AT&S first choice for advanced applications

„More than AT&S“

AT&S Capital Markets Day
September 13, 2016
Leoben/Austria
Vision

First choice for advanced applications

Mission

- We set the highest quality standards in our industry
- We industrialize leading-edge technology
- We care about people
- We reduce our ecological footprint
- We create value
Vision, Targets, KPIs

**Targets**

- Strengthening technology leadership
- Long term profitable growth
- Generation of shareholder value

**Key Performance Indicators**

- Innovation Revenue Rate: > 20%
- Medium-term EBITDA margin target of 18–20%
- Revenue target of ~€ 1bn by FY 2017/18*
- ROCE of 12% by FY 2019/20**

* Estimates, based on: stable FX rates, stable macroeconomic situation, stable demand in core business

** includes a second investment phase in Chongqing
Agenda

- Vision, Targets & KPIs
- Trends and Drivers of the Electronics Industry
- Customer Needs and Market Players
- Industry Dynamics
- “More than AT&S”
- Operational Excellence
- Financials & Outlook
- “More than AT&S” for the Capital Markets
Megatrends

- Urbanization
- New Work
- Globalization
- Individualization
- Mobility
- Connectivity
- Silver Society
- Health
- New Ecology
- New Learning
Digital revolution enables megatrends to materialize

**Driving Growth:**
- Connectivity
- Data-volume and Data-rates

**Requirements for Interconnect Technology:**
- Miniaturization and Functional Integration
Global trends are changing & driving our business...

### Megatrends

<table>
<thead>
<tr>
<th>Megatrend</th>
<th>Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silver Society</td>
<td>22% of world population over 60 years in 2050 (2015: 12%)</td>
</tr>
<tr>
<td>Urbanization</td>
<td>6 out of 10 people live in cities worldwide in 2030 (2015: 54%)</td>
</tr>
<tr>
<td>Mobility</td>
<td>1.2bn cars worldwide in 2050</td>
</tr>
<tr>
<td>Globalization</td>
<td>70% of world population using Internet in 2020 (2015: 42.4%)</td>
</tr>
<tr>
<td>Connectivity</td>
<td>200bn linked objects until 2020 (Network of Things, NoT)</td>
</tr>
<tr>
<td>Individualization</td>
<td>USD 17bn market for 3D printing in 2020 (2016: USD 7bn)</td>
</tr>
</tbody>
</table>

We cannot change these trends - We have to be prepared for them
...and the corresponding trend dimensions offering enormous opportunities for the electronics industry

Trend dimensions

- E-Health
- Smart Cities
- Autonomous Driving
- E-Mobility, Smart Buildings
- Emerging Markets
- IoT, Big Data, Smart Devices
- Small-World-Networks

USD 308bn global e-health market in 2022 (2014: USD 85.4bn)
USD 88.7bn global smart city revenue in 2025 (2016: USD 36.8bn)
1 GB/s data produced by autonomous cars
1.3m people per year die because of traffic accidents
36% of all cars are hybrid in 2050
14.1% increase of private monetary assets in Asia (without Japan) in the last 13 years
50bn devices connected by Internet worldwide in 2020 (2015: 18bn)
Private IP-Traffic 47,000 petabyte (10^15 byte) in 2015
10 GB/s data transfer with 5G technology

.... and we are preparing ourselves to address these opportunities
The digital revolution – examples
Full speed towards autonomous driving

ADAS & Autonomous Driving

- Electronic systems increase safety of driving:
  - parking assistants, lane change assistants and collision prevention
  - support for drivers with limited physical capabilities
- Full autonomous driving expected until 2025

New electronic solutions are required – AT&S supplies already or develops:

- High-frequency PCBs for radar systems
- Substrates for Semiconductors for fast data processing
- New „packaging“ solutions for electromobility
New applications – Do you speak Swahili?

Did you ever want to be able to communicate with everybody – regardless of the language?

- Almost all hearing aids are already digitalised and available as almost invisible in-ear devices
- Based on that, OEMs are developing translation devices for simultaneous translation!

New electronic solutions are required – AT&S develops them:

- Miniaturised and flexible modules and PBC systems
- PCBs for high speed data transfer to server
- Substrates for server for data processing
Smart production - innovative and sustainable

New possibilities in manufacturing

- From data collection to real time processing and communication
- Advantages:
  - optimized and individualized processes
  - highest quality requirements can be fulfilled

AT&S offers interconnect solutions for „Machine to Machine“-communication and uses them already in the production

- Sensor packages
- Substrates for semiconductors and server for fast data processing
- PCBs for server for data processing
- Systems making our production more efficient und sustainable
There will be “Many Things” instead of “One Big Thing”.

