POSTER # 51

Process of Integrating MLOs Manufactured on Digital Lithography Systems

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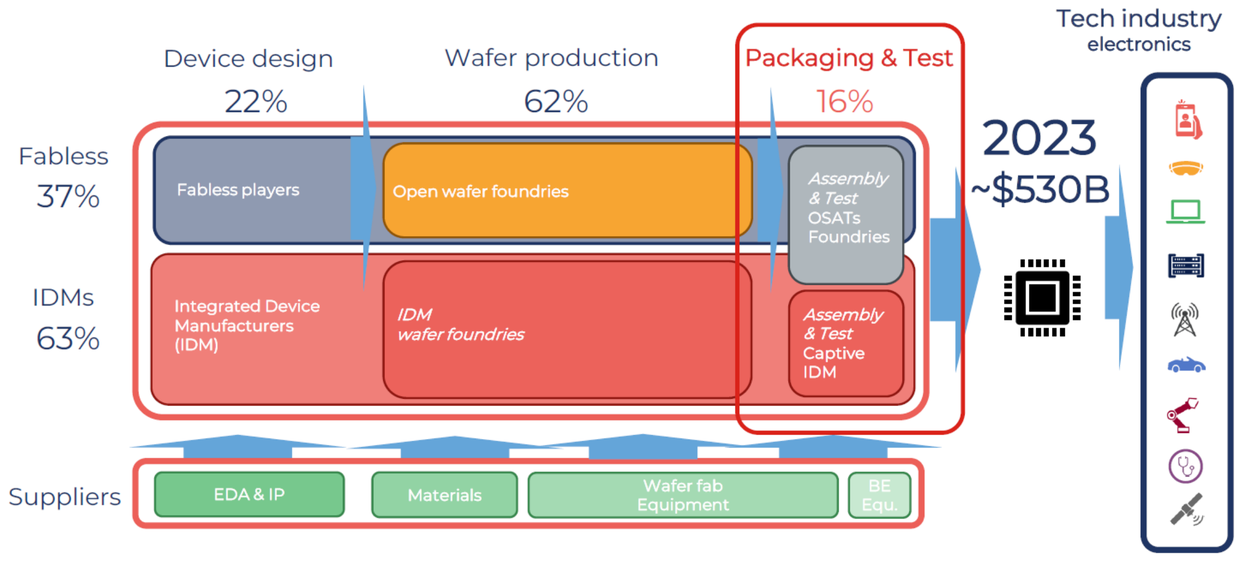
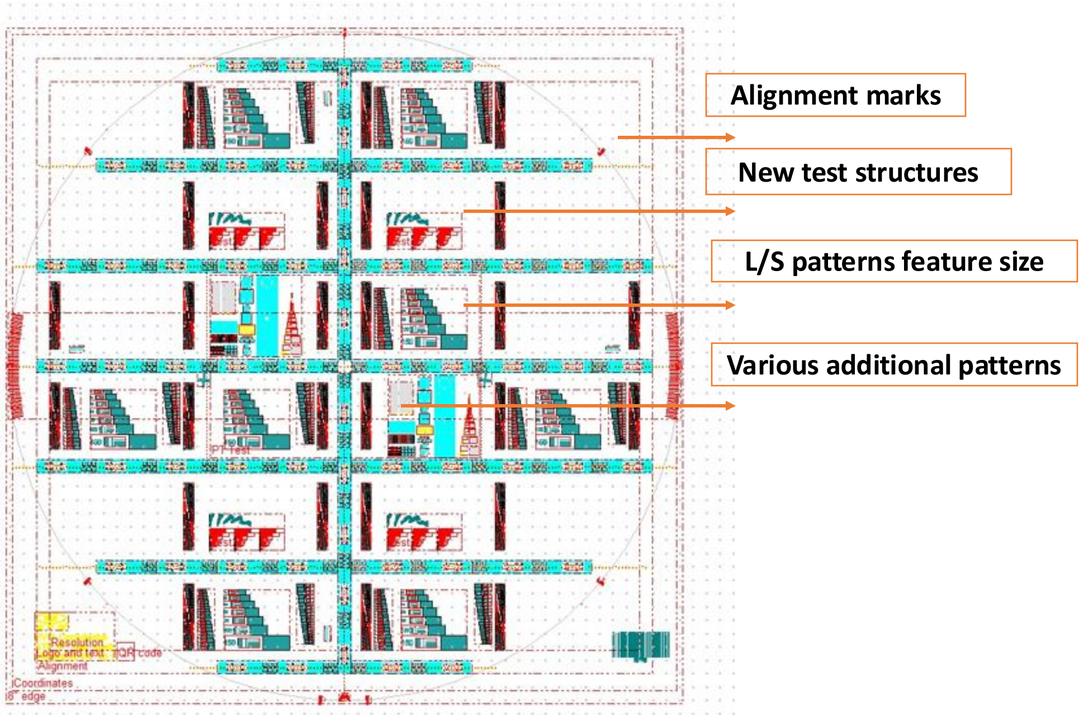
INTRODUCTION

