IR Presentation – H1/2016
(FSE: AIXA, ISIN DE000A0WMPJ6, NASDAQ: AIXG, ISIN: US0096061041)

© AIXTRON Investor Relations, August 2016
Additional information

This document is for informational purposes only and is neither an offer to purchase nor a solicitation of an offer to sell securities. The takeover offer for the outstanding ordinary shares (including ordinary shares represented by American depositary shares) of AIXTRON SE commenced on 29 July 2016. The terms and conditions of the takeover offer have been published in, and the solicitation and offer to purchase ordinary shares (including ordinary shares represented by American depositary shares) are made only pursuant to, the offer document and related offer materials prepared by Grand Chip Investment GmbH and as approved by the German Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht, “BaFin”). AIXTRON SE intends to file a Solicitation/Recommendation Statement on Schedule 14D-9 with the SEC with respect to the takeover offer; in addition, AIXTRON SE’s Management Board and Supervisory Board will publish a statement pursuant to Sec. 27 of the German Securities Acquisition and Takeover Act (Wertpapiererwerbs- und Übernahmegesetz, WpÜG). The offer document for the takeover offer (in German and in English) containing the detailed terms and conditions of, and other information relating to, the takeover offer, among other things, has been published on the internet at www.grandchip-aixtron.com.

Acceptance of the takeover offer by shareholders that are resident outside Germany and the United States may be subject to further legal requirements. With respect to the acceptance of the takeover offer outside Germany and the United States, no responsibility is assumed for the compliance with such legal requirements applicable in the respective jurisdiction.

The Tender Offer Statement (including the offer document, a related letter of transmittal and other related offer materials) and the Solicitation/Recommendation Statement, as they may be amended from time to time, as well as the Management and Supervisory Board’s statement pursuant to Sec. 27 WpÜG contain important information that should be read carefully before any decision is made with respect to the takeover offer because they, and not this document, govern the terms and conditions of the takeover offer. Those materials and other documents filed by Grand Chip Investment GmbH or AIXTRON SE with the SEC are or, in the case of the Management and Supervisory Board’s statement pursuant to Sec. 27 WpÜG, will be available at no charge on the SEC’s website at www.sec.gov. In addition, Grand Chip Investment GmbH’s Tender Offer Statement and other documents it will file with the SEC will be available at www.grandchip-aixtron.com.

In this document, unless the context otherwise requires, references to “AIXTRON”, “the AIXTRON Group”, the “Group” or “the Company” are to AIXTRON SE and its consolidated subsidiaries. References to “Management” are to the Executive Board of AIXTRON SE.
Cautionary statement regarding forward-looking statements

This document contains forward-looking statements, including statements regarding the expected consummation of the proposed transaction and AIXTRON SE’s future performance, which involves a number of risks and uncertainties, including the satisfaction of closing conditions for the transaction, the possibility that the transaction will not be completed, the failure to retain key AIXTRON SE employees, customers and partners, uncertainty regarding the anticipated benefits of the transaction and the failure of the parties to achieve anticipated goals of the transaction, and other risks and uncertainties discussed in AIXTRON SE’s public filings with the SEC, including the “Risk Factors” section of AIXTRON SE’s Form 20-F filed on February 23, 2016, as well as the offer document to be filed by Grand Chip Investment GmbH, the Solicitation/Recommendation Statement to be filed by AIXTRON SE and the statement pursuant to Sec. 27 WpÜG to be published by AIXTRON SE’s Management and Supervisory Board. These documents and statement are based on current expectations, assumptions, estimates and projections, and involve known and unknown risks, uncertainties and other factors, many of which are outside the control of AIXTRON SE and Grand Chip Investment GmbH, that may cause results, levels of activity, performance or achievements to be materially different from any future statements. These statements are generally identified by words or phrases such as “believe”, “anticipate”, “expect”, “intend”, “plan”, “will”, “may”, “should”, “estimate”, “predict”, “potential”, “continue” or the negative of such terms or other similar expressions. If underlying assumptions prove inaccurate or unknown risks or uncertainties materialize, actual results and the timing of events may differ materially from the results and/or timing discussed in the forward-looking statements, and you should not place undue reliance on these statements. AIXTRON SE 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. Readers are cautioned not to place undue reliance on these forward-looking statements, which speak only as of their dates.