Market volume refers to the global electronic systems market.
The total PCB and IC substrates market shows limited growth...

USD in billions; Source: Prismark, August 2016
but AT&S also outperformed a flat market in the past 5 years and is set to continue to do so also in the future

AT&S outperformed the market by scaling high-end Anylayer technology and by leveraging HDI technology to the Computer-, Consumer-, Automotive-, Industrial and Medical Market.
AT&S will address fast growing segments/applications also in future

<table>
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<th>Electronic systems</th>
<th>Opportunities for growth</th>
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</thead>
<tbody>
<tr>
<td>Wearables, Patient-monitoring</td>
<td>Five Year CAAGR: +29%</td>
</tr>
<tr>
<td>X2X Communication</td>
<td>Five Year CAAGR: +60%</td>
</tr>
<tr>
<td>ADAS</td>
<td>Five Year CAAGR: +16%</td>
</tr>
<tr>
<td>Power Electronics, Sensors</td>
<td>Five Year CAAGR: +30%</td>
</tr>
<tr>
<td>Mobile Devices</td>
<td>Five Year CAAGR: +8%</td>
</tr>
<tr>
<td>Datacenter, Server, Network-Infrastructure</td>
<td>Five Year CAAGR: between +10% and +40%</td>
</tr>
<tr>
<td>4G-Small Cells</td>
<td>Five Year CAAGR: +60%</td>
</tr>
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</table>

We are prepared to address this opportunities
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Customer needs within the trends

End Users
- Brand
- Always connected
- Fast
- Safety
- Big Data

Customers of the Electronics Industry
- Modules
- Performance
- Miniaturization
- Power Electronics
- Energy-Efficiency
- Cost
- High Speed
- Packages
- Weight Reduction
- High Frequency

These customer needs require new interconnect solutions and new business models.
The players in the Electronics Industry Supply Chain: Semicon View

- **Design of chip & package**
  - "Front-end"
- **Silicon Manufacturing**
- **Wafer Level Packaging**
  - "Middle-end"
- **IC substrate**
- **Package Assembly & Test**
  - "Back-end"
- **PCB**
- **Substrate & PCB Industry**
- **Assembly**
- **End Product**
- **System / Product**

**IDMs (Integrated Device Manufacturers)**
- Intel
- Infineon
- Texas Instruments
- Freescale
- Toshiba
- Fujitsu
- Samsung
- COMPEQ
- TI
- Technologies
- Unimicron
- STATSchipPAC
- Powertech Technology

**Fab-less IC players**
- Apple
- Huawei
- Broadcom
- Qualcomm
- ARM
- NVIDIA
- MediaTek
- Xilinx
- FlipChip
- UMC

**Wafer foundries**
- ASE Group
- Amkor
- TSMC
- Intel
- Qualcomm
- SMIC

**OSATs (Open Source Assembly & Test)**
- IBIDEN
- Shinko
- STATSchipPAC
- Powertech Technology

**Substrate & PCB houses with Embedded Die capability**
- AT&S
- Taiyo Yuden
- Fujikura Ltd

**Semiconductor Industry**

**Passive components**

**ODM / EMS**
- Foxconn Electronics
- Samsung Electro-Mechanics
- Sanmina-SCI
- Jabil
- Celestica
- Solectron
- Wistron

**OEMs**
- Apple
- Huawei
- Sony
- Siemens
- Philips
- Canon
- Daimler
- Toyota
- Continental
Market size of the electronics manufacturing ecosystem

(USD in billions, approximate values)

- **Semiconductor**
  - IC substrates USD 6.9bn
  - Flip-Chip substrates USD 4.2bn
  - Wafer level packaging
  - captive package assembly and testing

- **PCB**
  - USD 48.4

- **Passives**
  - USD 40

- **ODM/EMS**
  - USD 450

- **OEMs**
  - USD 1,715

**Abbreviations:**
- OSAT: Outsourced Semiconductor Assembly and Test
- EMS: Electronics Manufacturing Services
- OEM: Original Equipment Manufacturer

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8. **“More than AT&S” for the Capital Markets**
Intel’s Tick-Tock cycle retired – Moore’s law @ a slow down?

Transistor scaling and cost reduction will not continue on the same path – reaching sub 10nm grey zone

The CMOS transistor continue to shrink but at the increase of fab expense. Although performance is increasing, the same trend of reducing costs has reached an end.

