Our technology. Your future.

Opto & Power Electronics
Next Generation Displays
SSL Adoption · UV-C
Renewable Energy
Power Management
E-Mobility · Connectivity

Graphene & Nanomaterials
Flexible Electronics
Sensors · Energy Storage
High Performance Computing
Composites

Memory & Logic
High Performance Computing
Memory / Big Data
Sensors · Smart Devices

IR Presentation – 9M/2017
(FSE: AIXA, ISIN DE000A0WMPJ6)
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 our current assessments, expectations and assumptions, of which many are beyond control of AIXTRON, and are 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 actual customer orders received by AIXTRON, the level of demand for deposition technology in the market, the timing of final acceptance of products by customers, the condition of financial markets and access to financing for AIXTRON, general conditions in the market for deposition plants and macroeconomic conditions, cancellations, rescheduling or delays in product shipments, production capacity constraints, extended sales and qualification cycles, difficulties in the production process, the general development in the semi-conductor industry, increased competition, fluctuations in exchange rates, availability of public funding, fluctuations and/or changes in interest rates, delays in developing and marketing new products, a deterioration of the general economic situation and any other factors discussed in any reports or other announcements, in particular in the chapter Risks in the Annual Report, filed by AIXTRON. Any forward-looking statements contained in this document are based on current expectations and projections of the executive board based on information available the date hereof. 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.

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

Our registered trademarks: AIXACT®, AIXTRON®, Atomic Level SolutionS®, Close Coupled Showerhead®, CRIUS®, Gas Foil Rotation®, OVPD®, Planetary Reactor®, PVPD®, TriJet®, Optacap™
Our Vision


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 in Herzogenrath, Germany
- Worldwide presence with 13 sales/representatives offices and production facilities
- Company founded in 1983 – over 30 years of experience
- ~ 680 employees

- Technology leader in deposition systems
- More than 3,000 deposition systems delivered all over the world
- State of the art R&D center and demo facilities
Global Presence

- Santa Clara, USA
- Herzogenrath, Germany
- Cambridge, UK
- Seoul, South Korea
- Tokyo, Japan
- Shanghai, China
- Hsinchu, Taiwan
Executing Strategic Plans:

- **Partner: APEVA / OLED Deposition**
  - Established APEVA SE as AIXTRON subsidiary; Joint Venture discussions in progress

- **Freezing R&D: TFOS & TFE**
  - Q1/2017: freezing III-V on Silicon (TFOS) R&D activities
  - Q2/2017: freezing Thin Film Encapsulation (TFE) R&D activities

- **Asset Sale: Memory Product Line**
  - Sale of ALD/CVD Memory Product line to Eugene Technology in South Korea expected to close in 2017
AIXTRON TECHNOLOGIES AND PRODUCTS

Technology Portfolio

AIXTRON SE
MOCVD Core Technology
Opto & Power

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

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

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

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

Electric Vehicles

Internet of Things

Renewable Energy
Revenue Analysis*

9M/2017: by equipment & spares

- Equipment: 82%
- Spares: 18%

9M/2017: by end application (equipment only)

- LED: 45%
- Silicon: 24%
- Power Electronics: 13%
- Optoelectronics: 16%
- Others: 2%

9M/2017: by region

- Asia: 75%
- Europe: 13%
- USA: 12%
- Others: 13%

*Rounded figures; may not add up
USD order intake and backlog were recorded at the prevailing budget rate (2017: $1.10/€)
USD revenues were converted at the actual period average FX rate (9M/2017: $1.11/€)
## Consolidated Income Statement*

