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.

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 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. Materials. Performance.**

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>We are the <strong>recognized technology leader</strong> in complex material deposition.</td>
<td>We <strong>enable our customers</strong> to successfully shape the markets of the future, exploiting the potential offered by <strong>new materials</strong>.</td>
<td>We <strong>deliver the performance</strong> driving economic success through our expertise, our employees and the quality of our products.</td>
</tr>
</tbody>
</table>
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
- >700 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
- Annual R&D budget of approx. € 55-65 Million
Global Presence
AIXTRON – Enabling an Innovative Future

New Complex Materials

**Compound Semiconductors**
- GaAs/ GaN (Sensors)
- GaN/ SiC (RF/Power – Mobile)
- GaAs/ InP (Laser - Datacom)
- GaN (LED – LiFi, Micro-LED, UV LED)

**Silicon Semiconductors**
- III-V (Next-generation Logic – Real-time Processing)
- Innovative materials (Memory - Big Data)

**Organic**
- Display, Lighting
- Flexible Electronics
- Organic Photovoltaics

**Carbon Nano Structures**
- Graphene (Energy Storage)
- 2D materials (Smart Sensors, Energy Storage)

Tech Trends

- Big Data
- IoT & Cloud Computing
- Renewable Energy
- Electric Vehicles
- Energy Storage
- Electric Vehicles
## Our Technology Portfolio

| Compound Semiconductors | Silicon Semiconductors | Organic Electronics | Carbon
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MOCVD</td>
<td>ALD/MOCVD</td>
<td>OVPD®/PVPD®/TFE</td>
<td>PECVD</td>
</tr>
</tbody>
</table>

### LEDs, Lasers and Optoelectronics
- LEDs for display: TVs, mobile phones, tablets, etc.
- LEDs for lighting
- LEDs for automotive
- LEDs for datacom
- Lasers for telecom, consumer electronics
- Photovoltaics

### Power Management GaN / SiC
- RF transistors
- AC-DC converters
- DC-DC converters
- Solar inverters
- Motor drives in industrial applications automotive and consumer electronics

### Silicon Semicondutors
- DRAM Dielectric and Metal Electrode
- Flash Inter Poly Dielectric and Metals
- ReRAM and PCRAM Active element and Electrode
- Logic Gate stack
- Logic High Mobility Channel

### Organic Electronics
- OLEDs for display: TVs, mobile phones, tablets, etc.
- Thin Film Encapsulation
- OLEDs for lighting
- Organic, flexible electronics
- Organic Photovoltaics

### Graphene, CNTs and CNWs
- Transistors
- Interconnects
- Flexible Electronics
- Energy Storage
- Sensors, etc.

### Growth in NAND Flash driving Demand TFOS in Development

### Increasing demand for Advanced Optoelectronics

### New Applications driving Demand

### Proof of Concept with Relevant Customers

### Increasing equipment demand expected by 2018 and beyond

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**AIXTRON TECHNOLOGIES AND PRODUCTS**
Revenue Analysis

FY 2016:
by equipment & spares

FY 2016:
by end application
(equipment only)

FY 2016:
by region
USD order intake and backlog were recorded at the prevailing budget rate (2016: $1.10/€)
USD revenues were converted at the actual period average FX rate (2016: $1.11/€)
## Consolidated Income Statement*