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®, Optacap™, OVPD®, Planetary Reactor®, PVPD®, TriJet®
Who we are

- Headquarters based in Herzogenrath, Germany
- Worldwide presence with 12 sales/representatives offices and production facilities
- Company founded in 1983 – over 30 years of experience
- ~720 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. € 60 Million
Global Presence
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.
Our technology. YOUR FUTURE.
Our Technology. Your FUTURE.

- Compound Semiconductors
- Silicon Semiconductors
- Organic
- Carbon

LED Lighting
Memory & Logic
OLED
Power Management
# Our Technology Portfolio

<table>
<thead>
<tr>
<th><strong>Compound Semiconductors</strong></th>
<th><strong>Silicon Semiconductors</strong></th>
<th><strong>Organic</strong></th>
<th><strong>Carbon</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>MOCVD</td>
<td>ALD/MOCVD</td>
<td>OVPD®/PVPD®/TFE</td>
<td>PECVD</td>
</tr>
<tr>
<td><strong>LEDs, Lasers and Optoelectronics</strong></td>
<td><strong>Power Management GaN / SiC</strong></td>
<td><strong>Silicon Semiconductors</strong></td>
<td><strong>Organic Electronics</strong></td>
</tr>
<tr>
<td>• LEDs for display: TVs, mobile phones, tablets, etc.</td>
<td>• RF transistors</td>
<td>• DRAM Dielectric and Metal Electrode</td>
<td>• OLEDs for display: TVs, mobile phones, tablets, etc.</td>
</tr>
<tr>
<td>• LEDs for lighting</td>
<td>• AC-DC converters</td>
<td>• Flash Inter Poly Dielectric and Metals</td>
<td>• Thin Film Encapsulation</td>
</tr>
<tr>
<td>• LEDs for automotive</td>
<td>• DC-DC converters</td>
<td>• ReRAM and PCRAM Active element and Electrode</td>
<td>• OLEDs for lighting</td>
</tr>
<tr>
<td>• LEDs for datacom</td>
<td>• Solar inverters</td>
<td>• Logic Gate stack</td>
<td>• Organic, flexible electronics</td>
</tr>
<tr>
<td>• Lasers for telecom, consumer electronics</td>
<td>• Motor drives in industrial applications automotive and consumer electronics</td>
<td>• Logic High Mobility Channel</td>
<td>• Organic Photovoltaics</td>
</tr>
</tbody>
</table>

- **Established Markets with Fluctuating Demand**
  - Increasing Equipment Demand Expected by: 2015 and beyond
  - Increasing Equipment Demand Potential for 2015 and beyond
  - Equipment Demand Expected by: 2016/2017
  - Increasing Equipment Demand Expected by: 2018 and beyond
# Overview of the Takeover offer

<table>
<thead>
<tr>
<th>Bidder</th>
<th>Grand Chip Investment GmbH, c/o Paul Hastings (Europe) LLP, Siesmayerstraße 21, 60323 Frankfurt am Main, Germany</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target company</td>
<td>AIXTRON SE, Dornkaulstraße 2, 52134 Herzogenrath, Germany</td>
</tr>
<tr>
<td>Securities sought in the Takeover Offer</td>
<td>All no-par value registered shares in AIXTRON, including all no-par value registered shares represented by American Depositary Shares (ADSs), including dividend entitlement.</td>
</tr>
<tr>
<td>Offer Consideration</td>
<td>EUR 6.00 (in words: Euro six) per AIXTRON Share in cash. AIXTRON ADSs will be converted into and paid out in USD.</td>
</tr>
<tr>
<td>Offer Conditions</td>
<td>(i) A minimum acceptance threshold with a target shareholding of at least 67,632,213 AIXTRON Shares (corresponding to 60 per cent of the total number of AIXTRON Shares issued on the Announcement Date); (ii) approval or clearance of the Transaction, as applicable, from regulatory authorities in Germany, the United States and PRC; (iii) no material adverse change in the closing quotations of DAX and TecDAX; and (iv) no increase in AIXTRON's share capital other than to settle existing and exercised stock options. The Offer Conditions have to be satisfied by 28 February 2017, at the latest.</td>
</tr>
<tr>
<td>Acceptance Period</td>
<td>10 weeks, i.e., from July 29, 2016 to October 7, 2016, 24:00 hrs local time Frankfurt am Main, Germany / 6:00 p.m. local time New York, United States, respectively (unless extended by law).</td>
</tr>
</tbody>
</table>

* The overview has been inserted for reasons of clarity and comprehensibility and does not contain all relevant information relating to the Takeover Offer. AIXTRON Shareholders should not solely rely on this overview in their own interest but should fully and thoroughly assess this Statement and the Offer Document.
GCI Takeover Offer – Commitments to a Sustainable Future

Transaction could provide AIXTRON with the relevant support to successfully develop full technology roadmaps and to better access growth markets:

→ GCI has committed to support AIXTRON to continue developing existing product lines, for its customers’ benefit and to maintain the existing global set up.