<table>
<thead>
<tr>
<th>(€ million)</th>
<th>Q3/17 Adjusted</th>
<th>Q3/17 Adjustment</th>
<th>Q3/17 Actual</th>
<th>Q2/17 Adjusted</th>
<th>Q2/17 Restructuring</th>
<th>Q2/17 Actual</th>
<th>+/-%**</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Revenues</strong></td>
<td>57.6</td>
<td>-4.6</td>
<td>62.2</td>
<td>60.6</td>
<td>60.6</td>
<td>-5</td>
<td>-18</td>
</tr>
<tr>
<td><strong>Cost of sales</strong></td>
<td>37.5</td>
<td></td>
<td>37.5</td>
<td>45.9</td>
<td>45.9</td>
<td>-18</td>
<td></td>
</tr>
<tr>
<td><strong>Gross profit</strong></td>
<td>20.1</td>
<td>-4.6</td>
<td>24.7</td>
<td>16.0</td>
<td>14.7</td>
<td>26</td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>35</td>
<td></td>
<td>40</td>
<td>26</td>
<td>24</td>
<td>9pp</td>
<td></td>
</tr>
<tr>
<td><strong>Selling expenses</strong></td>
<td>2.7</td>
<td></td>
<td>2.7</td>
<td>2.7</td>
<td>2.7</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td><strong>General &amp; admin expenses</strong></td>
<td>3.7</td>
<td>-1.4</td>
<td>5.2</td>
<td>3.8</td>
<td>-1.3</td>
<td>5.1</td>
<td>3</td>
</tr>
<tr>
<td><strong>R&amp;D</strong></td>
<td>12.8</td>
<td></td>
<td>12.8</td>
<td>14.8</td>
<td>-5.0</td>
<td>19.8</td>
<td>-14</td>
</tr>
<tr>
<td><strong>Net other operating income &amp; expenses</strong></td>
<td>-0.5</td>
<td></td>
<td>-0.5</td>
<td>-1.6</td>
<td>-1.6</td>
<td>-69</td>
<td></td>
</tr>
<tr>
<td><strong>EBIT</strong></td>
<td>1.4</td>
<td>-3.2</td>
<td>4.6</td>
<td>-3.6</td>
<td>7.7</td>
<td>-11.3</td>
<td>139</td>
</tr>
<tr>
<td>%</td>
<td>2</td>
<td></td>
<td>7</td>
<td>-6</td>
<td>-19</td>
<td>8pp</td>
<td></td>
</tr>
<tr>
<td><strong>Net result</strong></td>
<td>1.1</td>
<td>-3.2</td>
<td>4.3</td>
<td>-3.7</td>
<td>7.7</td>
<td>-11.4</td>
<td>130</td>
</tr>
<tr>
<td>%</td>
<td>2</td>
<td></td>
<td>7</td>
<td>-6</td>
<td>-19</td>
<td>8pp</td>
<td></td>
</tr>
</tbody>
</table>

* Rounded figures; may not add up
**Q3/17 adjusted vs Q2/17 adjusted
## Consolidated Income Statement*

<table>
<thead>
<tr>
<th>(€ million)</th>
<th>Adjusted</th>
<th>9M/17 Adjusted</th>
<th>Actual</th>
<th>9M/16 Actual</th>
<th>+/- %**</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Revenues</strong></td>
<td>171.7</td>
<td>-4.6</td>
<td>176.3</td>
<td>106.6</td>
<td>61</td>
</tr>
<tr>
<td>Cost of sales</td>
<td>121.0</td>
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<td>123.3</td>
<td>79.7</td>
<td>52</td>
</tr>
<tr>
<td><strong>Gross profit</strong></td>
<td>50.8</td>
<td>-2.2</td>
<td>53.0</td>
<td>26.9</td>
<td>89</td>
</tr>
<tr>
<td>%</td>
<td>30</td>
<td></td>
<td>30</td>
<td>25</td>
<td>5 pp</td>
</tr>
<tr>
<td>Selling expenses</td>
<td>7.9</td>
<td></td>
<td>7.9</td>
<td>9.0</td>
<td>-12</td>
</tr>
<tr>
<td>General &amp; admin expenses</td>
<td>11.6</td>
<td>-2.9</td>
<td>14.5</td>
<td>12.1</td>
<td>-4</td>
</tr>
<tr>
<td>R&amp;D</td>
<td>41.6</td>
<td>-10.6</td>
<td>52.3</td>
<td>39.6</td>
<td>5</td>
</tr>
<tr>
<td>Net other operating income &amp; expenses</td>
<td>-2.2</td>
<td></td>
<td>-2.2</td>
<td>-4.5</td>
<td>-51</td>
</tr>
<tr>
<td><strong>EBIT</strong></td>
<td>-8.2</td>
<td>11.3</td>
<td>-19.5</td>
<td>-29.3</td>
<td>72</td>
</tr>
<tr>
<td>%</td>
<td>-5</td>
<td></td>
<td>-11</td>
<td>-27</td>
<td>22 pp</td>
</tr>
<tr>
<td><strong>Net result</strong></td>
<td>-9.3</td>
<td>11.3</td>
<td>-20.6</td>
<td>-30.4</td>
<td>69</td>
</tr>
<tr>
<td>%</td>
<td>-5</td>
<td></td>
<td>-12</td>
<td>-28</td>
<td>23 pp</td>
</tr>
</tbody>
</table>