<table>
<thead>
<tr>
<th>(€ million)</th>
<th>FY/16</th>
<th>FY/15</th>
<th>+/-</th>
<th>Q4/16</th>
<th>Q4/15</th>
<th>+/-</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Revenues</strong></td>
<td>196.5</td>
<td>197.8</td>
<td>-1%</td>
<td>89.8</td>
<td>62.5</td>
<td>44%</td>
</tr>
<tr>
<td><strong>Cost of sales</strong></td>
<td>140.2</td>
<td>147.9</td>
<td>-5%</td>
<td>60.5</td>
<td>42.8</td>
<td>41%</td>
</tr>
<tr>
<td><strong>Gross profit</strong></td>
<td>56.3</td>
<td>49.8</td>
<td>13%</td>
<td>29.4</td>
<td>19.6</td>
<td>50%</td>
</tr>
<tr>
<td><strong>Gross Margin</strong></td>
<td>29%</td>
<td>25%</td>
<td>4 pp</td>
<td>33%</td>
<td>31%</td>
<td>2 pp</td>
</tr>
<tr>
<td><strong>Selling expenses</strong></td>
<td>13.8</td>
<td>11.5</td>
<td>20%</td>
<td>4.8</td>
<td>2.6</td>
<td>85%</td>
</tr>
<tr>
<td><strong>General &amp; admin expenses</strong></td>
<td>17.1</td>
<td>16.3</td>
<td>5%</td>
<td>5.0</td>
<td>4.2</td>
<td>19%</td>
</tr>
<tr>
<td><strong>R&amp;D</strong></td>
<td>53.9</td>
<td>55.4</td>
<td>-3%</td>
<td>14.4</td>
<td>14.4</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Net other op. (income)/expenses</strong></td>
<td>-7.2</td>
<td>-6.7</td>
<td>-7%</td>
<td>-2.7</td>
<td>0.0</td>
<td>n.m.</td>
</tr>
<tr>
<td><strong>EBITDA</strong></td>
<td>-7.9</td>
<td>-16.4</td>
<td>52%</td>
<td>12.5</td>
<td>1.3</td>
<td>862%</td>
</tr>
<tr>
<td><strong>EBIT</strong></td>
<td>-21.4</td>
<td>-26.7</td>
<td>20%</td>
<td>7.9</td>
<td>-1.5</td>
<td>n.m.</td>
</tr>
<tr>
<td><strong>EBIT Margin</strong></td>
<td>-11%</td>
<td>-14%</td>
<td>3 pp</td>
<td>9%</td>
<td>-2%</td>
<td>11 pp</td>
</tr>
<tr>
<td><strong>Result before tax</strong></td>
<td>-21.0</td>
<td>-26.0</td>
<td>19%</td>
<td>7.9</td>
<td>-1.4</td>
<td>n.m.</td>
</tr>
<tr>
<td><strong>Pre-Tax Margin</strong></td>
<td>-11%</td>
<td>-13%</td>
<td>2 pp</td>
<td>9%</td>
<td>-2%</td>
<td>11 pp</td>
</tr>
<tr>
<td><strong>Net result</strong></td>
<td>-24.0</td>
<td>-29.2</td>
<td>18%</td>
<td>6.4</td>
<td>-1.9</td>
<td>n.m.</td>
</tr>
<tr>
<td><strong>Net Return on Sales</strong></td>
<td>-12%</td>
<td>-15%</td>
<td>3 pp</td>
<td>7%</td>
<td>-3%</td>
<td>10 pp</td>
</tr>
</tbody>
</table>

*) rounded figures; may not add up
## Consolidated Statement of Financial Position*

<table>
<thead>
<tr>
<th>(€ million)</th>
<th>31/12/16</th>
<th>30/09/16</th>
<th>31/12/15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Property, plant &amp; equipment</td>
<td>74.2</td>
<td>75.6</td>
<td>81.3</td>
</tr>
<tr>
<td>Goodwill</td>
<td>74.6</td>
<td>73.8</td>
<td>75.9</td>
</tr>
<tr>
<td>Other intangible assets</td>
<td>5.4</td>
<td>5.5</td>
<td>6.4</td>
</tr>
<tr>
<td>Others</td>
<td>2.4</td>
<td>3.6</td>
<td>3.9</td>
</tr>
<tr>
<td><strong>Non-current assets</strong></td>
<td><strong>156.5</strong></td>
<td><strong>158.5</strong></td>
<td><strong>167.6</strong></td>
</tr>
<tr>
<td>Inventories, WIP &amp; Finished Goods</td>
<td>54.2</td>
<td>79.1</td>
<td>70.8</td>
</tr>
<tr>
<td>Trade receivables</td>
<td>60.2</td>
<td>30.4</td>
<td>26.0</td>
</tr>
<tr>
<td>Others</td>
<td>5.3</td>
<td>7.1</td>
<td>8.2</td>
</tr>
<tr>
<td>Cash &amp; Cash Equivalents incl. CD</td>
<td>160.1</td>
<td>163.5</td>
<td>209.4</td>
</tr>
<tr>
<td><strong>Current Assets</strong></td>
<td><strong>279.7</strong></td>
<td><strong>280.1</strong></td>
<td><strong>314.4</strong></td>
</tr>
<tr>
<td>Shareholders' equity</td>
<td><strong>369.7</strong></td>
<td><strong>359.9</strong></td>
<td><strong>396.5</strong></td>
</tr>
<tr>
<td><strong>Non-current liabilities</strong></td>
<td><strong>4.2</strong></td>
<td><strong>3.0</strong></td>
<td><strong>3.6</strong></td>
</tr>
<tr>
<td>Trade payables</td>
<td>14.6</td>
<td>12.6</td>
<td>9.8</td>
</tr>
<tr>
<td>Advance payments from customers</td>
<td>26.1</td>
<td>41.3</td>
<td>24.0</td>
</tr>
<tr>
<td>Others</td>
<td>21.6</td>
<td>21.9</td>
<td>48.0</td>
</tr>
<tr>
<td><strong>Current liabilities</strong></td>
<td><strong>62.3</strong></td>
<td><strong>75.8</strong></td>
<td><strong>81.8</strong></td>
</tr>
<tr>
<td><strong>Balance Sheet total</strong></td>
<td><strong>436.2</strong></td>
<td><strong>438.7</strong></td>
<td><strong>482.0</strong></td>
</tr>
</tbody>
</table>

