.0
%	*2 %*	*-11 %*	*-13 %*
Net result	6.5	-24.0	-29.2
%	*3 %*	*-12 %*	*-15 %*

Balance Sheet*

* Rounded figures; may not add up

(€ million)	31/12/17	31/12/16	31/12/15
Property, plant & equipment	64.3	74.2	81.3
Goodwill	71.2	74.6	75.9
Other intangible assets	1.8	5.4	6.4
Others	4.0	2.4	3.9
Non-current assets	**141.3**	**156.5**	**167.6**
Inventories	43.0	54.2	70.8
Trade receivables	19.3	60.2	26.0
Others	5.0	5.3	8.2
Assets classified as held for sale	0.0	0.0	0.0
Cash & Cash Deposits	246.5	160.1	209.4
Current Assets	**313.8**	**279.7**	**314.4**
Shareholders' equity	**368.9**	**369.7**	**396.5**
Non-current liabilities	**2.0**	**4.2**	**3.6**
Trade payables	14.3	14.6	9.8
Advance payments from customers	30.3	26.1	24.0
Others	39.7	21.6	48.0
Current liabilities	**84.2**	**62.3**	**81.8**
Balance Sheet total	**455.1**	**436.2**	**482.0**

Consolidated Statement of Cash Flows*

* Rounded figures; may not add up

(€ million)	2017	2016	2015
Cash Flow from operating activities	70.1	-37.7	-45.7
Cash Flow from investing activities	40.7	43.4	41.2
Cash Flow from financing activities	1.2	0.3	-0.1
Exchange rate changes	-5.5	-2.3	4.3
Net change in Cash & Cash Equivalents	106.5	3.7	-0.3
Cash & Cash Equivalents (beginning of period)	120.0	116.3	116.6
Cash & Cash Equivalents (end of period)	226.5	120.0	116.3
Change in Cash deposits	-19.5	-52.8	-60.5
Free Cash Flow**	91.4	-42.9	-57.3
Capex	9.7	5.3	13.3

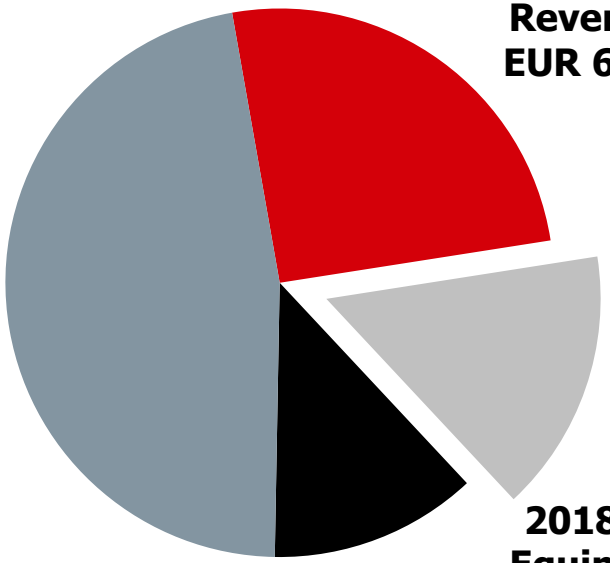
**) Operating CF + Investing CF + Changes in Cash Deposits, adjusted for acquisition effects

AIXTRON – 2018 Guidance: Confirmed*

Assuming current structure and based on current order situation, Management expects for 2018:

- Revenues and Total Order Intake between EUR 230 ~ 260 million
- Gross Margin of 35% to 40%
- EBIT in Range of 5% to 10% of Revenues
- Positive Cash Flow from Operations
- Revenues and EBIT expected close to upper end of guidance range

2018 Guidance*



- Based on 1.20 USD/EUR Budget Rate; please refer to "Expected Results of Operations and Financial Position" in the AIXTRON 2017 Annual Report for further information

Financial Calendar & Contact Data

- May 16, 2018 — 2018 Annual General Meeting, Aachen, Germany
- July 26, 2018 — H1/2018 Results, Conference Call
- October 30, 2018 — Q3/2018 Results, Conference Call
- February 2019 — FY/2018 Results, Conference Call
- April 2019 — Q1/2019 Results, Conference Call

For further information please contact:

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