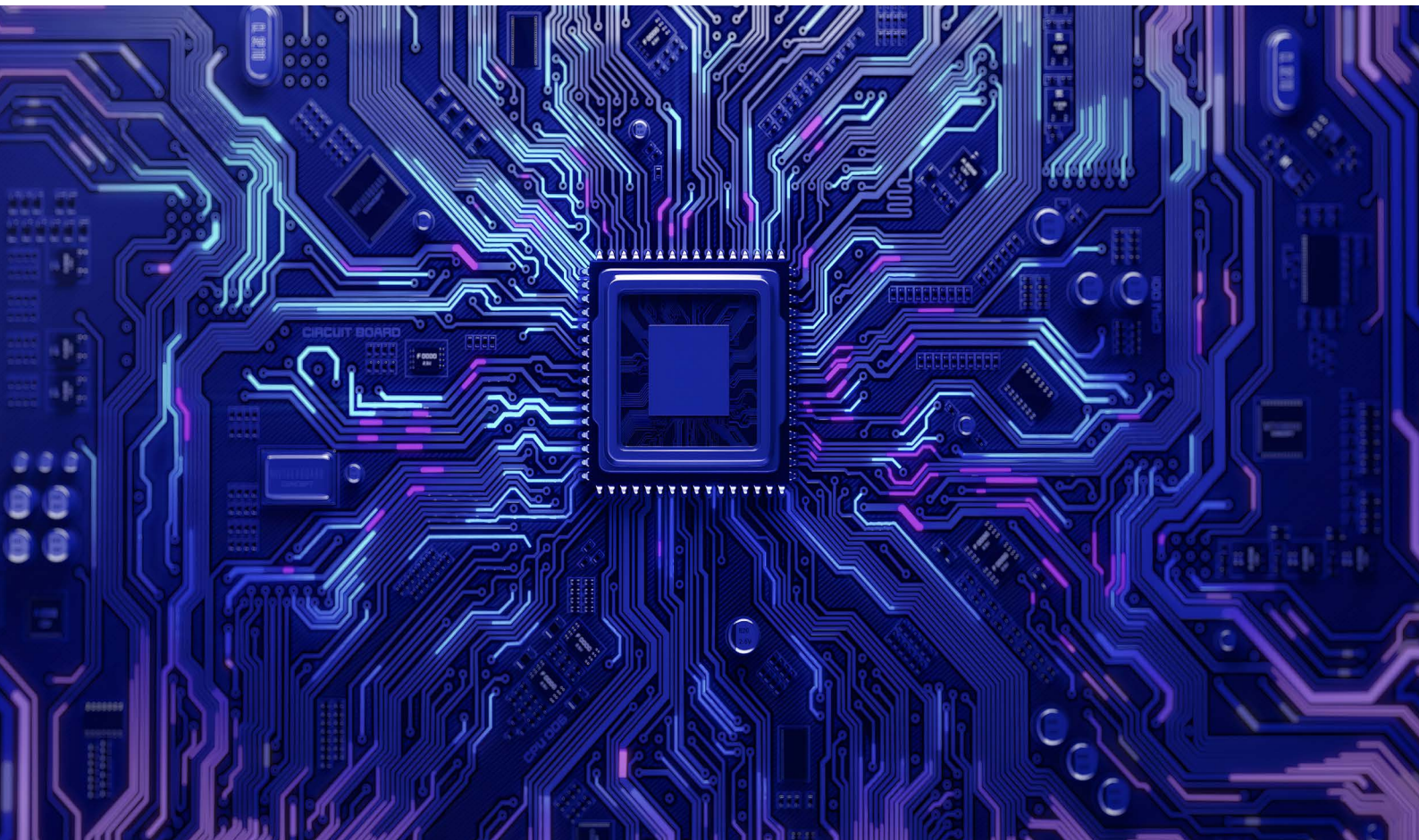
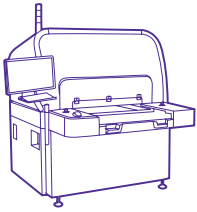


# PCB & ICS PRODUCT OVERVIEW



## Orbotech Ultra Dimension™ AOI



Magic™ Technology



Triple Vision™ Technology

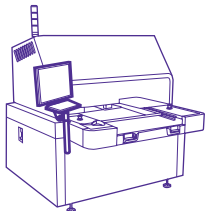
- Unique inspection capabilities—powered by Triple Vision™ and Magic™ technologies
- Next generation remote multi-image verification (RMIV Pro)
- Integrated, automated 2D metrology
- Low total cost of ownership (TCO), Industry 4.0-ready

**Orbotech Ultra Dimension™ 900** – ultra fine pattern inspection down to 5µm L/S and 20µm laser via (LV) diameter inspection and operational efficiency for IC substrate manufacturing