→ GCI has also committed that the IP portfolio is to remain with and be used solely by AIXTRON while protecting sensitive and confidential customer information.

→ AIXTRON could expand its presence, especially in China which would allow better exploitation of the most significant growth opportunities.

→ The fairness opinion of J.P. Morgan supports that the transaction reflects a fair and adequate offer price.

→ Alternative Scenarios would either be very risky or would result in smaller AIXTRON with reduced growth potential

Executive and Supervisory Boards Recommend Acceptance of the Takeover Offer, Works Councils also Welcome the Transaction
Revenue Analysis

H1/2016: by equipment & spares

- Equipment: 66%
- Spares: 34%

H1/2016: by end application (equipment only)

- LED: 20%
- Silicon: 30%
- Power Electronics: 10%
- Optoelectronics: 35%
- Others: 4%

H1/2016: by region

- Asia: 55%
- Europe: 25%
- USA: 20%
24 - Month Business Development

(E € million)

Equipment (only)

Order Intake

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>49.7</td>
<td>50.2</td>
<td>49.3</td>
<td>48.9</td>
<td>52.5</td>
<td>34.4</td>
<td>31.3</td>
<td>44.4</td>
<td>51.1</td>
</tr>
</tbody>
</table>

@ $1.35 @ $1.25 @ $1.10

Order Backlog

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>66.4</td>
<td>70.7</td>
<td>65.2</td>
<td>79.0</td>
<td>91.2</td>
<td>72.3</td>
<td>42.9*</td>
<td>67.7</td>
<td>86.2</td>
</tr>
</tbody>
</table>

@ $1.35 @ $1.25 @ $1.10

Total Revenues

(incl. equipment, service, spare parts)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>46.2</td>
<td>45.6</td>
<td>58.0</td>
<td>40.3</td>
<td>40.4</td>
<td>54.6</td>
<td>62.5</td>
<td>21.4</td>
<td>34.1</td>
</tr>
</tbody>
</table>

@ $1.33 @ $1.11 @ $1.11

*) revalued on Jan.1, 2016 to €46.7m at $1.10/€

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 (H1/2016: $1.11/€)
## Consolidated Income Statement*