*) rounded figures; may not add up
## Consolidated Statement of Cash Flows*

<table>
<thead>
<tr>
<th>(€ million)</th>
<th>FY/16</th>
<th>FY/15</th>
<th>Q4/16</th>
<th>Q3/16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash Flow from operating activities</td>
<td>-37.7</td>
<td>-45.7</td>
<td>-2.7</td>
<td>4.3</td>
</tr>
<tr>
<td>Cash Flow from investing activities</td>
<td>43.4</td>
<td>41.2</td>
<td>4.1</td>
<td>12.9</td>
</tr>
<tr>
<td>Cash Flow from financing activities</td>
<td>0.3</td>
<td>-0.1</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>1.2</td>
<td>-0.9</td>
</tr>
<tr>
<td>Net change in Cash &amp; Cash Equivalents</td>
<td>3.7</td>
<td>-0.3</td>
<td>2.6</td>
<td>16.5</td>
</tr>
<tr>
<td>Cash &amp; Cash Equivalents (beginning of period)</td>
<td>116.3</td>
<td>116.6</td>
<td>117.4</td>
<td>100.9</td>
</tr>
<tr>
<td>Cash &amp; Cash Equivalents (end of period)</td>
<td>120.0</td>
<td>116.3</td>
<td>120.0</td>
<td>117.4</td>
</tr>
<tr>
<td>Change in Cash deposits</td>
<td>-52.8</td>
<td>-60.5</td>
<td>-6.3</td>
<td>-14.2</td>
</tr>
<tr>
<td>Free Cash Flow**</td>
<td>-42.9</td>
<td>-57.3</td>
<td>-4.9</td>
<td>3.0</td>
</tr>
<tr>
<td>Capex</td>
<td>5.3</td>
<td>13.3</td>
<td>2.3</td>
<td>1.3</td>
</tr>
</tbody>
</table>

*) rounded figures; may not add up  
**) Acquisition cost adjusted; Operating CF + Investing CF + Changes in Cash Deposits
Market Prospects

Short-Term

- Further increasing adoption of LEDs and specialty LEDs (in particular Red-Orange-Yellow, UV or IR) for Display and other applications
- Increased emergence of wide-band-gap GaN or SiC based devices for energy efficient power management and communications in automotive, consumer electronics and mobile applications
- Development of next generation NAND and DRAM memory devices
- Increasing emergence of compound semiconductor based laser devices for ultrafast data transfer and sensors in infrastructure and mobile applications
- Increasing emergence of compound semiconductor based sensor devices for autonomous driving

Mid-to Long-Term

- Further progress in the development of GaN-on-Silicon LEDs and Wafer Level Packaging
- 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 devices requiring efficient deposition technologies
- Progress in the development of flexible and rigid OLED devices requiring thin-film encapsulation
- Increased development activity for specialized compound solar cell applications
- Increasing requirements for High-k and interconnect components, implying a new approach to production technologies
- Progress in the development of future logic chips applying wide band gap and high electron mobility materials (III-V-on-Silicon)
- Development of applications using Carbon Nanostructures (Carbon Nanotubes, Carbon Nanowires, Graphene)
- Development of alternative LED applications such as Visual Light Communication technology or Micro-LED Displays
Our technology. YOUR FUTURE.
Compound Semiconductors – Enabling Breakthrough Technologies