- **High end advanced packaging (AP) is needed to answer generative AI demands with more die/chiplet integration, more HBM, high bandwidth and high density interconnections.**
- **Test intensity, test complexity and probe card demand increases as AP becomes widespread, making AP one of the main drivers for the probe card market [1].**



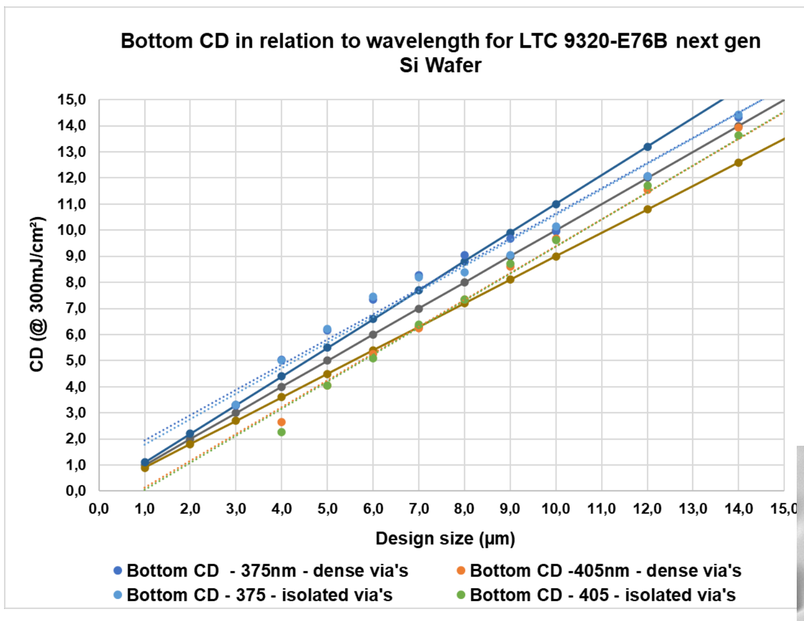
MATERIALS & METHODS



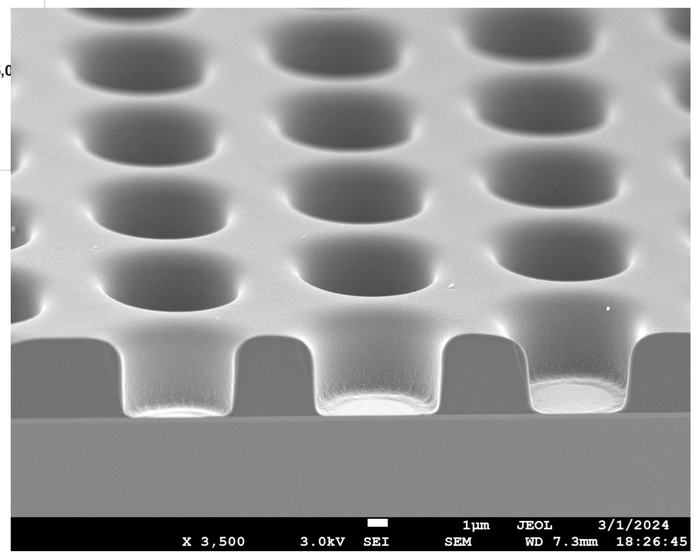
- **The maskless exposure's processing pipeline electronically processes the vectorized data and corrects for distortion during write-time, based on pre-measured and real-time acquired alignment information before it gets sliced up into stripes.**
- **These are digitally sampled and delivered to the FIFO-buffered exposure head controller. During exposure by the maintenance free laser light source, the head engine already generates the successive stripe in the throughput–optimized processing pipeline [2].**

RESULTS & DISCUSSION

- **MLE was employed on a multi–exposure head LITHOSCALE® to prove the suitability of the technology for MLOs in fine pitch probe cards. Targeting the application requirements, newly developed "LTC 9320–E76B next gen" by Fujifilm Electronic Materials, negative tone, low temperature cure dielectric polyimide was evaluated.**
- **Operating at two wavelength (λ≈375 and 405 nm) the broad process windows matrix setup ensures the efficient process evaluation.**



→ **Regular VIA enable homogenous ECD in subsequent integration of MLOs.**



CONCLUSIONS & OUTLOOK

- **MLE is a versatile technology finding applications in probe cards, photonics, MEMS, next–generation advanced packaging, and many new, emerging markets!**
- **EVG's digital lithography equipment, LITHOSCALE®, is designed to facilitate rapid R&D prototyping & expeditious transition from to HVM!**

REFERENCES

G. Periera: Advanced Packaging Pushing the Boundaries of the Semiconductor Probe Cards Market, Podium Presentation at SW Test USA, June 2024.

K. Varga: Digital Lithography Enhances Fine Pitch Probe Cards Performance, Podium Presentation at SW Test USA, June 2024.

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