Source: Intel 10-K filing (Annual Report) 02/12/16
Within the supply chain the technology worlds (PCB and Semicon) are on the way to merge

- Bridging the gap between semiconductor and PCB level, IC protection, testability etc.
- Shift of system integration from die to **package level**!

**Packaging technology evolution**

**Feature sizes CMOS**
- Through hole DIP, PGA
- Surface Mount SOP, QFP, PLCC
- CSPs/BGAs

**Feature sizes PCB**
- Ball grid arrays
- SiPs
- Fan-in WLP
- FC BGA
- PoP
- More SiPs

**Interposers**
- 3D IC
- TSV
- FO WLP

**L/S reduction accelerates**

**Gap Features Si vs PCB**

Source: Yole 2016
Effects of the merging worlds and slow-down of Moore’s law

- **Opportunity 1:**
  
  Main board – PCB – has to adopt substrate technologies e.g. mSAP process for finer line/space requirements.

- **Opportunity 2:**
  
  The convergence of high-end PCB and substrate technologies will enable to create new interconnect architectures, addressing the need for miniaturization in all dimensions, reducing either the footprint and/or the thickness of electronic systems in the future.

- **These Opportunities will also have positive impacts to the environment:**
  
  Saving resources – material, chemistry, water, energy and reducing the CO₂ footprint of electronic systems.
**Where is the electronic supply chain heading to: example smartphone**

<table>
<thead>
<tr>
<th>Year</th>
<th>Type</th>
<th>PCB</th>
<th>FF</th>
<th>L/S</th>
<th>Techn.</th>
<th>FO/SAP/mSAP</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003/04</td>
<td>Mobile Phone</td>
<td>125x55mm</td>
<td>1</td>
<td>100/100 μm</td>
<td>1-n-1</td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>Smartphone</td>
<td>85x20mm</td>
<td>0.25</td>
<td>40/40 μm</td>
<td>Anylayer</td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td>Smartphone</td>
<td>80x20mm</td>
<td>0.23</td>
<td>30/30 μm</td>
<td>mSAP – Anylayer</td>
<td>FO/SAP/mSAP</td>
</tr>
<tr>
<td>202x</td>
<td>All in One</td>
<td>25x25 ?</td>
<td>0.06</td>
<td>10/10 μm</td>
<td>FO/SAP/mSAP</td>
<td></td>
</tr>
</tbody>
</table>
Challenge for the interconnect industry: Effects of fan-out wafer-level packaging (FO-WLP)

- FO-WLP can replace FC CSP substrates for mobile applications. FC BGA substrates for computing applications are not affected.
- Increasing free capacities for FC CSP substrates based on mSAP technologies will be used for high-end smartphones?

As pure FC-substrate manufacturers have no anylayer HDI capabilities, PCB manufacturers – which will adopt mSAP technology and combine it with anylayer – will benefit from this technology change.

Source: AT&S Strategy & Business Development; JMS
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AT&S positions itself for the next level: “More than AT&S”: from a high-end PCB manufacturer to a high-end interconnect solutions provider

More than

Core Business

New technologies and interconnect solutions

Additional applications

Extended Technology Toolbox

Additional customers

More comprehensive positioning in the value chain
More than AT&S**: Additional applications

**More than AT&S**: Additional applications

- Additional customers
- New technologies and interconnect solutions
- Extended Technology Toolbox
- Core Business
- More comprehensive positioning in the value chain

"More than AT&S": Additional applications
Growth opportunities in fast-growing & additional applications

**Elements of IoT**
- Server/Datacenter
- Base-Stations
- Local Networks
- Hubs/Gateways
- Connected Devices

**Market-segments**
- **Computer**
- **Communication-Infrastructure**
- **Communication-Infrastructure**
- **Communication, Computer**
- **Communication, Consumer, Automotive, Industry, Medical**

**Applications**
- **High Performance Computer, Solid State Drives, Microserver**
- **High Speed Ethernet**
- **4G Small Cell**
- **Smartphones, 2 in 1 PCs**
- **Wearables, Home Appliance, Vehicles, Robots, Drones, M2M & X2X Communication**

**Technology**
- **IC substrates, Anylayer, Embedding**
- **IC substrates, High Speed Boards**
- **High Speed Boards**
- **Anylayer mSAP-Anylayer**
- **Substrate-like PCB, Anylayer, Embedding**