* Rounded figures; may not add up

**9M/17 adjusted vs 9M/16 actual

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### Notes:

- **Adjusted** figures may not add up.
- 9M/17 adjusted vs 9M/16 actual.
## Balance Sheet*

* Rounded figures; may not add up

<table>
<thead>
<tr>
<th>(€ million)</th>
<th>30/09/17</th>
<th>30/06/17</th>
<th>31/12/16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Property, plant &amp; equipment</td>
<td>64.0</td>
<td>65.3</td>
<td>74.2</td>
</tr>
<tr>
<td>Goodwill</td>
<td>71.1</td>
<td>68.7</td>
<td>74.6</td>
</tr>
<tr>
<td>Other intangible assets</td>
<td>1.8</td>
<td>1.5</td>
<td>5.4</td>
</tr>
<tr>
<td>Others</td>
<td>1.9</td>
<td>2.1</td>
<td>2.4</td>
</tr>
<tr>
<td><strong>Non-current assets</strong></td>
<td><strong>138.8</strong></td>
<td><strong>137.5</strong></td>
<td><strong>156.5</strong></td>
</tr>
<tr>
<td>Inventories</td>
<td>40.2</td>
<td>36.4</td>
<td>54.2</td>
</tr>
<tr>
<td>Trade receivables</td>
<td>21.1</td>
<td>22.0</td>
<td>60.2</td>
</tr>
<tr>
<td>Others</td>
<td>4.8</td>
<td>6.0</td>
<td>5.3</td>
</tr>
<tr>
<td>Assets classified as held for sale</td>
<td>15.4</td>
<td>16.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Cash &amp; Cash Deposits</td>
<td>203.9</td>
<td>197.1</td>
<td>160.1</td>
</tr>
<tr>
<td><strong>Current Assets</strong></td>
<td><strong>285.3</strong></td>
<td><strong>277.6</strong></td>
<td><strong>279.7</strong></td>
</tr>
<tr>
<td>Shareholders' equity</td>
<td>342.2</td>
<td>339.8</td>
<td>369.7</td>
</tr>
<tr>
<td><strong>Non-current liabilities</strong></td>
<td><strong>1.7</strong></td>
<td><strong>2.5</strong></td>
<td><strong>4.2</strong></td>
</tr>
<tr>
<td>Trade payables</td>
<td>13.1</td>
<td>13.9</td>
<td>14.6</td>
</tr>
<tr>
<td>Advance payments from customers</td>
<td>41.7</td>
<td>33.6</td>
<td>26.1</td>
</tr>
<tr>
<td>Others</td>
<td>25.3</td>
<td>25.3</td>
<td>21.6</td>
</tr>
<tr>
<td><strong>Current liabilities</strong></td>
<td><strong>80.2</strong></td>
<td><strong>72.7</strong></td>
<td><strong>62.3</strong></td>
</tr>
<tr>
<td><strong>Balance Sheet total</strong></td>
<td><strong>424.1</strong></td>
<td><strong>415.0</strong></td>
<td><strong>436.2</strong></td>
</tr>
</tbody>
</table>
## Consolidated Statement of Cash Flows*