Mobile Applications
- 3D Gesture Sensing (Optics, Lasers)
- Wireless Charging (Power)
- Advanced Processors (III-V on Silicon)
- Next-gen Memory (Silicon)
- Flexible Display (Organic)
- Batteries (Carbon)

Hyperscale Data Centers
- Faster Connectivity (Optical, Lasers, Communication)
- Power Management (Power)
- Advanced Processors (III-V on Silicon)
- Solid State Drive (SSD) (Silicon)

Cloud Computing & Big Data
- 5G Network (Optical, Lasers, Communication)
- Sensors (Infrared LEDs)
- Power (Power Management)
AIXTRON – Enabling Emerging Global Mega Trends

Key Enabling Position
Material Revolution
Applications

AIXTRON Pure Play Epitaxy Equipment

Wireless Charging
Autonomous Driving
Electric Vehicle

Consumer Electronics
Hyperscale Datacenters
Silicon Photonics
3D Gesture Sensors
5G Network
Smart Lighting
Micro-LED

AR / VR
GaAs
InP
GaN
SiC
ZnO
Ge
InSb
...
AIXTRON – Enabling Emerging Global Mega Trends

Key Enabling Position

- Growing Demand of MOCVD Equipment Driven by Increasing Adoption of High Performance III-V Materials
- Number 1 Position in Throughput per Yield Epitaxy Equipment: Enabling Emergence of New Applications
- Only Pure Play Epitaxy Equipment Company

Material Revolution

- Advanced III-V Compound Materials Enabled by MOCVD
- Established Material Library based on MOCVD Technology
- More than Moore:
  - Decade of Materials
  - Moore’s law Extension Enabled by III-V Materials

Applications for Global Mega Trends

- Global Megatrends in Mobility, Connectivity and Performance fueling Demand for Leading Edge Deposition Technology
- Industry Convergence: Automotive – Consumer Electronics – Communications
- New Application Features driving Advanced Optoelectronics Device Growth
AIXTRON TECHNOLOGIES AND PRODUCTS

Short Term: Compound Semiconductors in Next-Gen CE Applications

AIXTRON Enables GaAs Applications

- RF Power transistors
- MMIC
- RF Switches
- 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

- Base Station for 3G / 4G
- Logic processor
- OLED Flexible Display
- 3D NAND
- 1X DRAM
- CNT based LiB
- RF energy solution
- MMIC
- Fast charger
- Fast charger
- Pulsed power transistor

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

Potential New Applications
Mid Term: Compound Semiconductors in Connected Vehicles

- 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

### AIXTRON Enables GaAs Applications

- Vehicle speed sensing (IR)
- Night vision IR
- Emergency break assist (IR)
- Adaptive cruise control (IR)
- Pedestrian detection (IR)

### AIXTRON Enables SiC Applications

### AIXTRON Enables GaN Applications

### AIXTRON also in...

- OLED
- CNT based LiB
- Charging infrastructure
- On board battery charger
- DC/DC conversion
- Main inverter

### AIXTRON Enables GaAs Applications

- Head up Displays
- 48V system
- Lidar
- Wireless charger
- Headlights
- Infotainment

### Potential New Applications

- Night vision IR
- Adaptive cruise control (IR)
- Pedestrian detection (IR)
- Driver condition monitoring (VCSEL)

**Source:** Gartner; Baader, Bernstein, DB, Stifel
Long Term: Compound Semiconductors in Smart Homes

AIXTRON also in...

- OLED
- CNT based LiB

- AIXTRON Enables GaAs Applications
  - Night vision IR
  - Terrestrial CPV
  - FTTH
    - 3D gesture sensors
    - Motion sensors
  - Fast charger
  - 5G Home Internet
    - Smart Lighting
    - LED
    - Wireless PAs

- AIXTRON Enables SiC Applications
  - Charging infrastructure
  - Main inverter
  - DC/DC conversion

- AIXTRON Enables GaN Applications
  - LiDAR
  - AR Gaming
  - Med-Tech wearables
  - Infotainment
  - Wireless charger

