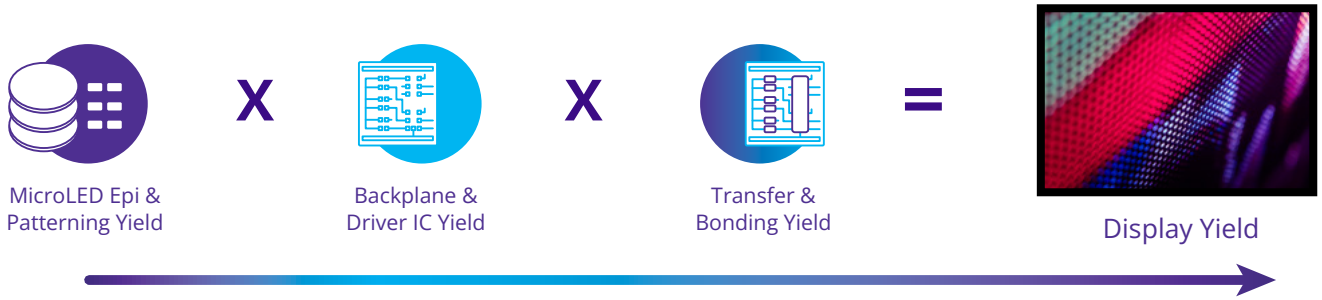


MicroLED Yield Solutions



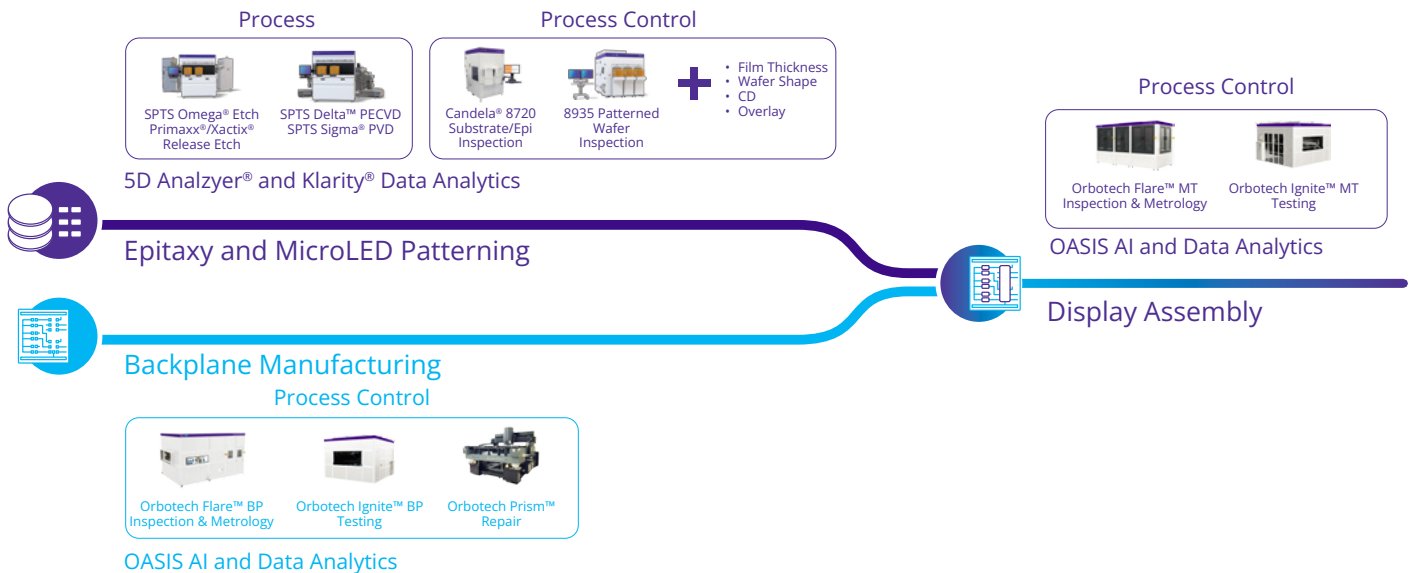
MicroLED displays offer many key performance benefits such as high brightness, increased contrast and extended lifetime. Major challenges to broad market adoption include both technology readiness and cost. Improved yield provides a pathway to both lower cost and mature technology, both of which are key elements required for the transition to high volume manufacturing. Since the overall yield is the combined result of the yields of the constituent process steps, including source microLEDs, source driver ICs, backplane, mass transfer and bonding, the yield of each step needs to be optimized.