* Rounded figures; may not add up

<table>
<thead>
<tr>
<th></th>
<th>9M/17</th>
<th>9M/16</th>
<th>Q3/17</th>
<th>Q2/17</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Net Result</strong></td>
<td>-20.6</td>
<td>-30.4</td>
<td>4.3</td>
<td>-11.4</td>
</tr>
<tr>
<td>Adjust for</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non Cash Items</td>
<td>16.8</td>
<td>9.8</td>
<td>2.6</td>
<td>6.8</td>
</tr>
<tr>
<td>Changes in Working Capital</td>
<td>60.4</td>
<td>-14.5</td>
<td>6.3</td>
<td>13.3</td>
</tr>
<tr>
<td><strong>Cash Flow from Operating Activities</strong></td>
<td>56.5</td>
<td>-35.0</td>
<td>13.2</td>
<td>8.7</td>
</tr>
<tr>
<td>Capital Expenditures</td>
<td>-8.0</td>
<td>-3.0</td>
<td>-5.0</td>
<td>-1.7</td>
</tr>
<tr>
<td>FX effects / Other</td>
<td>-4.7</td>
<td>-7.9</td>
<td>-1.4</td>
<td>-3.6</td>
</tr>
<tr>
<td><strong>Total Cash Flow</strong></td>
<td>43.8</td>
<td>-45.9</td>
<td>6.8</td>
<td>3.5</td>
</tr>
<tr>
<td><strong>Cash &amp; Deposits</strong></td>
<td>203.9</td>
<td>163.5</td>
<td>203.9</td>
<td>197.1</td>
</tr>
</tbody>
</table>
Market Prospects

Short-Term

• Increasing emergence of compound semiconductor based laser devices such as VCSELs for sensors in automotive and mobile applications.
• Increasing emergence of compound semiconductor based laser devices for ultrafast Telecom and Datacom infrastructure and data center applications.
• Increasing adoption of LEDs and specialty LEDs (in particular Red-Orange-Yellow, IR or UV) for Sensor, Fine Pitch Display and other applications.
• Increased emergence of wide band gap SiC based devices for energy efficient power management in automotive, consumer electronics and mobile applications.

Mid- to Long-Term

• Increased emergence of wide band gap GaN based devices for energy efficient power management and communications in automotive, consumer electronics and mobile applications.
• Increasing emergence of compound semiconductor based sensor devices for autonomous driving.
• Development of new wide band gap applications such as RF and System-on-Chip with integrated power management.
• Progress in the development of large area OLED displays requiring efficient deposition technologies such as OVPD.
• Increased development activity for specialized compound solar cell applications.
• Development of applications using Carbon Nanostructures (Carbon Nanotubes, Carbon Nanowires, Graphene, 2D-Materials).
• Development of alternative LED applications such as Visual Light Communication technology or Micro-LED Displays.
AIXTRON – Enabling Emerging Global Mega Trends

Materials

- GaN
- GaAs
- SiC
- InP
- InSb
- ZnO
- Ge
...

Applications

- 3D Sensing
- Autonomous Driving
- Wireless Charging
- Micro-LED
- Smart Home
- Electric Vehicles
- Thin-film III–V Solar cells
### Application: Short Term – Compound Semis in Next-Gen CE

**AIXTRON Enables GaAs Applications**
- RF Switches
- RF Power transistors
- MMIC
- HMIC Pin diode
- 3D gesture sensors
- Iris scan
- Proximity sensor
- Camera autofocus
- Environmental scan
- HDMI interconnects
- Body functions
- Night vision camera
- Displays
- Camera Flash
- Wireless charger
- Pulsed power transistor
- Base station for 5G
- Wireless PAs
- Noise cancelation
- GaN ICs

