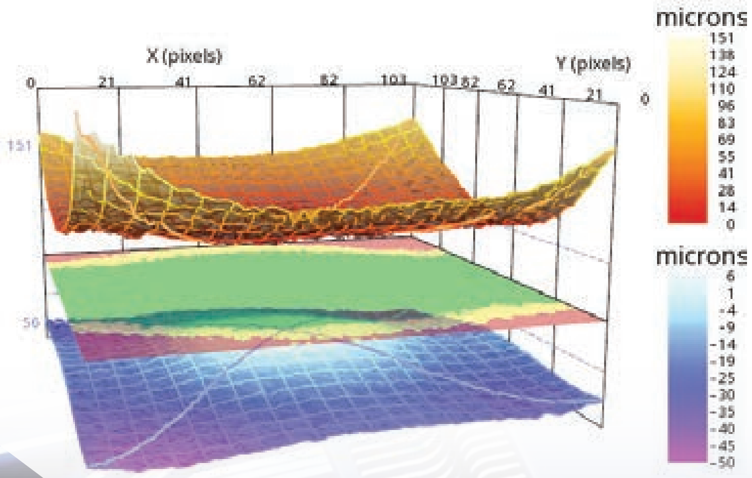
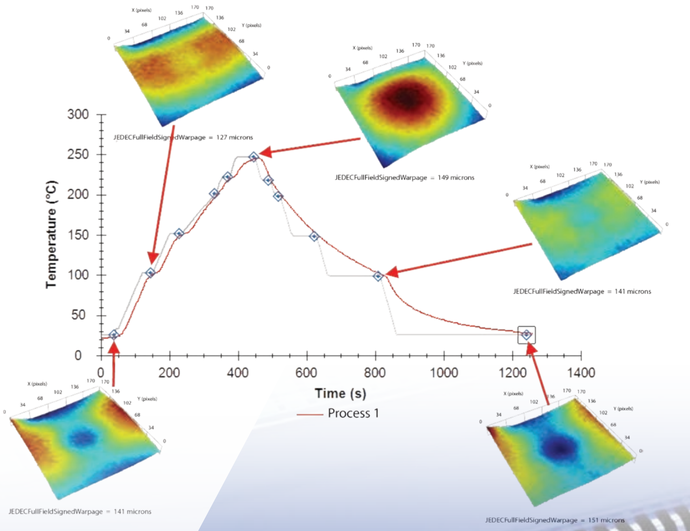
akrometrix

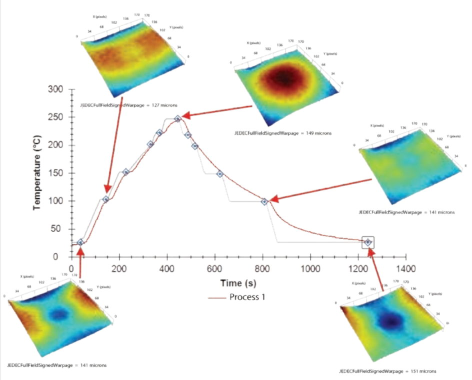
THERMAL WARPAGE AND STRAIN METROLOGY





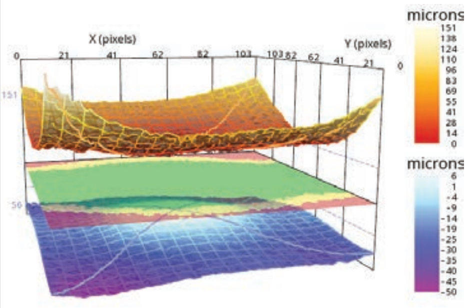
www.akrometrix.com
sales@akrometrix.com

Our Capabilities



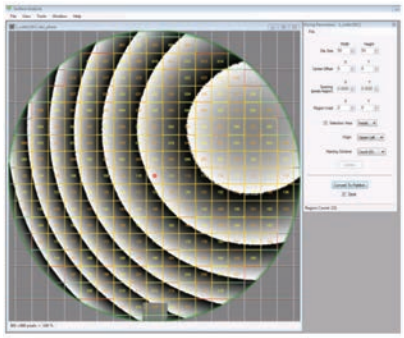
Warpage Metrology over a Temperature Profile