<table>
<thead>
<tr>
<th></th>
<th>H1/16</th>
<th>H1/15</th>
<th>+/-</th>
<th>Q2/16</th>
<th>Q1/16</th>
<th>+/-</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues (€ million)</td>
<td>55.5</td>
<td>80.7</td>
<td>-31%</td>
<td>34.1</td>
<td>21.4</td>
<td>59%</td>
</tr>
<tr>
<td>Cost of sales</td>
<td>45.5</td>
<td>68.3</td>
<td>-33%</td>
<td>27.2</td>
<td>18.3</td>
<td>49%</td>
</tr>
<tr>
<td>Gross profit</td>
<td>10.0</td>
<td>12.4</td>
<td>-19%</td>
<td>6.9</td>
<td>3.1</td>
<td>123%</td>
</tr>
<tr>
<td><strong>Gross Margin</strong></td>
<td>18%</td>
<td>15%</td>
<td>3 pp</td>
<td>20%</td>
<td>15%</td>
<td>5 pp</td>
</tr>
<tr>
<td>Selling expenses</td>
<td>5.8</td>
<td>6.3</td>
<td>-8%</td>
<td>2.9</td>
<td>2.9</td>
<td>-3%</td>
</tr>
<tr>
<td>General &amp; admin expenses</td>
<td>8.3</td>
<td>8.5</td>
<td>-3%</td>
<td>4.5</td>
<td>3.8</td>
<td>17%</td>
</tr>
<tr>
<td>R&amp;D</td>
<td>26.0</td>
<td>27.6</td>
<td>-6%</td>
<td>12.7</td>
<td>13.3</td>
<td>-5%</td>
</tr>
<tr>
<td>Net other op.(income)/expenses</td>
<td>(4.2)</td>
<td>(3.3)</td>
<td>-27%</td>
<td>(2.0)</td>
<td>(2.2)</td>
<td>13%</td>
</tr>
<tr>
<td>EBITDA</td>
<td>-20.0</td>
<td>-21.8</td>
<td>8%</td>
<td>-8.2</td>
<td>-11.7</td>
<td>30%</td>
</tr>
<tr>
<td>EBIT</td>
<td>-25.9</td>
<td>-26.7</td>
<td>3%</td>
<td>-11.2</td>
<td>-14.7</td>
<td>24%</td>
</tr>
<tr>
<td><strong>EBIT Margin</strong></td>
<td>-47%</td>
<td>-33%</td>
<td>-14 pp</td>
<td>-33%</td>
<td>-69%</td>
<td>36 pp</td>
</tr>
<tr>
<td>Result before tax</td>
<td>-25.6</td>
<td>-26.2</td>
<td>2%</td>
<td>-11.0</td>
<td>-14.6</td>
<td>25%</td>
</tr>
<tr>
<td><strong>Pre-Tax Margin</strong></td>
<td>-46%</td>
<td>-33%</td>
<td>-13 pp</td>
<td>-32%</td>
<td>-68%</td>
<td>36 pp</td>
</tr>
<tr>
<td>Net result</td>
<td>-26.6</td>
<td>-27.6</td>
<td>4%</td>
<td>-11.1</td>
<td>-15.5</td>
<td>28%</td>
</tr>
<tr>
<td><strong>Net Return on Sales</strong></td>
<td>-48%</td>
<td>-34%</td>
<td>-14 pp</td>
<td>-33%</td>
<td>-72%</td>
<td>39 pp</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>(€ million)</th>
<th>30/6/16</th>
<th>31/12/15</th>
<th>30/6/15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Property, plant &amp; equipment</td>
<td>77.2</td>
<td>81.3</td>
<td>80.6</td>
</tr>
<tr>
<td>Goodwill</td>
<td>74.4</td>
<td>75.9</td>
<td>77.1</td>
</tr>
<tr>
<td>Other intangible assets</td>
<td>5.8</td>
<td>6.4</td>
<td>5.7</td>
</tr>
<tr>
<td>Others</td>
<td>3.6</td>
<td>3.9</td>
<td>4.8</td>
</tr>
</tbody>
</table>

**Non-current assets**

<table>
<thead>
<tr>
<th>(€ million)</th>
<th>30/6/16</th>
<th>31/12/15</th>
<th>30/6/15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inventories, WIP &amp; Finished Goods</td>
<td>78.2</td>
<td>70.8</td>
<td>85.8</td>
</tr>
<tr>
<td>Trade receivables</td>
<td>22.2</td>
<td>26.0</td>
<td>23.5</td>
</tr>
<tr>
<td>Others</td>
<td>7.9</td>
<td>8.2</td>
<td>9.4</td>
</tr>
<tr>
<td>Cash &amp; Cash Equivalents incl. CD</td>
<td>161.3</td>
<td>209.4</td>
<td>255.4</td>
</tr>
</tbody>
</table>

**Current Assets**

<table>
<thead>
<tr>
<th>(€ million)</th>
<th>30/6/16</th>
<th>31/12/15</th>
<th>30/6/15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shareholders' equity</td>
<td>365.2</td>
<td>396.5</td>
<td>398.6</td>
</tr>
</tbody>
</table>

**Shareholders' equity**

<table>
<thead>
<tr>
<th>(€ million)</th>
<th>30/6/16</th>
<th>31/12/15</th>
<th>30/6/15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-current liabilities</td>
<td>2.9</td>
<td>3.6</td>
<td>3.8</td>
</tr>
<tr>
<td>Trade payables</td>
<td>11.0</td>
<td>9.8</td>
<td>12.6</td>
</tr>
<tr>
<td>Advance payments from customers</td>
<td>29.5</td>
<td>24.0</td>
<td>95.1</td>
</tr>
<tr>
<td>Others</td>
<td>21.9</td>
<td>48.0</td>
<td>32.2</td>
</tr>
</tbody>
</table>