**Orbotech Ultra Dimension™ LV** – inspection and measurement of LV panels in a single scan down to 30µm laser via diameter

**Orbotech Ultra Dimension™ 800/700** – pattern and laser via inspection in a single scan for SLP/mSAP, advanced HDI, flex and ICS down to 10/15µm L/S accordingly

## Orbotech Fusion™ AOI



Multi-Image™ Technology

Excellent detection accuracy with Multi-Image™ technology

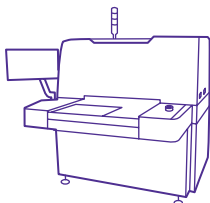
- SIP™ technology - panel understanding for accurate detection with low F/A
- Major running cost savings

**Orbotech Ultra Fusion™ 300/200** – for SLP/mSAP, advanced HDI, flex and ICS down to 10/15µm L/S

**Orbotech Fusion™ 22** – for high volume, advanced HDI and flex PCB applications down to 25µm L/S

**Orbotech Fusion™ R2R** – for high-end flex PCB production with roll-to-roll automation and sheet-by-sheet mode

## Orbotech Precise™ AOS



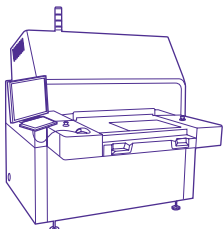
3DS™ Technology



CLS™ Technology

- One-stop automated solution for shaping open and short defects
- Significant yield and savings increase by eliminating scrap PCBs
- High-quality shaping enabled by proprietary 3D Shaping (3DS)™ and Closed Loop Shaping (CLS)™ technologies
- For mass production of SLP/mSAP, advanced HDI, HDI and MLB down to 30µm L/S for open defects and 25µm L/S for short defects
- All-defect coverage, including inner and outer layers, multiple lines, corners and pads

## Orbotech PerFix™ AOS



CLS™ Technology

- Scrap saving - enables excess copper defect shaping
- High quality with Closed Loop Shaping (CLS)™ technology
- High speed automated shaping

**Orbotech Ultra PerFix™ 500** – for the most advanced IC substrates and fine line applications down to 5µm L/S

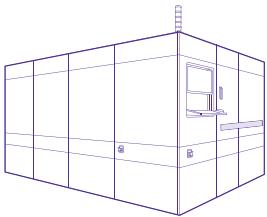
**Orbotech Ultra PerFix™ 170i** – for advanced IC substrates and fine line applications down to 7µm L/S


**Orbotech Ultra PerFix™ 120N** – high throughput for IC substrates, SLP/mSAP and advanced flex down to 10µm L/S

**Orbotech PerFix™ 200S/200S XL** – for mass production of multi-layer and complex HDI and MLB boards down to 30µm L/S, supporting up to 30" x 36.5" (XL model)

**Orbotech PerFix™ R2R** – for flex PCB production with roll-to-roll automation and sheet-by-sheet mode down to 25µm L/S

## Orbotech Corus™ DI

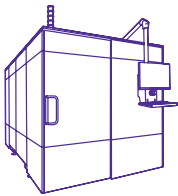


-  **DSI™** Technology
-  **LSO™** Technology
-  **MultiWave Laser™** Technology

- Innovative fully automated, double-sided imaging solution that replaces a complete DI line
- Super-fine (down to 8µm); high depth-of-focus for best line quality on varying surface topographies
- High-speed, multi-target acquisition for any layout, ensuring high productivity
- Exceptional positioning accuracy enabled by high precision design and scaling algorithms
- Closed and compact solution for maximum cleanliness and efficiency (capacity per m<sup>2</sup>)

**NEW** **Orbotech Corus™ 8M** – fine-line mass production for advanced HDI and IC substrates

## Orbotech Infinitem™ DI



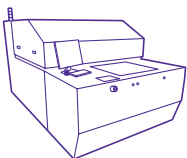
-  **DDI™** Technology
-  **LSO™** Technology
-  **MultiWave Laser™** Technology

- Groundbreaking roll-to-roll direct imaging solution for mass production of flex PCBs
- Unique drum-based R2R DI driven by KLA's Drum Direct Imaging (DDI)™ technology for optimal material handling and high yield
- High throughput enabled by high-speed, continuous imaging and on-the-fly registration
- Superior line quality and uniformity achieved by KLA's field-proven Large Scan Optics (LSO)™ and MultiWave Laser™ technologies
- All-in-one - compact, clean, closed and eco-friendly for extreme efficiency and cleanliness

