



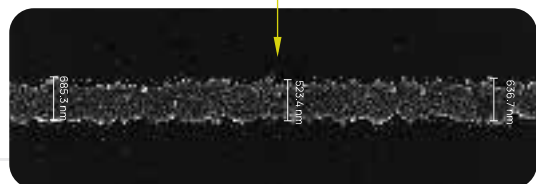
# XTPL. Powering the microelectronics of tomorrow.

## Revolutionize Yield Management with Ultra-Precise Dispensing (UPD) System

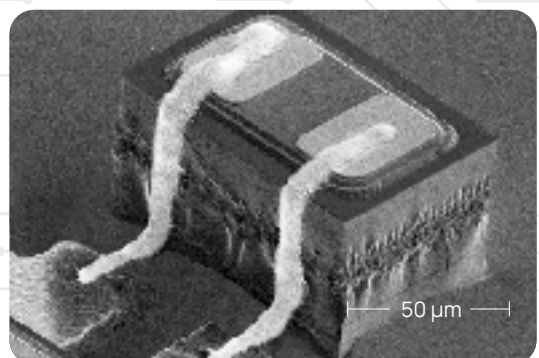
### 2D, 3D conductive micro interconnections:

- open defect repair on complex technological substrates and system-on-the-chips
- conductive and insulating microvias in High Density Interconnect (HDI)
- ultra-high resolution features below 1  $\mu\text{m}$
- photonic sintering enables electrical resistances  $< 1 \Omega/\mu\text{m}$
- variety of materials: conductive, dielectric, photoresist, QDots and more

State of the art Ag\* sub-micron line



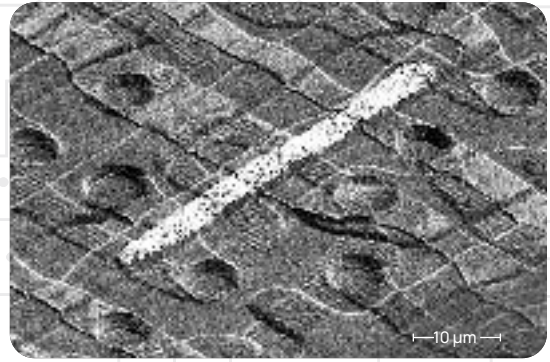
3D conductive micro interconnections - MicroLED



## Ultra-precise circuit editing:

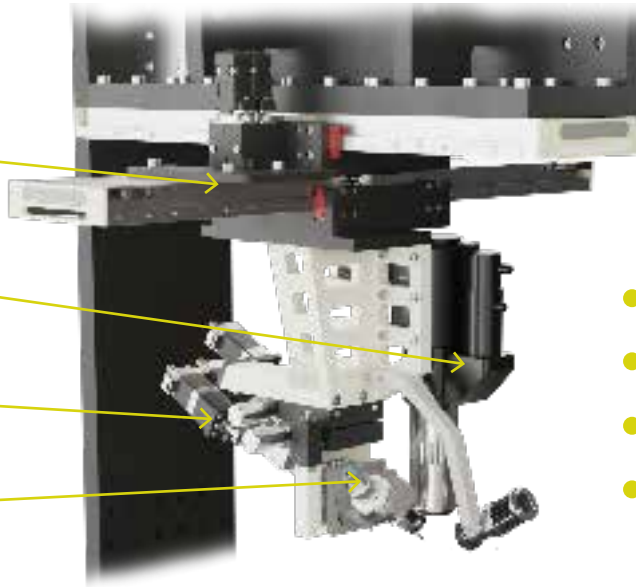
- fixing design flaws or intentional changes by local dispensing on 2D/3D connection
- via filling directly on the circuit
- versatile material dispensing on complex technological substrates

Ag\* microline



## UPD System overview

- High-precision XY axis motors
- Ultra-high resolution top-view microscopic optics and camera
- Motorized camera for real-time process monitoring
- Cartridge with nozzle in high-precision Z axis



### Additional system elements:

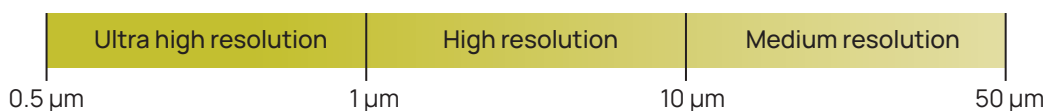
- UPD process controller
- Precise pressure control unit
- UPD software
- UPD software API for integration with host system

## Why should you choose UPD technology?

1. Patented technology, reliable partner and process for tailored industrial solutions.

1. PoC → 2. Solution tailoring → 3. Production → 4. Integration with host

2. Unprecedented range of feature size XTPL® UPD technology covers:



## Contact our team

✉ [salesupd@xtpl.com](mailto:salesupd@xtpl.com)

Find out more at [www.xtpl.com](http://www.xtpl.com)

XTPL is a globally innovative company developing breakthrough, additive manufacturing technology for ultra-precise dispensing of nanomaterials.