**Current liabilities**

<table>
<thead>
<tr>
<th>(€ million)</th>
<th>30/6/16</th>
<th>31/12/15</th>
<th>30/6/15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balance Sheet total</td>
<td>430.6</td>
<td>482.0</td>
<td>542.2</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>(€ million)</th>
<th>H1/16</th>
<th>H1/15</th>
<th>Q2/16</th>
<th>Q1/16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash Flow from operating activities</td>
<td>-39.3</td>
<td>-6.4</td>
<td>-19.9</td>
<td>-19.4</td>
</tr>
<tr>
<td>Cash Flow from investing activities</td>
<td>26.4</td>
<td>8.9</td>
<td>19.3</td>
<td>7.1</td>
</tr>
<tr>
<td>Cash Flow from financing activities</td>
<td>0.1</td>
<td>-0.2</td>
<td>0.1</td>
<td>0.0</td>
</tr>
<tr>
<td>Exchange rate changes</td>
<td>-2.6</td>
<td>5.2</td>
<td>0.1</td>
<td>-2.7</td>
</tr>
<tr>
<td>Net change in Cash &amp; Cash Equivalents</td>
<td>-15.4</td>
<td>7.5</td>
<td>-0.4</td>
<td>-15.0</td>
</tr>
<tr>
<td>Cash &amp; Cash Equivalents (beginning of period)</td>
<td>116.3</td>
<td>116.6</td>
<td>101.3</td>
<td>116.3</td>
</tr>
<tr>
<td>Cash &amp; Cash Equivalents (end of period)</td>
<td>100.9</td>
<td>124.1</td>
<td>100.9</td>
<td>101.3</td>
</tr>
<tr>
<td>Change in Cash deposits</td>
<td>-32.4</td>
<td>-22.5</td>
<td>-20.1</td>
<td>-12.2</td>
</tr>
<tr>
<td>Free Cash Flow**</td>
<td>-41.0</td>
<td>-12.3</td>
<td>-20.7</td>
<td>-20.3</td>
</tr>
<tr>
<td>Capex</td>
<td>1.7</td>
<td>7.4</td>
<td>0.8</td>
<td>0.9</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 for Solid State Lighting
- Increasing demand adoption of optoelectronic components for tele- and data communication applications
- Increased emergence of wide band gap GaN or SiC based devices for energy efficient power management
- Development of next generation NAND and DRAM memory devices
- Further progress in the development of GaN-on-Silicon LEDs and Wafer Level Packaging

**Mid- to Long-Term**
- 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, e.g. multi junction, CPV
- Increasing requirements for High-k and interconnects, 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 Nanomaterials (Carbon Nanotubes, Carbon Nanowires, Graphene)
- Development of alternative LED applications such as Visual Light Communication technology
Our technology. YOUR FUTURE.
AIXTRON — Key Enabler for Innovative Future

**New Complex Materials**

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

**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
- Electronic Vehicles
- Energy Storage
LED Lighting Market: Multiple Tipping Points

LED Lighting Cycle

Various Applications
Different Regions
Numerous Players

LED penetration rate - value basis

- Overall
- Industrial
- Office
- Outdoor
- Hospitality
- Shop
- Residential
- Architectural

Source: AIXTRON, McKinsey 2012
LED Lighting Market Estimates

Globalization and urbanization to drive LED lighting opportunities:
- Emerging countries: need for energy efficient lighting solutions
- Developed countries: SSL driven by expanding renovation market
- Outdoor: Early adoption streetlight replacement market
- Commercial: LED Light Bulb reaching price tipping point

Source: IHS 2016, Strategies Unlimited

Global LED lamp shipments

LED Market Forecast
Technology Position

- MOCVD for III-V on Silicon
- ALD for Memory — Customer B
- OVPD for OLED deposition
- Thin-Film Encapsulation for OLED
- MOCVD for Power Management
- MOCVD for LEDs, Lasers and Optoelectronics
- ALD for Memory — Customer A
- Carbon

R&D → Demo & Qualification → Pilot Production → High Volume Production
Compound Semiconductors – MOCVD

Two Reactor Technologies — Planetary Reactor® & Close Coupled Showerhead® (CCS)

- Addressing multiple industries
- Established industry standard & market leading
- Configurable, extendable common platform
- Introduced the latest MOCVD technology - AIX R6

Planetary Reactor®
AIX G5+, 5x8

- Unique Planetary reactor design
- Horizontal reactor type

Close Coupled Showerhead®
AIX R6, 31x4”