**Market Growth & Volume**
- **CAGR: 20%**
  - **Market: USD 2.2bn**
- **CAGR: 17%**
  - **Market: USD 0.1bn**
- **CAGR: 60%**
  - **Market: USD 0.1bn**
- **CAGR: 8%**
  - **Market: USD 2.9bn**
- **CAGR: 36%**
  - **Market: USD 2.5bn**

Source: Prismark 2016; Growth PCBs, IC substrates and Embedding until 2018; Market-size in 2018
Focus on technologies and applications with above average growth potential and long-term profitability

- Market segments – selected by AT&S:
  - Computer, Communication, Consumer
  - IC substrates
  - Automotive
  - Industrial
  - Medical

- Specific applications that show attractive, overall growth within our addressed market segments:
  - Smartphones, Tablets, Wearables, Ultrabooks, Solid State Drives, Microserver...
  - High Performance Computer, Microserver...
  - Advanced Driver Assistance Systems, Emergency-Call, X2X Communication...
  - Machine-2-Machine Communication, Robots, Industrial Computer, X2X Communication...
  - Patient Monitoring, Hearing Aids, Pacemaker, Neurostimulation, Drug Delivery

Criteria for selection

1. Attractive, specific application growth: > 10%
2. Potential for sustainable high EBITDA margins: > 20%
3. Technological fit: dense structures: 10 - 60 micrometer
Successfully, continuously leveraging high-end technologies – existing applications

Leveraging high-end technologies – which we developed and scaled for leading edge smartphones – into selected target applications, e.g.:

**Automotive**

- **Cameras & Sensors**
  - Supplier to all ADAS Tier 1 players with HDI boards for Cameras and Sensors
- **Transmission Control Unit**
  - Substitution of ceramic with our HDI WBB for Transmission Control Units - AT&S is single supplier worldwide
- **Navigation Multimedia Infotainment**
  - #1 supplier of HDI boards for integrated Navigation/Multimedia/Infotainment systems @ leading Tier 1’s
Successfully, continuously leveraging high-end technologies – existing applications

Leveraging high-end technologies – which we developed and scaled for leading edge smartphones – into selected target applications, e.g.:

**Smart Industry**

- Supplier of High-End HDI boards to leading OEM’s for High-End Industry-Computer
- Supplier of High-end HDI and Anylayer boards to all major players in M2M communication modules
Successfully, continuously leveraging high-end technologies – existing applications

Leveraging high-end technologies – which we developed and scaled for leading edge smartphones – into selected target applications, e.g.:

**Medical**

- **Hearing Aid**
  - HDI Rigid-Flex board
  - #1 supplier for hearing aids with 40% global market share

- **MRI Magnetic Resonance Imaging**
  - High layer count HDI board
  - High-end HDI boards for a global leader in MRI-Systems
...and we will continue to leverage new high-end technologies – future applications

We will further successfully leverage high-end technologies – which we currently develop and scale for leading edge smartphones – into selected target applications, e.g.:

**Computer**

- **2 in 1 Computer**
  - Anylayer board

- **Convertibles**
  - HDI Rigid-Flex board

- **Phablets**
  - Anylayer board
...and we will continue to leverage new high-end technologies – future applications

We will further successfully leverage high-end technologies – which we currently develop and scale for leading edge smartphones – into selected target applications, e.g.:

**Consumer**

- **Wearables**
  - 2,5D Cavity Anylayer board

- **Augmented Reality**
  - HDI Rigid-Flex board

- **Action Cameras**
  - HDI Rigid-Flex board
...and we will continue to leverage new high-end technologies – future applications

We will further successfully leverage high-end technologies – which we currently develop and scale for leading edge smartphones – into selected target applications, e.g.:

**Automotive**

- **LTE/WiFi Connectivity modules**
  - HDI and Anylayer boards

- **Emergency call**
  - Anylayer board

- **77 GHz Radar systems**
  - High Frequency HDI board

- **Power Electronics**
  - System in Package & System in Board with GaN & SiC components
...and we will continue to leverage new high-end technologies – future applications

We will further successfully leverage high-end technologies – which we currently develop and scale for leading edge smartphones – into selected target applications, e.g.:

**Industrial**

- **SMART ENERGY**
  - Wind Power Plants
  - Thick copper Multilayer PCB

- **SMART TRAFFIC**
  - Anylayer board

- **SMART CITY**
  - Anylayer board
...and we will continue to leverage new high-end technologies – future applications

We will further successfully leverage high-end technologies – which we currently develop and scale for leading edge smartphones – into selected target applications, e.g.:

