Smart Manufacturing II (hardware-centric)

Wafer-Level Package handling and inspection/metrology platforms

T. Brillouet
R&D Manager
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Abstract
The recent developments within the European Collaborative project TSV-Handy regarding the handling of different sizes and types of substrates, combined with integrated inspection and metrology, address several requirement aspects for Smart Manufacturing.

The two main challenges of 3D ICs manufacturing, TSV and Fan-Out Wafer Level Packaging techniques, is the multiplication of heterogeneous types of substrates which are presenting different mechanical behaviours and physical properties, and the lack of efficient and clean handling solution in the back-end market. A modular equipment, which is able to manipulate as many types of wafers as possible, without any hardware reconfiguration and managed by a smart adaptive software, will help the end-users in gaining equipment flexibility, up-time and yield.
This presentation will give an outlook on how the modular approach responds to these challenges.

Biography
Working for RECIF Technologies since 2000, Thomas BRILLOUET has evolved along with the company. Graduated in electrical and automatic engineering, he then started as a Field Service Engineer for RECIF USA, prior to becoming Technical Coordinator of the East Coast area. Thomas left the USA in 2005, and then successfully managed several Field Task Forces in different Asian countries.

This strong field experience drove him to Development & Project Management. Named R&D Manager in RECIF HQ in 2012 he took in charge products developments since then and committed in multiple European Collaborative Projects, through different frameworks. He contributed in those programs as work-package or task leader from the very first EEMI450 through each 450mm development and demonstration program (NGC450 among them), and today TSV-HANDY.

Smart Manufacturing setups to achieve an AI based Digital Transmission within the EMS-industry

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Abstract

1) **DIGITAL TRANSMISSION within the EMS INDUSTRY**
What are the everyday challenges of an EMS company?

2) **INDUSTRY 4.0 & MADE IN CHINA 2025**
How geopolitical frame-conditions influence technical progress

3) **METHODS & TOOLS**
Value Stream Mapping
Digital Factory
MTM
DFx

4) **SUPPORT TECHNOLOGY & AUTOMATIZATION**
Digital Twin
Automized components handling
Augmented Reality
Co-Robotics Solution

5) **AI & DEEP LEARNING WITHIN EMS**
The 4 V´s of big data
AI support for quality
Deep Learning and Big Data for Predictive Maintenance

6) **INDUSTRY 5.0 supported by AI**
Optimize RFP-processes
Using 5G to increase automatization
New business modell arise from Big Data

7) **Executive Summary**
What does AI mean for the EMS-sector
What transition is needed to keep up the pace

Biography

Markus M. Hoffmann has more than 15 years of experience within the EMS-market, focusing on global direct customer care management. Developed and established processes as overall head for involved operational units in Eastern Europe, Asia & North America, Markus has built key account relationships with new and existing customers mainly within the Semiconductor (front- and back end) business. His latest role in Zollner is to force deep engagement in the definition and pursuit process for the EMS market in the Asia Pacific Region. Markus pursues business in the dedicated geographical area and market in accordance with the assigned Business Unit's strategy same as identify new potential Business for key-sectors like Railway, Aerospace, Healthcare & Semidconductor. Beside his activities at Zollner, Markus acts as an International Observer Columnist & Podcast Panelist for Chinese International Radio (CRI). Markus was also part in this years SEMICON SEA (Advanced Packaging Forum) & SEMICON Taiwan (SiP Global Summit) as a Speaker and Panelist, sharing his idead on Smart Manufacturing & Hetergenous Integration.

Smart Manufacturing for Packaging Industry

J. Song
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Abstract
Smart manufacturing has become the focus for global manufacturing for productivity, quality, yield and performance improvement. With the digital connectivity and IIoT advancement, all these have become feasible. However, this remains a challenge for Backend packaging industry on process optimization and real time on-line control based on modeling and data analytics. One of the road blocks is that packaging equipment are not designed and ready for such evolution. In this presentation, we will share our ASMPT's approaches on tackling these challenges and some of the ecosystems that we established to gear towards smart manufacturing.

Biography
He has been serving the semiconductor industry for 25 years and owns numerous patents relating to bonding apparatus. He has worked across multiple disciplines such as vision technology, wire bonding, third optical inspection, metrological equipment, package mold encapsulation, 3D sensing calibration and automation line for automotive camera assembly. His current focus is to establish an ecosystem to realize industry 4.0 and introducing AIoT to their customers

Automate#LikeABosch – BOSCH's path to entire Fab Automation

H. Martin
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Abstract
Existing 200mm semiconductor fabs can master the challenges of a 24x7 production under highest cost and quality pressure by implementing intralogistics automation solutions. In the previous years many companies operating mature fabs understood that older does not mean obsolete and started or continued their journey towards higher automated production. Fabmatics developed a variety of automation solutions in the fields of material identification and tracking, storage, transport and handling. Over the past 10 Years the implementation of AMHS Systems and Components were implemented in the BOSCH 8" Fab in Reutlingen in "Step-by-Step" Approach while the Fab was continuously in Production and increased efficiency. Bosch obsesses this path to entire Fab Automation consequently and with great confidence, the final results show real value.
In his presentation Heinz Martin Esser will explain the latest trends of customer requirements for automation of mature Semiconductor Fabs and how Fabmatics is tackling these challenges by implementing a comprehensive intralogistics automation system, which will provide customers a lot of benefits and advantages in operating such an automated fab.

Biography
Heinz Martin Esser, born in 1955, graduated from University in 1981 as a mechanical engineer. In 1985 he got an additional university degree in business administration.
Strong Experiences in detailed engineering and project management for large and complex investments for nuclear industry and beverage and food industry. Later assigned as branch manager to build production clean rooms and facilities in semiconductor and pharmaceutical industry.
Since 1999 he is Managing Director of Fabmatics GmbH respectively the precursor organizations of Roth & Rau – Ortner GmbH, Dresden and Ortner c.l.s. GmbH. The company provides advanced Fab Automation solutions, RFID products and applications like FOUP-N2 Purge systems and complex system expertise in AHMS installation and qualified services for the international semiconductor Industry.
Since 2001 he is member of the board of directors of Silicon Saxony e.V., Dresden with now more than 350 member companies. In 2009 he was assigned to be the speaker of the board.
Since 2008 he is also a member of the "SEMI" EAB (European Advisory Board).