- – 50°C to 300°C
- Die, Components, PCBs, stacked die, wafers, wafers on film frame, panels
- z resolution down to 0.85um
- full field image capture in less than 2 seconds
- substances from 2mm x 2mm to 610mm x 600mm



Interface Analysis

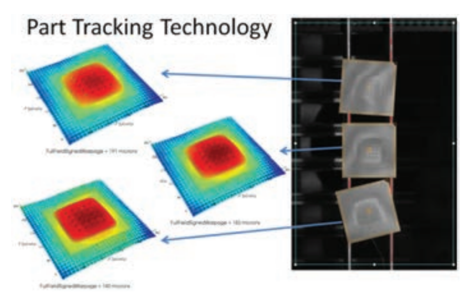
Software feature that predicts how well two substrates/ dies/boards will fit/mate/interface over a temperature profile. This is especially helpful for calculating the warpage effects of dissimilar materials that are placed together.



Global or die level warpage results

Array Generator

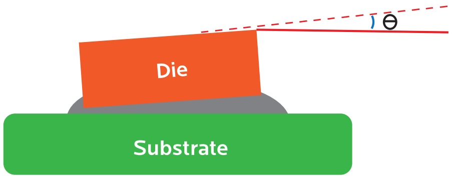
Software feature that takes a large area and divides into sub-areas. This allows for global warpage metrology as well the sub-area warpage metrology. Both measurements are simultaneous.



Part-Tracking

This feature allows the placement of multiple parts into the oven and warpage metrology measured on each individual part simultaneously. The software finds each individual component, compensates for rotation and reports warpage data on each individual component. The only limitation on number of components is how many can fit into the oven.

Single Die Tilt: Die Attach Tilt, ϴ should be less than 1°:



Die Tilt Analysis

This system measures the relative angle between 2 surfaces. Useful in determining how well the mating components remained “flat” during reflow or die attach and is especially useful in multi-layer products.

Our Products

AXP 2.0

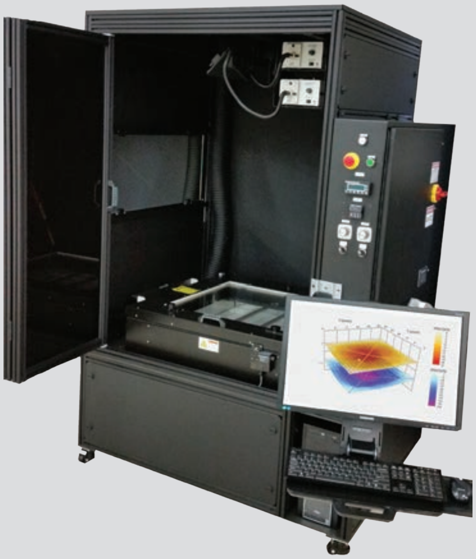
- Shadow moiré technology for thermal warpage metrology
- Substrates up to 375mm x 400mm
- z-resolution down to 0.85um
- -50°C to 300°C

PS200S

- Shadow moiré technology for thermal warpage metrology
- Substrates up to 200mm x 200mm
- z-resolution down to 0.85um
- 25°C to 300°C

PS600S

- Shadow moiré technology for thermal warpage metrology
- Substrates up to 610mm x 600mm
- z-resolution down to 1.5um
- 25°C to 300°C