**AIXTRON Enables GaN Applications**
- OLED Flexible Display
- 3D NAND
- 1X DRAM
- CNT based LiB
- RF energy solution
- MMIC
- Fast charger
- Pulsed power transistor
- Base station for 5G
- Wireless PAs
- Noise cancelation
- GaN ICs

**Potential CE markets (2017e)**
- ~3bn units
  - Smartphones: 1.55 bn units
  - Laptops: 0.18 bn units
  - Tablets: 0.3 bn units
  - Smartwatches: 0.1 bn units
  - Wearables: 0.3 bn units
  - TV: 0.25 bn units
  - Others (DSC, Game consoles): 0.1bn

**Customer profiles:**
- Fragmented and global
- IDMs, PDM, foundries and start ups
- GaN MOCVD: 100+ players with epi capability
- GaAs MOCVD: 60+ players with epi capability
- CNT PECVD: shift toward commercial customers

Source: Gartner; Credit Suisse, Deutsche Bank, Stifel
AIXTRON TECHNOLOGIES AND PRODUCTS

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

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
- Charging infrastructure
- On board battery charger
- DC/DC conversion
- Main inverter

AIXTRON Enables SiC Applications

AIXTRON Enables GaN Applications

- Potential EV, BEV and PHEV
  ~ 4m units in 2020e
  - Power Semiconductor content per car internal combustion engine: $50
  - Power Semiconductor content per car electrical vehicle: $350

- Potential ADAS
  ~ 25m units in 2019e
  - Semiconductor content partially automated: sub $100 per car
  - Semiconductor content fully automated: $580 per car

- Customer profiles:
  - Fragmented and global
  - IDMs, PDM, foundries and start ups
  - GaN MOCVD: 100+ players with epi capability
  - GaAs MOCVD: 60+ players with epi capability
  - CNT PECVD: shift toward commercial customers
Application: Long Term – Compound Semis in Smart Homes

AIXTRON also in...

<table>
<thead>
<tr>
<th>OLED</th>
<th>CNT based LiB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Night vision IR</td>
<td>Terrestrial CPV</td>
</tr>
</tbody>
</table>

AIXTRON Enables GaAs Applications

- FTTH
- 3D gesture sensors
- Motion sensors
- Environmental sensors
- Fast charger
- 5G Home Internet
- Smart Lighting
- LED
- Wireless PAs
- LiDAR
- AR Gaming
- Med-Tech wearables
- Infotainment
- Wireless charger

AIXTRON Enables SiC Applications

AIXTRON Enables GaN Applications

Potential New Applications

- Smart homes: Self-sufficient, environmentally friendly and connected
  - Smart sensing: motion, environmental sensors, microphones
  - Processing: low power, high performance, microcontroller
  - Connectivity: Sub-GHz, Bluetooth, WiFi
  - Energy management: digital power, energy harvesting

- Applications:
  - appliances, home control, household robots, smart lighting, home multimedia, smart door locks, EV chargers, smart meters, improved security
AIXTRON Opto & Power – Positioned for Profitable Growth

* WSPM: wafer starts per month; Source: IHS, LEDinside, AIXTRON estimates

**Photonics** (e.g. VCSEL for 3D Sensing, Lasers for Data-Telecom)
**Power** (e.g. EVs, Charging Stations Wireless Charging, GaN RF)
**Specialty LED** (e.g. Micro LED, ROY for Fine-pitch Displays, Infrared, UV)
**SSL + BLU LED**

Relative Profitability

- **AIX G5**
- **AIX G4**
- **AIX R6**

Planetary system
Showerhead system

AIXTRON Position

- **#1**
  - Power: 78%
  - Specialty LED: 72%
  - Photonics: 44%

6” WSPM* CAGR 2016-2021e
### Overview: GaN/SiC as Wide Band Gap (WBG) Power Electronics

#### Consumer Electronics & IT
- Electronic appliances
- Computing
- Wireless charging
- Power supplies
- PFC

#### Automotive
- Infotainment
- GPS
- Connected car
- Autonomous driving
- EMI/EMC
- Adaptive cruise control

#### Energy
- General automotive electronic
- HEV/EV
- Charging station
- Inverter / motor drives
- Converter
- Radar test applications