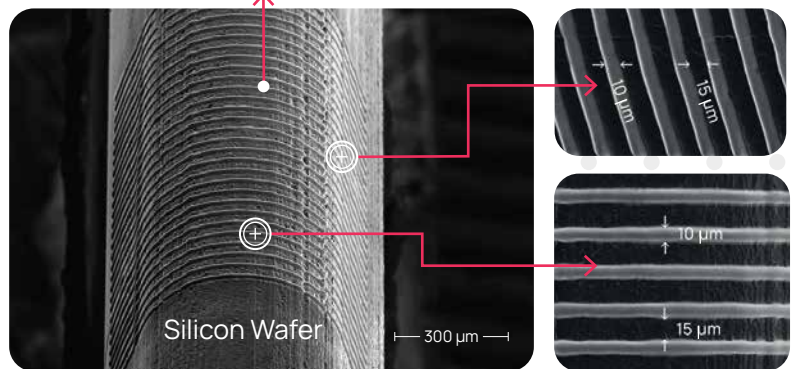
# XTPL. Powering the microelectronics of tomorrow.

## Revolutionize heterogeneous integration with Ultra-Precise Dispensing (UPD) System

### Ultra-Precise Dispensing for integration:

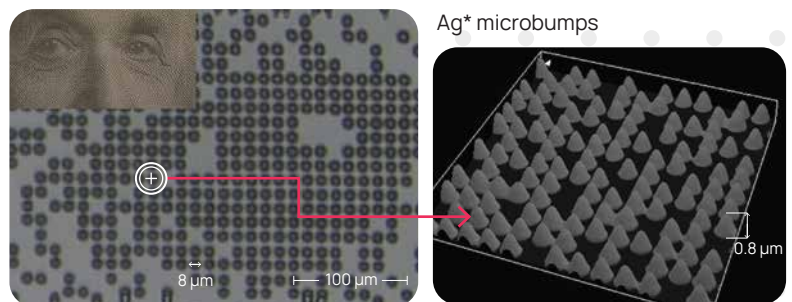
- facilitates seamless integration
- provides flexibility and miniaturization for FHE, IC packaging, IoT systems, antennas, biosensors and more

Ag<sup>+</sup> microlines on the edge



### Precision-Driven Microbumps:

- controlled, precise dispensing of microbumps below 10 µm
- boosts performance in versatile scaling down of the IC packaging, system-on-the-chip designs



## Reliable Connections via Filling:

- enables reliable connections, enhances thermal management and miniaturization
- enhances functionality and performance for advanced packaging, flip-chip and TSV
- variety of materials: conductive, dielectric, photoresist, QDots

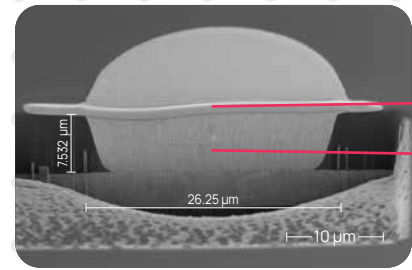
Empty via



Filled via



Via cross section

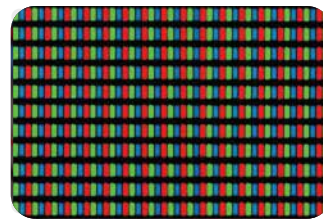


Pt coating  
Ag\* nanopaste

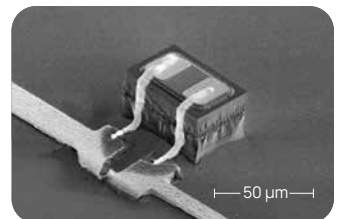
## Powering MicroLED Integration:

- facilitates control, driving and power dispensing of microLED displays
- expands applications in AR/VR, smartwatches and automotive displays

MicroLED

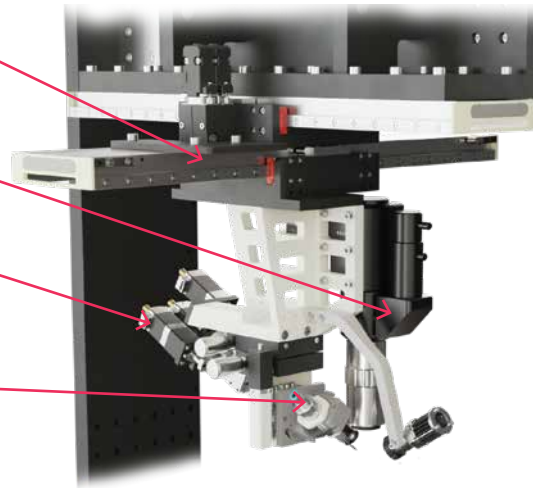


Ag\* interconnections



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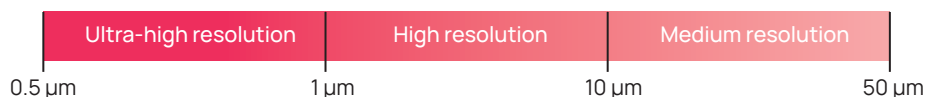
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