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

Source: Gartner; Credit Suisse, DB, Stifel
Compound Semiconductors – Evolving Applications

- LED
- Power
- Optics, Lasers
- Communications
- III-V on Silicon

AIXTRON Revenues CAGR 2013 - 2016

- Enabling Technologies

- AIXTRON Group Revenues
- LED Equipment Revenues
- Power Equipment Revenues
- Optoelectronic Equipment Revenues
# Compound Semiconductors – Wide-Band-Gap (WBG) Power Electronics

<table>
<thead>
<tr>
<th>Consumer Electronics &amp; IT</th>
<th>Automotive</th>
<th>Energy</th>
<th>Industrial</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power Management</strong></td>
<td><strong>Power Switching</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>30V</strong></td>
<td><strong>600V</strong></td>
<td><strong>1.2 kV</strong></td>
<td><strong>≥2kV</strong></td>
</tr>
<tr>
<td>• Electronic appliances</td>
<td>• Infotainment electronic/ appliances</td>
<td>• Power Grid / Smart meter / appliances</td>
<td>• UPS</td>
</tr>
<tr>
<td>• Computing</td>
<td>• GPS</td>
<td>• HEV/EV</td>
<td>• Industrial machines</td>
</tr>
<tr>
<td>• Wireless charging</td>
<td>• Connected car</td>
<td>• Charging station</td>
<td>• Building</td>
</tr>
<tr>
<td>• Power supplies</td>
<td>• Autonomous driving</td>
<td>• Inverter / motor drives</td>
<td>• Mining, oil, gas</td>
</tr>
<tr>
<td>• PFC</td>
<td>• EMI/EMC</td>
<td>• Converter</td>
<td>power generation</td>
</tr>
<tr>
<td></td>
<td>• Adaptive cruise control</td>
<td>• Radar test applications</td>
<td>• Shipping/Rail</td>
</tr>
</tbody>
</table>

**GaN**

**GaN / SiC**

**SiC**
Compound Semiconductors – Wide Band Gap (WBG) Power Electronics

WBG GaN and SiC based Power Management Device Shipments

- Reduced Energy Losses
- High Voltage Range
- Improved power quality
- Higher frequencies
- Higher-temperature operation

WBG Power Electronics: Smaller, Faster, and More Efficient

Source: DOE, IHS 2016
Silicon Semiconductors – Leading Edge Technologies

At the forefront to extend Moore’s Law

- Memory (ALD)
- Logic transistor (MOCVD- III-V)
- Interconnects (Graphene/CNT)

Source: Gartner 2016

- Total Fab Capacities
  - ≤14nm Fab Capacities
  - >5x
  - ~1.1x

“More than Moore”
Silicon Semiconductors – ALD

Product Description – ALD

- 300mm ALD Technology
- QXP-8300 Mini-batch system
- High throughput: 2 Process Chambers – 8 stations
- Up to 3 vaporizers and one bubbler
- Applications: DRAM, Logic and Flash High k Dielectric
  - Metal electrode: ReRAM and PCRAM Active elements
- Proven in HVM with >40% lower CoO and >90% Uptime in DRAM and Flash Fabs

“Best-in class technology, state of the art deposition system, lowest CoO”

Product Features

- Up to 3 patented TriJet vaporizers
- Small volume confined process space ensure short ALD cycle time
- > 40% less precursor consumption
- Efficient purge
- Isolated multi wafer processing with > 40% higher throughput
- Close Coupled Showerhead for uniform distribution
- Flexibility and ease of maintenance
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

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® + Encapsulation

OLED manufacturing process

- Cleaning
- ITO deposition
- Coating
- Etching
- Stripping
- Test and repair
- Organic material deposition
- Cathode deposition
- Encapsulation
- Glass cutting
- Bonding
- Aging
- Final test

Front-end
Array process equipment

Front-end
Cell process equipment

Back-end
Module process equipment

Targeted technology
Organic Electronics – OVPD®

Product Description – OVPD

- 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"

Product Features

- 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)

OVPD demonstrator OLAD (Organic Large Area Demonstrator) (optimized for Generation 8.5 substrate sizes)
## Organic Electronics – OptaCap™ PECVD

**Product Description – OptaCap™ PECVD**

- Proprietary PECVD technology based on linear plasma sources
- 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 barrier applications, i.e. thin film encapsulation: highly flexible, low film stress, high transparent, high water and oxygen permeation barrier,

