Orbotech Paragon™ Ultra 300

Direct Imaging for IC Substrates

Orbotech Paragon Ultra 300

Orbotech Paragon Ultra 300 is a direct imaging (DI) solution, optimized for complex IC substrate applications including flip-chip BGA, advanced flip-chip CSP, BGA/CSP and modules manufacturing.

This solution features KLA's field-proven Large Scan Optics (LSO)™ Technology which can image ultra-fine lines down to 8µm and a pitch down to 20µm at a throughput of up to 110 prints per hour.

Benefits

High Imaging Quality for IC Substrate Manufacturing

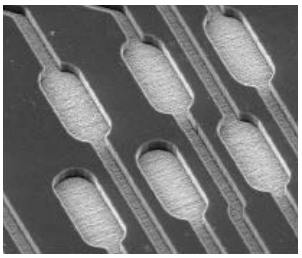
- Highly-uniform, fine-feature imaging using LSO technology
- Various scaling modes for complex applications
- High registration accuracy of ±5µm
- Supports SAP, mSAP and subtractive processes

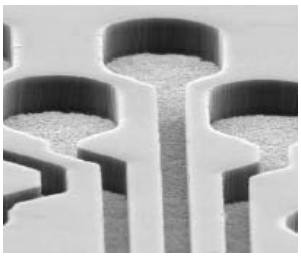
Ease of Use

- Intuitive and user-friendly interface for fast setup
- Recognition of a wide array of different target types
- Optional target generation with integrated UV marker
- Exceptional results on both conventional UV and DI resists

Automated Operation

- Minimized handling for increased efficiency
- Flexible configuration: stand-alone, in-line or robotic system
- Seamlessly integrated automation
- Clean, handling-free environment





Fine lines/spaces down to 8/12µm

Technologies

LSO™ Technology

High Imaging Quality for IC Substrate Manufacturing

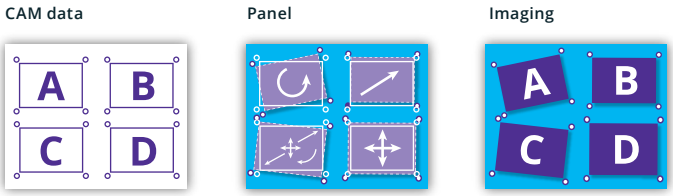
Orbotech Paragon Ultra 300 is a direct imaging system specially-designed for the production of IC substrates. It is proven in a variety of processes including semi-additive, modified versions of semi-additive and subtractive. Utilizing KLA's LSO technology, the high level of imaging quality is ensured at fine resolutions. A variety of scaling modes flexibly accommodate a range of complex applications with feature sizes down to 8µm and minimum pitch of 20µm. The system achieves registration accuracy and tight annular rings within ±5µm.

Registration Accuracy

- Side-to-side registration of 10µm for inner layers
- Annular ring (±5µm, FTG) and imaging of smaller landing pads

Innovative Scaling Modes

- Each panel can be scaled according to its distortion using: auto scale, fixed scale, group scale or fixed measure scale
- For heavily distorted panels: Partial scaling in one shot for effective and accurate sub-area registration



Partial scaling enables sub-area registration and printing in one shot

Ease of Use

Operating Orbotech Paragon Ultra 300 is fast and easy with its user-friendly interface. Job setup is performed in an intuitive, step-by-step procedure utilizing downloaded CAM data. The system automatically recognizes a wide array of different target types. Optionally, targets can be generated with an integrated UV marker. At the press of a button, Orbotech Paragon Ultra 300 images each panel at full production throughput according to user-defined parameters. Exceptional results are achieved on either conventional UV or DI resists.

Automated Operation

Orbotech Paragon Ultra 300 is available in in-line and stand-alone automated configurations to suit various production requirements. It operates in a clean, hands-free environment for minimized handling damage and increased efficiency. It is also specially-designed as a lighter weight system with a small footprint to save on operational costs.

Specifications

Minimum Line/Space*	8/12µm
Address Resolution	1µm
Edge Roughness (3σ)*	±1µm
Registration Accuracy (FTG)**	±5µm
Side to Side Registration (FTB)**	10µm
Maximum Throughput***	110 prints/hour
Maximum Substrate Size	558mm x 660mm
Maximum Image Size	508mm x 609mm
Substrate Thickness****	0.05mm-3mm
Imaging Energy Range	10-2,200mJ/cm²

* Depends on dry film properties and process capabilities
** All values are 3σ, full format, 4-target-registration
*** Throughput: 500mm x 400mm, 4 symmetrical targets, 6sec load/unload
**** Including DFR or solder resist thickness

Orbotech Paragon Ultra LDI systems are class-1 laser products.
Laser specification: UV diode pumped solid state laser, 355nm.
The above specifications are subject to change without notification.

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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Rev 9.0_5-25-2022