MicroLED Display Yield is a Combination of Transitional Yields



KLA's comprehensive solution for microLED manufacturing provides a pathway to yield improvement throughout the entire process—from epitaxy wafer to final display. Our proven process and process control products are designed to meet the unique and demanding challenges of the complex microLED production flow to help accelerate the yield required for wide market adoption.

KLA's MicroLED Yield Solutions



Epitaxy and MicroLED Patterning - Process



SPTS Omega® ICP Etch: Low damage plasma etch of tapered or vertical mesa structures.

SPTS Omega® Rapier: Tunable Si thinning.

SPTS Mosaic™: Plasma dicing for particle-free singulation of Si submounts.

Primaxx/Xactix Release Etch: Highly selective, dry vapor etch of sacrificial Si or SiOx layers.



SPTS Delta™ PECVD: Deposition of SiN for anti-reflection coating or stress compensation layers with excellent WTW and WIW thickness, RI and stress uniformity for high yields.

SPTS Sigma® PVD: Frontside and back side metal deposition with tunable stress and long throw option for reliable coverage in deep structures.

Epitaxy and MicroLED Patterning - Process Control



Candela® 8720 Advanced Surface Inspection for Substrate and Epitaxy Layers: Automated inspection with sensitivity to sub-micron defects enables yield improvement and excursion control for microLED substrate and epitaxy layers.



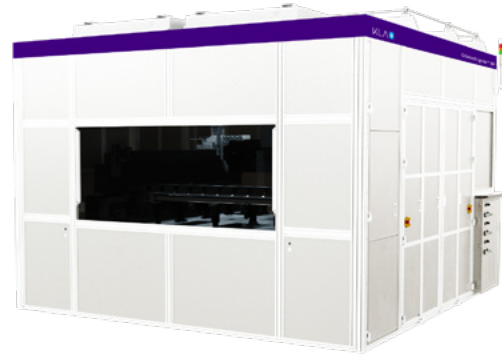
8 Series (8935) Patterned Wafer Defect Inspection: High-speed defect inspection supporting microLED wafer screening for increased quality control. Advanced optical inspection capability with DefectWise® AI technology provides enhanced inline defect discovery and binning to drive yield improvements.

KLA's microLED portfolio also includes metrology systems which provide accurate feedback on film thickness, wafer shape, critical dimensions and overlay to maintain tight control of microLED wafer processes for improved performance and yield. Visit kla.com to learn more.

Backplane



Orbotech Flare BP Inspection and Metrology System: Full inspection of the entire panel area enabled by WireSense™ innovative detection technology. This supports irregular and complex pixel design on both the front and back of the glass.



Orbotech Ignite BP Testing System: Ensures perfectly formed anodes and cathodes before they are connected to LEDs. This is enabled by eLite™, a unique electro-optic sensing technology.

Mass Transfer



Orbotech Flare MT Inspection and Metrology System: In-scan measurements of every LED, ensuring 100% measurement coverage enabled by LEDSense™ technology and 360° darkfield capability, including accurate X/Y, shift measurement and appearance classification.



Orbotech Ignite MT Testing System: ColorScale™ technology, including LED luminance and brightness uniformity that can identify burnt LED and connector defects.

KLA SUPPORT

Maintaining system productivity is an integral part of KLA's yield optimization solution. Efforts in this area include system maintenance, global supply chain management, cost reduction and obsolescence mitigation, system relocation, performance and productivity enhancements, and certified tool resale.

© 2022 KLA Corporation. All rights reserved worldwide. KLA reserves the right to change the hardware and/or software specifications without notice. Orbotech is a registered trademark of Orbotech Limited, a KLA company. KLA and the KLA logo are registered trademarks of KLA Corporation. All brands or product names may be trademarks of their respective companies.

KLA Corporation
One Technology Drive
Milpitas, CA 95035
www.kla.com

Rev 4.0_4-21-2022