#### Industrial
- Power Grid / Smart meter / appliances
- Solar / Wind inverters
- Solar / Wind power DC distribution
- Storage
- UPS

#### Power Management
- **30V**
- **600V**

#### Power Switching
- **1.2 kV**
- **≥2kV**

#### Volume segment
- GaN

#### Niche segment
- GaN / SiC

#### SiC
- UPS
- Industrial machines
- Building
- Mining, oil, gas power generation
- Shipping/Rail
Devices: GaN/SiC Power Electronics – Superior Performance

More Efficient

Energy Saving

Less Heat

Light Weight

Lower System Cost

Electric Vehicles

EV-charging

Data Centers

Renewable Energy

Wireless Charging

Fast Charging

Source: icons from www.flaticon.com
Devices: VCSEL – Internet of Things Creates New Opportunities

3D Sensing Functionality

VCSEL

Sensor/Receiver

Processor

Facial Recognition

Autonomous Driving

Tailor-made clothing/shoes

Interior Design

Mapping

Industry 4.0

Source: icons from www.flaticon.com
Devices: ROY LEDs for RGB Displays; UV LEDs for Niche Markets

- **ROY LED**
  - RGB Fine-Pitch Indoor Display (Pixel Pitch ≤2.5mm)
  - RGB Stadium Outdoor Display (Pixel Pitch ≥10mm)

- **UV LED**
  - Source: LEDinside
  - Curing
  - Water Disinfection
  - Air Purifier
Devices: MicroLED – The Perfect Future Display Technology

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

Source: LEDinside

- **RGB MicroLED Display**
- **RGB LED Display**

- **Wearables**
- **AR/VR**
- **Signage**
- **Smartphones/Tablets/TVs**
## AIXTRON Competitive Landscape

|                | USA       | Europe   | China   | Korea   | Japan           |
|                |           |          |         |         |                 |
| **Compound**   | GaAs/InP  | Veeco    |         |         | TAIYO NIPPON SANSO |
|                | Optoelectronics, ROY LED |          |         |         |                 |
| **GaN LED**    | Veeco     |          | AMEC   |         | TAIYO NIPPON SANSO |
| **GaN Power**  | Veeco     |          |         |         | TAIYO NIPPON SANSO |
| **SiC Power**  | LPE       |          |         |         | TEL NuFlare     |
| **Silicon**    |           |          |         | WONIK IPS | Hitachi Kokusai Electric Inc. |
| **Organics**   | Applied Materials |          |         | SFA CANON | ULVAC Canon Tokki Corporation |
Organic Electronics – OVPD® – APEVA SE

OLED manufacturing process

- Cleaning
- ITO deposition
- Coating
- Etching
- Stripping
- Test and repair

Front-end
Array process equipment

- Organic material deposition

Front-end
Cell process equipment

- Encapsulation (Thin film; TFE)

Back-end
Module process equipment

- Cleaning
- Glass cutting
- Bonding
- Aging
- Final test

APEVA SE Partner
TFE Frozen

Source: DisplaySearch, AIXTRON

AIXTRON TECHNOLOGIES AND PRODUCTS

Targeted technology

AIXTRON
Proprietary carrier-gas enhanced gas phase deposition approach for organic thin films
Based on AIXTRON’s core competence of carrier gas enhanced vapor phase deposition
Free scalability: suitable for all relevant substrate generations
Manufacturing technology applicable for OLED displays, OLED lighting, organic semiconductors, and organic photovoltaic
Proprietary STExS™ evaporation source technology: low thermal stress, high rates, continuous operation

“Disruptive deposition technology for cost efficient OLED manufacturing”

High deposition rates for high throughput
Reduced thermal stress for organic materials
High material utilization efficiency
Flexible process control
Simplified scaling due to
  Close Coupled Showerhead and
  Decoupled source technology
Flexible integration solutions batch and inline
Reduced number of deposition chamber and footprint
Scalable: Available for substrate sizes up to Gen8.5 (≈2.3 x 2.5 m²)
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, 1,700°C), 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**