**Medical**

- **PACEMAKER**
  High-End HDI board

- **NEUROSTIMULATOR**
  HDI Rigid-Flex board

- **DRUG DELIVERY**
  High-End HDI board

- **PROTHESIS**
  2,5D Cavity HDI board
“More than AT&S”: Extended Technology Toolbox

More than

Additional customers

Additional applications

New technologies and interconnect solutions

Extended Technology Toolbox

Core Business

More comprehensive positioning in the value chain
The way to “More than AT&S”: Technology roadmap

Miniaturization

L/S

IC substrate
7/7 μm

IC substrate
10/10 μm

ECP® / SAP
25/25 μm

SLP & mSAP
30/30 μm

Interposer
40/40 μm

Anylayer
40/40 μm

Microvia/HDI
60/60 μm

Multilayer
100/100 μm

PTH
250/250 μm

IC substrates

IC substrates with embedding

SiP

mSAP Anylayer

mSAP Anylayer with embedding

Organic

Interposer

Basic Technologies

Future: “all-in-one-package”

Miniaturation and functional integration enable high-value modules

Functional modules:
System-in-board (SiB)
System-in-package (SiP)

Functional Integration...

..for Thermal-Management
..with Passive & Active Components
..for Power Supply
..with PC as Housing

..for HF/HS-Applications
..with Sensors & MEMS
..for Energy Harvesting

HVM –
High Volume
Mass Production
Development
The way to “More than AT&S”: technology toolbox, enabling new interconnect solutions

- **PCB**
  - L/S 40/40µm

- **SLP Interposer**
  - L/S 20/20µm
  - Miniaturization

- **IC substrates**
  - L/S 10/10µm

Embedding & the combination of PCB & substrate technologies = functional integration

More than mSAP Anylayer

AT&S

Basic Technologies w/o & with Embedding

Advanced Packaging

Organic Interposer

IC substrate
“More than AT&S”: More comprehensive positioning in the value chain and additional customers
This will result in a broader positioning in the supply chain

Design of chip & package
Silicon Manufacturing
„Front-end“
Wafer Level Packaging
„Middle-end“
Package Substrate
Package Assembly & Test
„Back-end“
PCB
Sub-Module Sub-System
System/Product

IDMs (Integrated Device Manufacturers)

OSATs (Open Source Assembly & Test)

More than AT&S

Fab-less IC players
Wafer foundries

ODM/EMS
(electronic manufacturing services)

OEMs (original equipment makers)
With additional potential customers from different levels in the supply chain

New potential customers

Existing customer markets with relevant players

Design of chip & package

Silicon Manufacturing

Wafer Level Packaging

Package Substrates

Package Assembly & Test

PCB

Sub-Module Sub-System

System/Product

Intel

Infineon

NXP

Texas Instruments

Freescale

Toshiba

Fujitsu

Samsung

ASE Group

SPIL

Amkor

STATSChipPAC

Powertech Technology Inc

Apple

Hisense

Broadcom

Qualcomm

Samsung

ARM

Nvidia

Global Foundries

MediaTek

Xilinx

Intel

FlipChip

Apple

Hewlett-Packard

Sony

Siemens

Philips

Canon

Jabil

Celestica

Solectron

Wistron

Continental
Chongqing as an important pillar for realizing “More than AT&S”
Project Chongqing – Update
Project Chongqing – Overview

Overview:

- total capex for phase 1 until mid 2017: € 480m*
- investment as of 30/06/2016: € 341.4m*

* Capex for tangible fixed assets
IC substrates:
- Ramp challenges are under control
- Goal for first production line: full loading by end of CY 2016
- 8 product types qualified and 11 under qualification
- Application areas: Notebooks, Desktop, Servers

Substrate-like PCBs:
- Ramp of certain processes started beginning of July 2016
- First line completed and fully utilized by Q3 of FY 2016/17

- Interconnect platform between semiconductor and PCB
- More dense structures than PCBs and other base materials and production processes
- Used for high-end microprocessors
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 Operational excellence

6 levers to continuously improve operational excellence
= efficiency and productivity:

1. Industry 4.0/Manufacturing Execution System (MES)
2. iPOK (Lean Six Sigma @ATS)
3. Energy/Water consumption
4. Invest into people and trainings
5. Supply Chain optimization
6. Automatization

**Targets:**
- Efficiency
- Productivity

Intended cost savings: 3-5% p.a. of manufacturing costs
Operational excellence

Industry 4.0/Manufacturing Execution System (MES)

