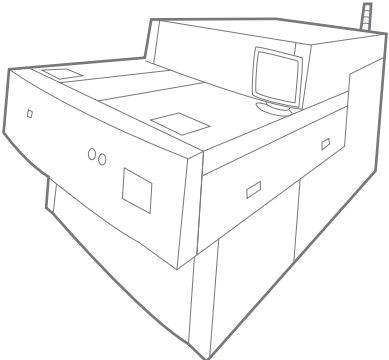


# Paragon™ - Ultra Family

Laser Direct Imaging for IC Substrates

PCB Production Solutions



## Paragon™ - Ultra Family

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Featuring the leading-edge performance of Orbotech's Large Scan Optics (LSO) Technology™, Paragon-Ultra Laser Direct Imaging (LDI) systems deliver the highest imaging accuracy and yields for today's most complex IC substrate applications including Flip-Chip BGA, Flip-Chip CSP, BGA/CSP and modules manufacturing.

### Benefits

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#### Highest Imaging Quality for IC Substrate Manufacturing

- High uniformity, fine-feature imaging using LSO Technology™
- Minimum feature size down to 12µm, minimum pitch of 30µm
- Innovative scaling modes for complex applications
- Registration accuracy down to ±5µm
- Supports SAP, MSAP & subtractive processes

#### Ease of Use

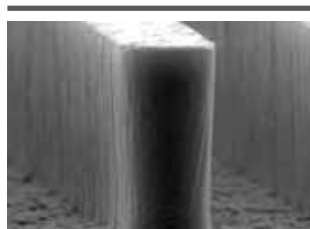
- Intuitive and user-friendly interface for fast set-up
- Recognizes a wide array of different target types
- Optional target generation with integrated UV marker

#### Automated Operation

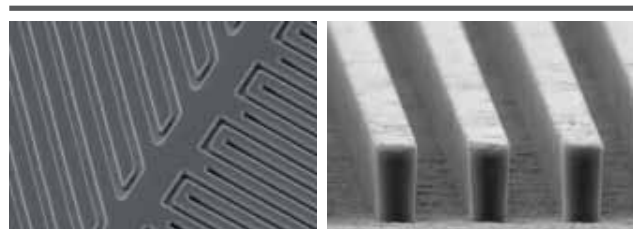
- Minimized handling for increased efficiency
- Flexible configuration – stand-alone, in-line or robotic system
- Seamlessly integrated automation
- Clean, handling-free environment



Pitch 30µm



Feature size 12µm



Line and Space of 12/18µm, Pitch 30µm



## Highest Imaging Quality for IC Substrate Manufacturing

Paragon-Ultra is specially-designed for the production of IC substrates and proven in a variety of processes including semi-additive, modified versions of semi-additive and subtractive. Utilizing the leading-edge capabilities of Orbotech's LSO Technology™, the highest level of imaging quality is ensured at fine resolutions. Innovative Scaling modes flexibly accommodate a range of complex applications with feature sizes down to 12µm and minimum pitch of 30µm. The system achieves registration accuracy and tight annular rings within ±5µm.

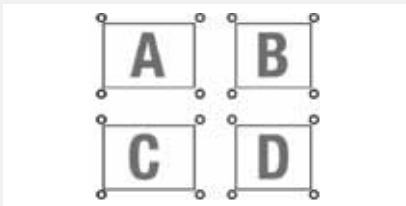
### Registration Accuracy

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

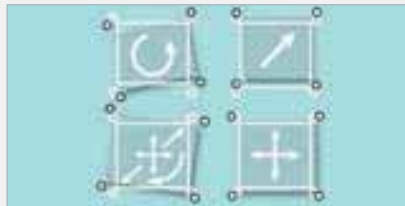
### Innovative Scaling Modes

- 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

CAM Data



Panel



Imaging



Partial Scaling enables sub-area registration and printing in one shot.

## Ease of Use

Operating Paragon-Ultra 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, Paragon-Ultra images each panel at full production throughput according to user-defined parameters. Exceptional results are achieved on either conventional UV or LDI resists.

## Automated Operation

Paragon-Ultra systems are available in in-line and stand-alone automated configurations to suit your production requirements. Paragon-Ultra 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.