MICRO PRINCE

Newsletter - January 2018, Issue 1

MICROPRINCE
Micro-Transfer-Printing of Functional Components on Wafer Level Pilot Line for Micro-Transfer-Printing

Main Project Information

The MICROPRINCE consortium aims to **set up the first worldwide open access foundry pilot line for heterogeneous integration by micro-transfer-printing (µTP)** and to demonstrate its capability on five defined target application scenarios. Functional components like processed III/V devices, optical filters and special sensors will be transferred to target wafers to demonstrate the capabilities of the technology. The consortium combines their expertise along the value chain from materials and equipment, technology and semiconductor processing, integrated circuit and system design, test and application.

The following goals were defined for MICROPRINCE:

- Transfer of the µTP-technology for **microelectronics application** from laboratory to an **industrial environment** for bridging the "Valley of Death" to industrialization
- Creation, installation and demonstration of a **pilot line for µTP** in a manufacturing environment for open access
- Development of **design rules** and its implementation in **Process Design Kits** (PDK)
- Technology demonstration for **five defined target applications** for magnetic and optical sensing and photonic systems
- Development of **processes for heterogeneous system integration** of **CMOS** and **MEMS wafers**
- Realization of printing processes on **200 (150) mm silicon wafers**

In this Issue

- Main Project Information
- Message from the Coordinator
- Technical Meeting
- Technical Approach
- Ongoing Activities
- MICROPRINCE Meetings

Message from the Coordinator

The intention of this newsletter is to open a new communication channel in order to provide news on the project progress and to discuss ongoing topics relevant to **MICROPRINCE** for internal and external project partners, stakeholders and all other interested bodies. The project has successfully started with the kick-off meeting in April 2017 and already held the first technical meeting in October 2017. The next technical meeting is planned for March 2018 in Cork, Ireland.

For more detailed information about and around the project we warmly invite you to have a look at our **project website**, which is constantly kept up-to-date with the latest project related news: www.microprince.eu. Furthermore, please feel free to follow the project on Twitter: https://twitter.com/MicroprinceEU

Key Data:

Project number:	**737465**
Project website:	www.microprince.eu
Project start:	1st April, 2017
Project duration:	3 years
Total costs:	EUR 14.017.817,61
EC funding:	EUR 3.340.035,74

Consortium: 13 partners (4 countries)
Project Coordinator: **Dr.-Ing. Ronny Gerbach**
X-FAB MEMS Foundry GmbH
Haarbergstrasse 67
99097 Erfurt
GERMANY
Email: ronny.gerbach@xfab.com
Project Website: www.microprince.eu

LinkedIn

FOLLOW US ON twitter

ECSEL Joint Undertaking

This project has received funding from the ECSEL Joint Undertaking under grant agreement No 737465. This Joint Undertaking receives support from the European Union's Horizon 2020 research and innovation programme and Germany, Belgium, Ireland.

MICRO PRINCE

Newsletter - January 2018, Issue 1

MICROPRINCE
Micro-Transfer-Printing of Functional Components on Wafer Level
Pilot Line for Micro

Technical Approach

WP1 „Design and installation of the µTP pilot line“ targets the design, manufacturing and installation of the µTP pilot line clarifying the general set-up and defining all technological requirements of the industrial applications.

WP2 „Micro-transfer-printing for high sensitivity magnetic sensors“ industrializes the transfer printing and post-processes for obtaining MLX CMOS ICs with transfer printed high sensitivity magnetic sensing elements.

WP3 „Micro-transfer-printing for optical sensors“ aims at the heterogeneous integration of optical filters. The main objective is the process transfer and industrialization of the printing of filters on optical sensors in the MICROPRINCE environment.

WP4 „Micro-transfer-printing for silicon photonics“ aims to establish a pilot line for micro-transfer print and post transfer print operations of III-V active devices onto silicon photonics wafers for the key application smart society.

WP5 „Micro-transfer-printing of LED devices“ develops a LED driver IC with printed RGB LEDs integrated in one package targeting the key applications smart mobility and smart society.

WP6 „Micro-transfer-printing for biomedical implant applications“ the technology is developed to micro-transfer print III-V LEDs and silicon photodetectors onto a silicon nitride photonic integrated circuit.

Ongoing Activities

- Management methodology and structure, technical infrastructure as well as the organizational framework are properly installed. The General Assembly and Executive Board have been elected supporting the installed project framework.
- The specification of the pilot line was developed in WP1. The tool ordering procedure is ongoing to achieve the deliverables of this WP. In addition, several process development activities were started for the preparation of silicon source wafers for printing.
- Four complete wafers of MLX current sensors have been obtained in WP2.
- All specifications of the photo diodes and filters were made in WP3. Several process developments are ongoing to deliver first demonstrators.
- In WP5, IC driver development is on-track and first wafers are in production.
- Completion of the design of the GaAs and InP LEDs and PDs in WP6.
- All necessary communication and dissemination tools have been set up. Project descriptions and also first results have already been presented at scientific conferences.

MICROPRINCE Meetings

- **Kick-off Meeting**

On 20th of April 2017 the MICROPRINCE project has successfully been kicked-off in Erfurt, Germany at XMF premises. The meeting was dedicated to get to know each other and to organize the further collaboration of the project partners. Afterwards the technical work packages were presented.

- **1st Technical Meeting**

From 9th to 10th October 2017 the first MICROPRINCE Technical Meeting took place in Ghent, Belgium at IMEC premises. Each WP leader presented the work done and some in-depth and ground laying technical discussions took place.

Key Data:

Project number:	**737465**
Project website:	www.microprince.eu
Project start:	1st April, 2017
Project duration:	3 years
Total costs:	EUR 14.017.817,61
EC funding:	EUR 3.340.035,74

Consortium: 13 partners (4 countries)
Project Coordinator: **Dr.-Ing. Ronny Gerbach**
X-FAB MEMS Foundry GmbH
Haarbergstrasse 67
99097 Erfurt
GERMANY
Email: ronny.gerbach@xfab.com
Project Website: www.microprince.eu

LinkedIn
FOLLOW US ON twitter

ECSEL Joint Undertaking

This project has received funding from the ECSEL Joint Undertaking under grant agreement No 737465. This Joint Undertaking receives support from the European Union's Horizon 2020 research and innovation programme and Germany, Belgium, Ireland.