Significance for AT&S:

- new products would not be possible without I4.0/MES due to:
  - increasing quality and technology requirements
  - traceability
  - complexity of individual products
- real-time monitoring
- higher efficiency in using resources (material, energy, etc.)
- higher rate of equipment utilization
- further improving yields

Activities at AT&S:

- introduction of a Manufacturing Execution System (MES) in Chongqing and selected production processes in Leoben
- big data projects: modeling the gold process in Leoben, correlations of scrap and technical product features, etc.
- tablets for visualization of the production and optimizing documentation of sequences
Operational excellence

2. iPOK (Lean Six Sigma @ATS)

iPOK: combination of Lean and Six Sigma to continuously improving business management processes through efficiency and effectiveness

Targets:
- data driven decision making
- cost savings projects
- mindset change
- process optimization
- “common language”

Key Data:
- 95 running projects
- 20,000 training hours for 350 employees
- 400 projects

Running Projects: 95

Project Categories

Financial Benefit
Qualitative Benefit

Enabling Technology
Capability Improvement
Yield Improvement
Water & Energy Efficiency
Material Efficiency
Process Efficiency
Operational excellence

3 Energy & water consumption

- Energy (electricity, gas, oil) & water in % of manufacturing costs: ~6%

Activities to reduce energy:
- Energy Management System according to ISO 50001 to implement also in non-Austrian plants
- Austria: LEEN Network Energy Audits: potential of energy savings of 13.1% of the total annual energy demand
- India: potential of 13% of total annual energy costs
- Best Practice

Activities to reduce fresh water:
- Water recycling in Shanghai plant:
  - at full capacity: 17% of overall fresh water are recycled and reused in production
- Water recycling in India (Nanjangud plant):
  - recycling of up to 80% of its fresh water demand

Freshwater consumption*

Target: reduce per sqm/PCB by 3% p.a.

![Graph showing freshwater consumption with target reduction](image)

* Since 2012/13 calculation according to EICC standards; before that AT&S internal calculation
Operational excellence

4 Invest into people and trainings

- Average employees: 8,759 (incl. temporary staff) with an average age of 31 years
- Expenses for external training and education: EUR 1.9m (increase of 121.5% compared to FY 2014/15 is mainly based on trainings for new employees in Chongqing)
- Leadership program – started 2015/16 and continuous
- iPOK training program – started 2015/16 and continuous
Operational excellence

Supply Chain optimization

- Align the supply chain organization
- Recruit supply chain professionals
- Set the strategic sourcing strategy
- Establish key supplier alliances
- Manage total costs of ownership incl. currencies and payment terms
- Manage compliance and risk
- Optimize company owned inventory
- Gather information on a timely basis
- Establish processes and controls
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Sound top-line growth – Group

KPI: ~€ 1bn by 2017/18

Long-term:
- Strong revenue growth with a CAGR of 10.4%.

Short-term:
- Revenue decline in Q1 2016/17 based on normal, expected seasonality and expected price pressure.
Innovation Revenue Rate

KPI: > 20%

- Decline in FY 2015/16 is attributable to the maturity of certain generations of technology.

* Innovation Revenue Rate (IRR) – revenue generated by technologically innovative products that have been on the market for less than three years – to secure long term growth.
Sound top-line growth – BU MS

Long-term:
- Above market growth (average market growth: CAGR 0.3%**).

Short-term:
- Normal seasonality in Q1 2016/17 while no seasonality in Q1 2015/16.

*Revenue with external customers
** Source: Prisma, August 2016
Sound top-line growth – BU AIM

**Long-term:**
- Sustainable growth, also above market (average market growth: CAGR 3.0%**).

**Short-term:**
- Stable growth QoQ - seasonality mainly due to December holidays.

* Revenue with external customers
** Source: Prismark, August 2016
**EBITDA and EBITDA margins – Group**

**KPI: mid-term 18-20%**

**EBITDA and EBITDA margin**

<table>
<thead>
<tr>
<th>Year</th>
<th>EBITDA in millions</th>
<th>EBITDA margin in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011/12</td>
<td>103</td>
<td>20.1</td>
</tr>
<tr>
<td>2012/13</td>
<td>102</td>
<td>18.9</td>
</tr>
<tr>
<td>2013/14</td>
<td>127</td>
<td>21.6</td>
</tr>
<tr>
<td>2014/15</td>
<td>168</td>
<td>25.1</td>
</tr>
<tr>
<td>2015/16</td>
<td>168</td>
<td>22.0</td>
</tr>
</tbody>
</table>