Graphene (2D) and Carbon nanotube (1D)
Unique combination of high electrical/thermal conductivity, mobility, flexibility and transparency

**AIXTRON Technology**

Serving R&D market today
AIXTRON BM Pro

**Enabling Applications**

Production ready for tomorrow
AIXTRON BM Pro 300
Our technology. YOUR FUTURE.
Compound Semiconductor Market

China Investments

driven by strategic China investments

Overcapacity Absorption, Industry Consolidation

Advanced Optoelectronics driving demand

driven by LED TV

driven by notebook backlighting

driven by telecom/datacom and mobile phone penetration

driven by mobile phone penetration

driven by telecom/datacom and mobile phone penetration

Overcapacity Absorption, Industry Consolidation

Advanced Optoelectronics driving demand

driven by LED TV

driven by notebook backlighting

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Compound Semiconductor Market

China Investments

Equipment Order Intake per Quarter

(EUR million)
**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

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>2015</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues</td>
<td>196.5</td>
<td>197.8</td>
<td>193.8</td>
</tr>
<tr>
<td>Cost of sales</td>
<td>140.2</td>
<td>147.9</td>
<td>154.1**</td>
</tr>
<tr>
<td>Gross profit</td>
<td>56.3</td>
<td>49.8</td>
<td>39.7**</td>
</tr>
<tr>
<td>%</td>
<td>29%</td>
<td>25%</td>
<td>20%</td>
</tr>
<tr>
<td>Selling expenses</td>
<td>13.8</td>
<td>11.5</td>
<td>14.1**</td>
</tr>
<tr>
<td>General &amp; admin expenses</td>
<td>17.1</td>
<td>16.3</td>
<td>19.3</td>
</tr>
<tr>
<td>R&amp;D</td>
<td>53.9</td>
<td>55.4</td>
<td>66.7</td>
</tr>
<tr>
<td>Net other operating income &amp; expenses</td>
<td>-7.2</td>
<td>-6.7</td>
<td>-2.2</td>
</tr>
<tr>
<td>EBIT</td>
<td>-21.4</td>
<td>-26.7</td>
<td>-58.3</td>
</tr>
<tr>
<td>%</td>
<td>-11%</td>
<td>-14%</td>
<td>-30%</td>
</tr>
<tr>
<td>Result before tax</td>
<td>-21.0</td>
<td>-26.0</td>
<td>-57.1</td>
</tr>
<tr>
<td>%</td>
<td>-11%</td>
<td>-13%</td>
<td>-29%</td>
</tr>
<tr>
<td>Net result</td>
<td>-24.0</td>
<td>-29.2</td>
<td>-62.5</td>
</tr>
<tr>
<td>%</td>
<td>-12%</td>
<td>-15%</td>
<td>-32%</td>
</tr>
</tbody>
</table>