- Patented CCS Technology
- Vertical reactor design
## Compound Semiconductors – Wide Band Gap (WBG) Power Electronics

### Power Management

<table>
<thead>
<tr>
<th>30V</th>
<th>600V</th>
<th>1.2 kV</th>
<th>≥2kV</th>
</tr>
</thead>
</table>
| • 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

- Electronic appliances
- Computing
- Wireless charging
- Power supplies
- PFC

### GaN / SiC

- 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

### SiC

- UPS
- Industrial machines
- Building
- Mining, oil, gas power generation
- Shipping/Rail
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
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
Cell process equipment
Back-end
Module process equipment

Targeted technology

Source: DisplaySearch, AIXTRON
Focus Activities

Key competency: Thin-film deposition
Value creation: 60%

Cumulative Capex

Source: IHS; AIXTRON internal estimates
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 vapour 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 vapour 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
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
- ≤22nm fab capacities
- "More than Moore"

2015

2020

>3x

~1.1x

(2015: Indexed=1x)
**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 vapour 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 + 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
### Consolidated Income Statement*

<table>
<thead>
<tr>
<th></th>
<th>2015 (€ million)</th>
<th>2014 (€ million)</th>
<th>2013 (€ million)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Revenues</strong></td>
<td>197.8</td>
<td>193.8</td>
<td>182.9</td>
</tr>
<tr>
<td><strong>Cost of sales</strong></td>
<td>147.9</td>
<td>154.1**</td>
<td>204.7**</td>
</tr>
<tr>
<td><strong>Gross profit</strong></td>
<td>49.8</td>
<td>39.7**</td>
<td>-21.8**</td>
</tr>
<tr>
<td><strong>Gross Margin</strong></td>
<td>25%</td>
<td>21%</td>
<td>-12%</td>
</tr>
<tr>
<td><strong>Selling expenses</strong></td>
<td>11.5</td>
<td>14.1**</td>
<td>14.5**</td>
</tr>
<tr>
<td><strong>General &amp; admin expenses</strong></td>
<td>16.3</td>
<td>19.3</td>
<td>18.2</td>
</tr>
<tr>
<td><strong>R&amp;D</strong></td>
<td>55.4</td>
<td>66.7</td>
<td>57.2</td>
</tr>
<tr>
<td><strong>Net other op.(income)/expenses</strong></td>
<td>-6.7</td>
<td>-2.2</td>
<td>-16.0</td>
</tr>
<tr>
<td><strong>EBITDA</strong></td>
<td>-16.4</td>
<td>-41.3</td>
<td>-67.9</td>
</tr>
<tr>
<td><strong>EBIT</strong></td>
<td>-26.7</td>
<td>-58.3</td>
<td>-95.7</td>
</tr>
<tr>
<td><strong>EBIT Margin</strong></td>
<td>-14%</td>
<td>-30%</td>
<td>-52%</td>
</tr>
<tr>
<td><strong>Result before tax</strong></td>
<td>-26.0</td>
<td>-57.1</td>
<td>-95.2</td>
</tr>
<tr>
<td><strong>Pre-Tax Margin</strong></td>
<td>-13%</td>
<td>-29%</td>
<td>-52%</td>
</tr>
<tr>
<td><strong>Net result</strong></td>
<td>-29.2</td>
<td>-62.5</td>
<td>-101.0</td>
</tr>
<tr>
<td><strong>Net Return on Sales</strong></td>
<td>-15%</td>
<td>-32%</td>
<td>-55%</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></th>
<th>31/12/15</th>
<th>31/12/14</th>
<th>31/12/13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Property, plant &amp; equipment</td>
<td>81.3</td>
<td>77.3</td>
<td>79.9</td>
</tr>
<tr>
<td>Goodwill</td>
<td>75.9</td>
<td>64.8</td>
<td>64.1</td>
</tr>
<tr>
<td>Other intangible assets</td>
<td>6.4</td>
<td>2.5</td>
<td>3.1</td>
</tr>
<tr>
<td>Others</td>
<td>3.9</td>
<td>4.6</td>
<td>5.7</td>