**Orbotech Infinitem™ 10** – up to 260mm roll width

**Orbotech Infinitem™ 10XT** – up to 520mm roll width

## Orbotech Nuvogo™ DI



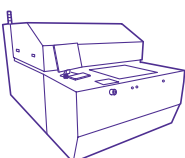
-  **LSO™** Technology
-  **MultiWave Laser™** Technology

- High imaging quality with Large Scan Optics (LSO)™ technology - fine feature imaging, high uniformity and high depth of focus
- MultiWave Laser™ technology for high resist flexibility
- Mass production - through fully automated in-line solution, dual table mechanism, high-speed target acquisition, and unique job queue management
- Low total cost of ownership - optimized cost per print, high throughput

**Orbotech Nuvogo™ Fine Series** - fine resolution mass production for SLP/mSAP, advanced HDI and flex applications with high imaging quality and throughput

**Orbotech Nuvogo™ Series** - high power mass production for HDI, flex, rigid-flex, MLB and QTA PCBs

## Orbotech Diamond™ DI for SM



-  **SolderFast™** Technology

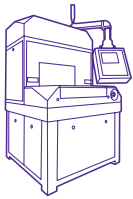
- High-capacity, high-throughput solder mask DI solution
- SolderFast™ technology for high throughput and excellent imaging quality
- Sophisticated optical mechanism enabling high depth of focus for image quality for the most challenging surface topographies
- Low total cost of ownership – long lifetime LEDs to reduce operational costs

**Orbotech Diamond™ 10/10XL** – mass production solder mask DI with 3-wavelength light source

**Orbotech Diamond™ 10W** – high-capacity, high-quality solution dedicated to white solder mask and optimized for miniLED production

**Orbotech Diamond™ 10M/10MXL** – high-capacity, high-quality solution for both white and non-white solder masks

## Orbotech Magna™ Additive Printing

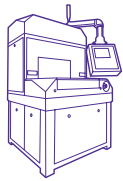


- Advanced inkjet printing for IC Packaging, dams, insulation layers and more
- High throughput, high accuracy and low total cost of ownership (TCO)
- Compact system supporting strip, panel, JEDEC tray, wafer
- Powered by KLA's groundbreaking Structural Printing™ technology and field-proven DotStream Pro™ technology

 Structural Printing™ Technology

 DotStream Pro™ Technology

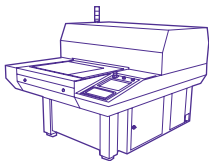
## Orbotech Jetext™ Inkjet



- Elimination of attendant risks of heat damage to dies and components that are typical of laser engraving
- Faster and clearer results over conventional laser marking with no throughput decline regardless of feature complexity
- Compact system supporting strip, panel, JEDEC tray, wafer
- Powered by KLA's field-proven DotStream Pro™ technology

 DotStream Pro™ Technology

## Orbotech Sprint™ Inkjet

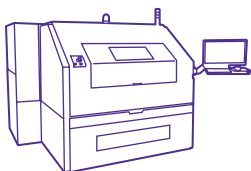


- DotStream Pro™ technology for maximum performance and low total cost of operation
- Eco-friendly production tool, from QTA to mass production with top quality and accuracy
- Advanced traceability and fine 2D barcode printing (replacing laser marking)
- Field proven low cost per print for better yield and savings compared to other technologies

 DotStream Pro™ Technology

 MultiPrinting™ Technology

## Orbotech Apeiron™ UV Laser Drilling



- High-speed drilling powered by KLA's field-proven Multi-Path™ technology
- Fully integrated, internal R2R solution enabled by KLA's proprietary Roll Inside™ technology
- High capacity of flex sheet drilling of 2 side-by-side panels simultaneously
- Superior quality and accuracy - minimal spot size down to 15µm with high accuracy down to 12µm (3σ)
- Support of TH and BV drilling through copper, polyimide, liquid crystal polymer (LCP), adhesive and cover layers

 Multi-Path™ Technology

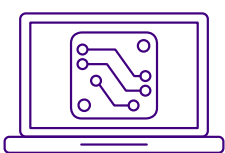
 Roll Inside™ Technology

 CBU™ Technology

**Orbotech Apeiron™ 800** – up to 260mm roll and sheet width

**Orbotech Apeiron™ 800XT** – up to 520mm roll width and 2 pieces of 520mm x 260mm sheet width or 1 piece of 520mm x 520mm sheet width

## CAM, Engineering and Industry 4.0 Software Solutions



**Frontline InShop®** – Industry 4.0 system for the shop floor

**Frontline InCAM®Pro** – It's a new CAM era

**Frontline InFlow™** – All-in-one engineering automation

**NEW Frontline Cloud Services** – Boost the PCB CAM workflow dramatically via a cloud-based solution

**Frontline InSight PCB®** – Fast and accurate web-based pre-CAM solution for sales and engineering

### 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.

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