**) 2014 figures adjusted to be comparable
<table>
<thead>
<tr>
<th>(€ million)</th>
<th>31/12/16</th>
<th>31/12/15</th>
<th>31/12/14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Property, plant &amp; equipment</td>
<td>74.2</td>
<td>81.3</td>
<td>77.3</td>
</tr>
<tr>
<td>Goodwill</td>
<td>74.6</td>
<td>75.9</td>
<td>64.8</td>
</tr>
<tr>
<td>Other intangible assets</td>
<td>5.4</td>
<td>6.4</td>
<td>2.5</td>
</tr>
<tr>
<td>Others</td>
<td>2.4</td>
<td>3.9</td>
<td>4.6</td>
</tr>
<tr>
<td><strong>Non-current assets</strong></td>
<td><strong>156.5</strong></td>
<td><strong>167.6</strong></td>
<td><strong>149.2</strong></td>
</tr>
<tr>
<td>Inventories, WIP &amp; Finished Goods</td>
<td>54.2</td>
<td>70.8</td>
<td>81.7</td>
</tr>
<tr>
<td>Trade receivables</td>
<td>60.2</td>
<td>26.0</td>
<td>26.3</td>
</tr>
<tr>
<td>Others</td>
<td>5.3</td>
<td>8.2</td>
<td>8.3</td>
</tr>
<tr>
<td>Cash &amp; Cash Equivalents incl. CD</td>
<td>160.1</td>
<td>209.4</td>
<td>268.1</td>
</tr>
<tr>
<td><strong>Current Assets</strong></td>
<td><strong>279.7</strong></td>
<td><strong>314.4</strong></td>
<td><strong>384.4</strong></td>
</tr>
<tr>
<td>Shareholders' equity</td>
<td><strong>369.7</strong></td>
<td><strong>396.5</strong></td>
<td><strong>415.7</strong></td>
</tr>
<tr>
<td><strong>Non-current liabilities</strong></td>
<td><strong>4.2</strong></td>
<td><strong>3.6</strong></td>
<td><strong>1.3</strong></td>
</tr>
<tr>
<td>Trade payables</td>
<td>14.6</td>
<td>9.8</td>
<td>16.4</td>
</tr>
<tr>
<td>Advance payments from customers</td>
<td>26.1</td>
<td>24.0</td>
<td>66.9</td>
</tr>
<tr>
<td>Others</td>
<td>21.6</td>
<td>48.0</td>
<td>33.2</td>
</tr>
<tr>
<td><strong>Current liabilities</strong></td>
<td><strong>62.3</strong></td>
<td><strong>81.8</strong></td>
<td><strong>116.5</strong></td>
</tr>
<tr>
<td><strong>Balance Sheet total</strong></td>
<td><strong>436.2</strong></td>
<td><strong>482.0</strong></td>
<td><strong>533.5</strong></td>
</tr>
</tbody>
</table>
### Consolidated Statement of Cash Flows*

* Rounded figures; may not add up

<table>
<thead>
<tr>
<th>(€ million)</th>
<th>2016</th>
<th>2015</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash Flow from operating activities</td>
<td>-37.7</td>
<td>-45.7</td>
<td>-33.8</td>
</tr>
<tr>
<td>Cash Flow from investing activities</td>
<td>43.4</td>
<td>41.2</td>
<td>-23.2</td>
</tr>
<tr>
<td>Cash Flow from financing activities</td>
<td>0.3</td>
<td>-0.1</td>
<td>0.2</td>
</tr>
<tr>
<td>Exchange rate changes</td>
<td>-2.3</td>
<td>4.3</td>
<td>5.9</td>
</tr>
<tr>
<td>Net change in Cash &amp; Cash Equivalents</td>
<td>3.7</td>
<td>-0.3</td>
<td>-50.9</td>
</tr>
<tr>
<td>Cash &amp; Cash Equivalents (beginning of period)</td>
<td>116.3</td>
<td>116.6</td>
<td>167.5</td>
</tr>
<tr>
<td>Cash &amp; Cash Equivalents (end of period)</td>
<td>120.0</td>
<td>116.3</td>
<td>116.6</td>
</tr>
<tr>
<td>Change in Cash deposits</td>
<td>-52.8</td>
<td>-60.5</td>
<td>9.9</td>
</tr>
<tr>
<td>Free Cash Flow**</td>
<td>-42.9</td>
<td>-57.3</td>
<td>-47.0</td>
</tr>
<tr>
<td>Capex</td>
<td>5.3</td>
<td>13.3</td>
<td>13.4</td>
</tr>
</tbody>
</table>

** Operating CF + Investing CF + Changes in Cash Deposits, adjusted for acquisition effects
Financial Calendar & Contact Data

- February 27, 2018  FY/2017 Results, Conference Call
- April 26, 2018    Q1/2018 Results, Conference Call
- May 16, 2018     2018 Annual General Meeting, Aachen, Germany
- July 26, 2018    Q2/2018 Results, Conference Call
- October 30, 2018 Q3/2018 Results, Conference Call

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