</tr>
<tr>
<td><strong>Non-current assets</strong></td>
<td><strong>167.6</strong></td>
<td><strong>149.2</strong></td>
<td><strong>152.7</strong></td>
</tr>
<tr>
<td>Inventories, WIP &amp; Finished Goods</td>
<td>70.8</td>
<td>81.7</td>
<td>66.2</td>
</tr>
<tr>
<td>Trade receivables</td>
<td>26.0</td>
<td>26.3</td>
<td>27.7</td>
</tr>
<tr>
<td>Others</td>
<td>8.2</td>
<td>8.3</td>
<td>10.3</td>
</tr>
<tr>
<td>Cash &amp; Cash Equivalents incl. CD</td>
<td>209.4</td>
<td>268.1</td>
<td>306.3</td>
</tr>
<tr>
<td><strong>Current Assets</strong></td>
<td><strong>314.4</strong></td>
<td><strong>384.4</strong></td>
<td><strong>410.5</strong></td>
</tr>
<tr>
<td>Shareholders' equity</td>
<td><strong>396.5</strong></td>
<td><strong>415.7</strong></td>
<td><strong>465.4</strong></td>
</tr>
<tr>
<td><strong>Non-current liabilities</strong></td>
<td><strong>3.6</strong></td>
<td><strong>1.3</strong></td>
<td><strong>2.4</strong></td>
</tr>
<tr>
<td>Trade payables</td>
<td>9.8</td>
<td>16.4</td>
<td>13.5</td>
</tr>
<tr>
<td>Advance payments from customers</td>
<td>24.0</td>
<td>66.9</td>
<td>46.2</td>
</tr>
<tr>
<td>Others</td>
<td>48.0</td>
<td>33.2</td>
<td>35.7</td>
</tr>
<tr>
<td><strong>Current liabilities</strong></td>
<td><strong>81.8</strong></td>
<td><strong>116.5</strong></td>
<td><strong>95.4</strong></td>
</tr>
<tr>
<td><strong>Balance Sheet total</strong></td>
<td><strong>482.0</strong></td>
<td><strong>533.5</strong></td>
<td><strong>563.2</strong></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>(€ million)</th>
<th>2015</th>
<th>2014</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash Flow from operating activities</td>
<td>-45.7</td>
<td>-33.8</td>
<td>8.2</td>
</tr>
<tr>
<td>Cash Flow from investing activities</td>
<td>41.2</td>
<td>-23.2</td>
<td>-39.7</td>
</tr>
<tr>
<td>Cash Flow from financing activities</td>
<td>-0.1</td>
<td>0.2</td>
<td>101.6</td>
</tr>
<tr>
<td>Exchange rate changes</td>
<td>4.3</td>
<td>5.9</td>
<td>-2.4</td>
</tr>
<tr>
<td>Net change in Cash &amp; Cash Equivalents</td>
<td>-0.3</td>
<td>-50.9</td>
<td>67.7</td>
</tr>
<tr>
<td>Cash &amp; Cash Equivalents (beginning of period)</td>
<td>116.6</td>
<td>167.5</td>
<td>99.7</td>
</tr>
<tr>
<td>Cash &amp; Cash Equivalents (end of period)</td>
<td>116.3</td>
<td>116.6</td>
<td>167.5</td>
</tr>
<tr>
<td>Change in Cash deposits</td>
<td>-60.5</td>
<td>9.9</td>
<td>30.4</td>
</tr>
<tr>
<td>Free Cash Flow**</td>
<td>-57.3</td>
<td>-47.0</td>
<td>-1.1</td>
</tr>
<tr>
<td>Capex</td>
<td>13.3</td>
<td>13.4</td>
<td>10.1</td>
</tr>
</tbody>
</table>

*) rounded figures; may not add up  
** Operating CF + Investing CF + Changes in Cash Deposits, adjusted for acquisition effects
Annual Equipment Revenues by Application (excl. spares)

* Optoelectronics includes applications in Consumer Optoelectronics, Telecom/Datacom, Solar, etc.
Equipment Order Intake per Quarter

- Driven by telecom/datacom and mobile phone penetration
- Driven by mobile phone penetration
- Driven by notebook backlighting
- Driven by LED TV
- Driven by strategic China investments
- Overcapacity Absorption, Industry Consolidation

Compound Semiconductor Market

China Investments

(EUR million)
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

- November 8, 2016 9M/2016 Results, Conference Call
- February 2017 FY/2016 Results, Conference Call
- May 2017 Annual General Meeting, Aachen

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.