**“Disruptive deposition technology for cost efficient deposition of flexible barrier films”**

## Product Features

- High deposition rates for high throughput
- Flexible process control
- Simplified scaling due to
  - Linear PECVD source technology
  - Multiple source configurations
- Scalable: Available for substrate sizes up to Gen3.5, future: up to Gen8.5
- Highly flexible SiNx-based barrier films at high rates
- Low temperature process (<80°) with low film stress

**OPTACAP-200**

200x200 mm² Substrates
Equipment Order Intake per Quarter

- **Driven by strategic China investments**
- **Overcapacity Absorption, Industry Consolidation**
- **Advanced Optoelectronics driving demand**

Driven by:
- Notebook backlighting
- Mobile phone penetration
- Mobile phone penetration driven by telecom/datacom and mobile phone penetration
- LED TV

*(EUR million)*
Annual Equipment Revenues by Application (excl. spares)

- LED
- Silicon
- Power Electronics
- Optoelectronics*
- Others

* Optoelectronics includes applications in Consumer Optoelectronics, Telecom/Datacom, Solar, etc.
## Consolidated Income Statement*

<table>
<thead>
<tr>
<th>(€ million)</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><strong>Gross Margin</strong></td>
<td><strong>29%</strong></td>
<td><strong>25%</strong></td>
<td><strong>20%</strong></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 op.(income)/expenses</td>
<td>-7.2</td>
<td>-6.7</td>
<td>-2.2</td>
</tr>
<tr>
<td>EBITDA</td>
<td>-7.9</td>
<td>-16.4</td>
<td>-41.3</td>
</tr>
<tr>
<td>EBIT</td>
<td>-21.4</td>
<td>-26.7</td>
<td>-58.3</td>
</tr>
<tr>
<td><strong>EBIT Margin</strong></td>
<td><strong>-11%</strong></td>
<td><strong>-14%</strong></td>
<td><strong>-30%</strong></td>
</tr>
<tr>
<td>Result before tax</td>
<td>-21.0</td>
<td>-26.0</td>
<td>-57.1</td>
</tr>
<tr>
<td><strong>Pre-Tax Margin</strong></td>
<td><strong>-11%</strong></td>
<td><strong>-13%</strong></td>
<td><strong>-29%</strong></td>
</tr>
<tr>
<td>Net result</td>
<td>-24.0</td>
<td>-29.2</td>
<td>-62.5</td>
</tr>
<tr>
<td><strong>Net Return on Sales</strong></td>
<td><strong>-12%</strong></td>
<td><strong>-15%</strong></td>
<td><strong>-32%</strong></td>
</tr>
</tbody>
</table>

*) rounded figures; may not add up  
**) 2013 and 2014 figures changed to be comparable with 2015
## Consolidated Statement of Financial Position*

<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>369.7</td>
<td>396.5</td>
<td>415.7</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>

*) rounded figures; may not add up
## Consolidated Statement of Cash Flows*

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

*) rounded figures; may not add up

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

AIXTRON SE Headquarters
Herzogenrath, Germany

Core of AIXTRON’s activities is the Technology and R&D Center near Aachen.

Focus on engineering and process development in MOCVD and organic semiconductors.

AIXTRON Ltd.
Cambridge, United Kingdom

Focus on key MOCVD reactor component technology, carbon-based nanotechnology systems, state of the art innovation and production of R&D tools.

AIXTRON Inc.
Sunnyvale, California, USA

Focus on silicon applications for leading suppliers of DRAM and CMOS.
Financial Calendar & Contact Data

- April 25, 2017  Q1/2017 Results, Conference Call
- May 9, 2017    Annual General Meeting, Aachen
- July 25, 2017  H1/2017 Results, Conference Call
- October 26, 2017  9M/2017 Results, Conference Call

For further information please contact:

Investor Relations & Corporate Communications
AIXTRON SE  ▪ Dornkaulstr. 2  ▪ 52134 Herzogenrath, Germany

IR Team Europe
Phone: +49 (2407) 9030-444 ▪ E-Mail: invest@aixtron.com

IR Team USA – Andrea Su
Phone: +1 (408) 747-7140 ext. 1292 ▪ E-Mail: invest@aixtron.com
Thank you very much for your attention.