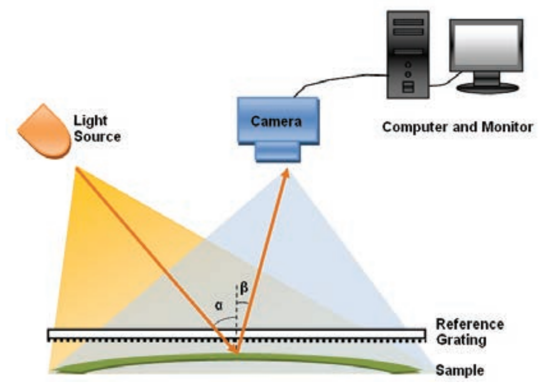
AKM600P

- Shadow moiré technology for thermal warpage metrology specifically for FOWLP - panels or wafers
- Substrates up to 610mm x 600mm
- z-resolution down to 1.5um
- 25°C to 300°C

TT-SM

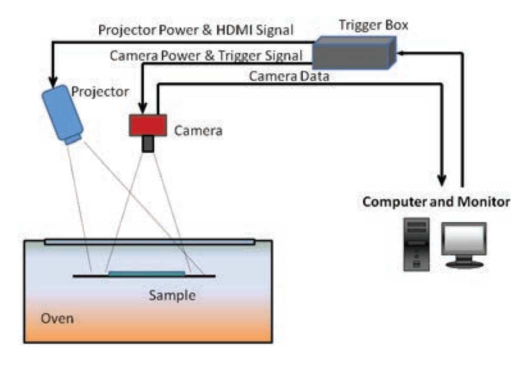
- Table Top, room temperature only shadow moiré warpage metrology
- Substrates up to 325mm x 300mm
- z-resolution down to 0.85um

Modules



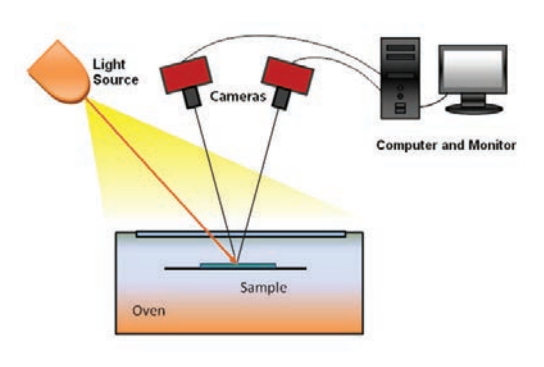
Shadow Moiré

Each of our systems uses shadow moiré as its base technology for thermal warpage metrology. Optional modules can be inserted into various systems to add capabilities utilizing different measurement techniques.



DFP Module

Digital Fringe Projection (DFP) can be added to either the AXP 2.0, PS600S or AKM600P for measurement of discontinuous surfaces. The additional technique is helpful in measuring substrates with large step changes in surface height.



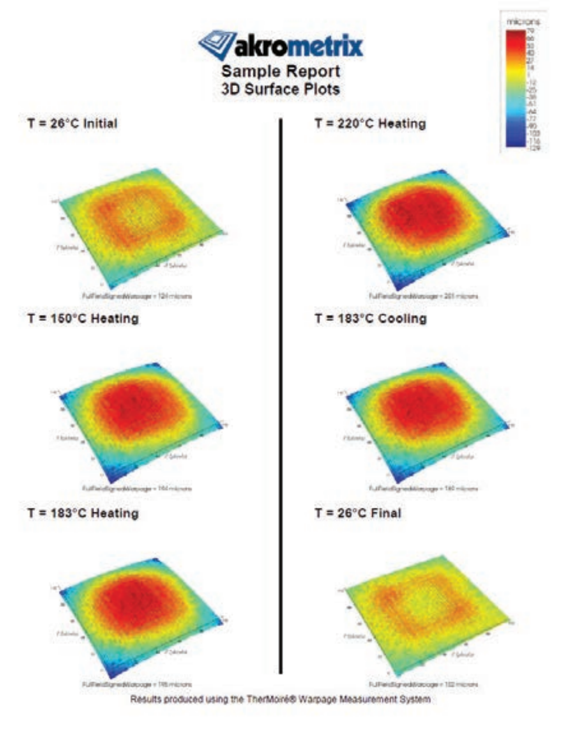
DIC

Module Digital Image Correlation (DIC) can be added to the AXP 2.0 or PS200S that allows thermal strain (x, y) measurement of substrates down to 150 microstrain.