**EBITDA and EBITDA margin YoY**

<table>
<thead>
<tr>
<th>Quarter</th>
<th>EBITDA in millions</th>
<th>EBITDA margin in %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>25.8*</td>
</tr>
<tr>
<td>Q1 2015/16</td>
<td></td>
<td>23.7*</td>
</tr>
<tr>
<td>Q2 2015/16</td>
<td></td>
<td>172*</td>
</tr>
<tr>
<td>Q3 2015/16</td>
<td></td>
<td>180*</td>
</tr>
</tbody>
</table>

**EBITDA and EBITDA margin QoQ**

<table>
<thead>
<tr>
<th>Quarter</th>
<th>EBITDA in millions</th>
<th>EBITDA margin in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1 2015/16</td>
<td>45.5</td>
<td>23.4</td>
</tr>
<tr>
<td>Q2 2015/16</td>
<td>48.5*</td>
<td>24.8</td>
</tr>
<tr>
<td>Q3 2015/16</td>
<td>47.9*</td>
<td>23.8</td>
</tr>
<tr>
<td>Q4 2015/16</td>
<td></td>
<td>15.3</td>
</tr>
<tr>
<td>Q1 2016/17</td>
<td></td>
<td>10.5</td>
</tr>
</tbody>
</table>

**Long-term:**

- One of the most profitable PCB manufacturer with an EBITDA margin of 19%-25% over the last 5 years.

**Short-term:**

- EBITDA impacted by negative effects from ramp-up of new plants in Chongqing.
- EBITDA margin adjusted for Chongqing effects almost on high level of Q1 2015/16.

* Adjusted for Chongqing effects
EBITDA and EBITDA margins – BU MS

**Long-term:**
- Reflection of strong positioning with blue chip customers in all applications.
- FY 2015/16 influenced by Chongqing effects.

**Short-term:**
- Adjusted for Chongqing Q1 2016/17 showed normal seasonality, typical for a regular Q1 (untypical Q1 2015/16).

* Adjusted for Chongqing effects
EBITDA and EBITDA margins – BU AIM

Long-term:
- EBITDA increase based on focus on high-end applications like ADAS.
- Margin decrease in 2015/16 influenced by FX developments: manufacturing costs in INR/KRW vs. pricing in EUR.

Short-term:
- Margin decrease in Q3 and Q4 2015/16 influenced by FX developments – see YoY 2015/16 explanation.

* Adjusted for Chongqing effects
Operating Cash Flow / ROCE

Short-term:
- Decrease is based on lower EBIT.

Long-term:
- €545m cash flow generated in 5 years – to support project Chongqing.

KPI: mid-term ROCE of 12%
- ROCE influenced by Chongqing project, adjusted for Chongqing project: continuous increase above industry WACC (~10%).
CAPEX increase starting FY 2013/14 mainly based on Chongqing project.
Financial debt, financial assets and cash, net debt

**Gross debt, financial assets and cash, net debt YoY**

- €308m financial assets and cash for repayment of the bond in Nov. 2016, financing the ramp-up phase and remaining payments for investments of the first phase of Chongqing.
- No further need for debt or equity activities.

**Net debt/EBITDA**

- Expected multiple in temporary peak of Chongqing investments: < 3.5x.
Financial equity and equity ratio

KPI: equity ratio of > 40%

FY 2015/16: negative FX development of € 82.5m (depreciation of RMB, INR, USD and KRW compared to EUR); (FY 2014/15: positive FX effects of € 161.4m).
Financing strategy and activities

Long-term:
- Establish and maintain long term relationship with key financing partners
- Set up group of financing partners matching to our global footprint
- Identify and realize opportunities from development of financing costs and structures
- Financing arbitrage
- External financing predominately through group activities – passing on to subsidiaries through intercompany loans

Short-term:
- Partial early repayment of bond (EUR 24m)
- Partial early repayment of SSD (Promissory note loan) 2014
- Partial early repayment of high interest rate bank loans
- Full repayment of bond in November 2016
- Further optimization of financing costs and conditions
Overview Debt Portfolio Duration

KPI: Financing costs of < 2% (in a corresponding interest environment)