CRE

Convective Reflow Emulator (CRE) can be added to the AXP 2.0. It’s convective oven allows for simulation of reflow oven uniformity and heating rates.

Test Services



Sample Report
3D Surface Plots

T = 26°C Initial

T = 220°C Heating

T = 150°C Heating

T = 183°C Cooling

T = 183°C Heating

T = 26°C Final

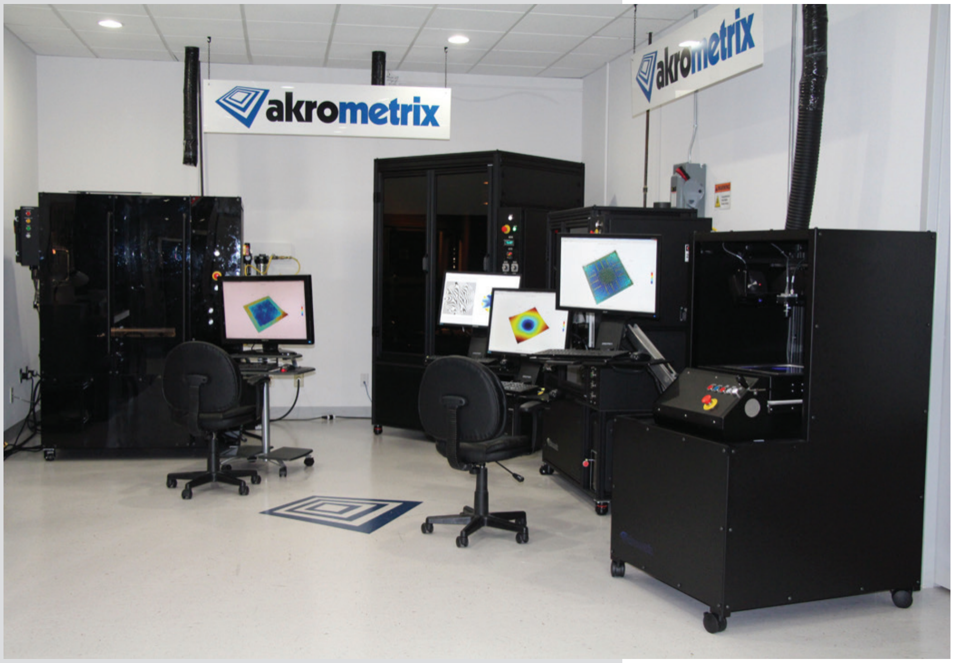
Results produced using the TherMoiré® Warpage Measurement System

Akrometrix offers fast, flexible and accurate test services for:

- Flatness, warpage & coplanarity of PCBs, substrates, ICs, packages, whole wafers and wafers on film frame
- In-plane deformation (strain) and CTE measurement
- Form factors ranging from 2x2mm to 600x600mm
- Dynamic temperature profiling from -50°C to 300°C

Test Services are performed at our state-of-the-art applications lab in Atlanta, Georgia, utilizing our latest generation equipment.

Turnaround times range from 2-10 days, dependent on volume of testing required.



Akrometrix, LLC
2700 NE Expressway
Building B, Suite 500
Atlanta, GA 30345

www.Akrometrix.com
Sales@Akrometrix.com
Service@Akrometrix.com
1.404.486.0880

Our Mission

We strive to be the Global Technology Leader in Thermal Warpage and Strain Metrology.

We act with a sense of urgency to our customer needs, are innovative in our product development and are responsive to our ever-changing industry.

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