### Maturity

<table>
<thead>
<tr>
<th>€ in millions*</th>
<th>&lt; 1 Year</th>
<th>1-5 Years</th>
<th>&gt; 5 Years</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bond 2011-2016</td>
<td>77.8</td>
<td>-</td>
<td>-</td>
<td>77.8</td>
</tr>
<tr>
<td>Promissory note loans 2014</td>
<td>0.8</td>
<td>61.1</td>
<td>5.0</td>
<td>66.9</td>
</tr>
<tr>
<td>Promissory note loans 2015</td>
<td>1.6</td>
<td>154.2</td>
<td>66.3</td>
<td>222.1</td>
</tr>
<tr>
<td>Promissory note loans 2016</td>
<td>0.3</td>
<td>49.9</td>
<td>100.0</td>
<td>150.2</td>
</tr>
<tr>
<td>Subsidised loans</td>
<td>43.9</td>
<td>34.9</td>
<td>-</td>
<td>78.8</td>
</tr>
<tr>
<td>Bank Borrowings and others</td>
<td>5.2</td>
<td>43.5</td>
<td>6.3</td>
<td>55.0</td>
</tr>
<tr>
<td><strong>Total 30/06/2016</strong></td>
<td><strong>129.6</strong></td>
<td><strong>343.6</strong></td>
<td><strong>177.6</strong></td>
<td><strong>650.8</strong></td>
</tr>
<tr>
<td><strong>Total 31/03/2016</strong></td>
<td><strong>161.4</strong></td>
<td><strong>285.3</strong></td>
<td><strong>76.3</strong></td>
<td><strong>523.0</strong></td>
</tr>
</tbody>
</table>

* including accrued interest and placement costs

- Average debt portfolio duration: 3.5 years (2015/16: 3.9 years)
- Average financing costs: 2.6% (as of 30/06/2016)
- € 177m of credit lines not utilised (as of 30/06/2016)
- Long term international partners to secure stability
- Currency mix of EUR and USD to support natural hedging strategy
Net Working Capital Development

- 2011/12: 18.0%
- 2012/13: 19.0%
- 2013/14: 15.6%
- 2014/15: 14.3%
- 2015/16: 11.6%
- Q1 2016/17: 13.9%

Improvement actions:
- Dunning process
- Strict inventory control
- Renegotiation of supplier payment terms

€ in millions; % of revenue
Managing FX challenges

- **1 Group**
- **6 Production sites**
- **Global customers**
- **6 Key currencies**

- Group currency: EUR
- 80% of revenue produced in Asia
- 76% of revenue are in non-EUR currencies: predominantly in USD
- 1% change of EUR-USD relation leads to: +/- € 5m revenue or € 0.1m of profit for the period
- Orders are placed short term; Price negotiations quarterly/latest annually
- Hedging through natural hedging; very limited derivatives used
Focus on capacity utilisation of first production line of IC substrates and ramp of two further production lines (second production line of IC substrates, first production line of substrate-like PCB).

Slower growth dynamic expected in certain customer segments, particularly in Mobile Devices & Substrates as well as stronger seasonality in Q1 and Q4 and continuous low visibility.

Based on a macroeconomic stable environment, FX relation of USD-EUR on a similar level than FY 2015/16 and a stable demand in the core business, management expects revenue growth of 10-12%. EBITDA margin should be on a level of 18-20%, based on costs related to the ramp of Chongqing. EBITDA margin in core business should be on a similar level than in FY 2015/16. Higher depreciation for the project Chongqing of additional ~ €40m in FY 2016/17 will have a clear impact on EBIT level.
Agenda

- Vision, Targets & KPIs
- Trends and Drivers of the Electronics Industry
- Customer Needs and Market Players
- Industry Dynamics
- “More than AT&S”
- Operational Excellence
- Financials & Outlook
- “More than AT&S” for the Capital Markets
“More than AT&S”: from a high-end PCB manufacturer to a high-end interconnect solutions provider driving value and growth

More than

- Additional customers
- Additional applications
- New technologies and interconnect solutions
- Extended Technology Toolbox
- More comprehensive positioning in the value chain
Effects of “More than AT&S” on growth and value

Revenue*

ROCE**

* Estimates, based on: stable FX rates, stable macroeconomic situation, stable demand in core business
** includes a second investment phase in Chongqing
Generating value now and in future

Value driver

- Trends in the electronics industry: connectivity
- Focus on high-end technology & applications
- Balanced, diversified technology, customer & application portfolio
- Process know-how/quality/efficiency/productivity
- Cost competitiveness through Asian footprint

Value output

- Positioned in attractively growing future markets/applications
- Very good position with blue chip customers
- Long-term above market growth
- Sustainable profitability
- High cash flow generation to finance investments, reducing financial leverage
- Dividends
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