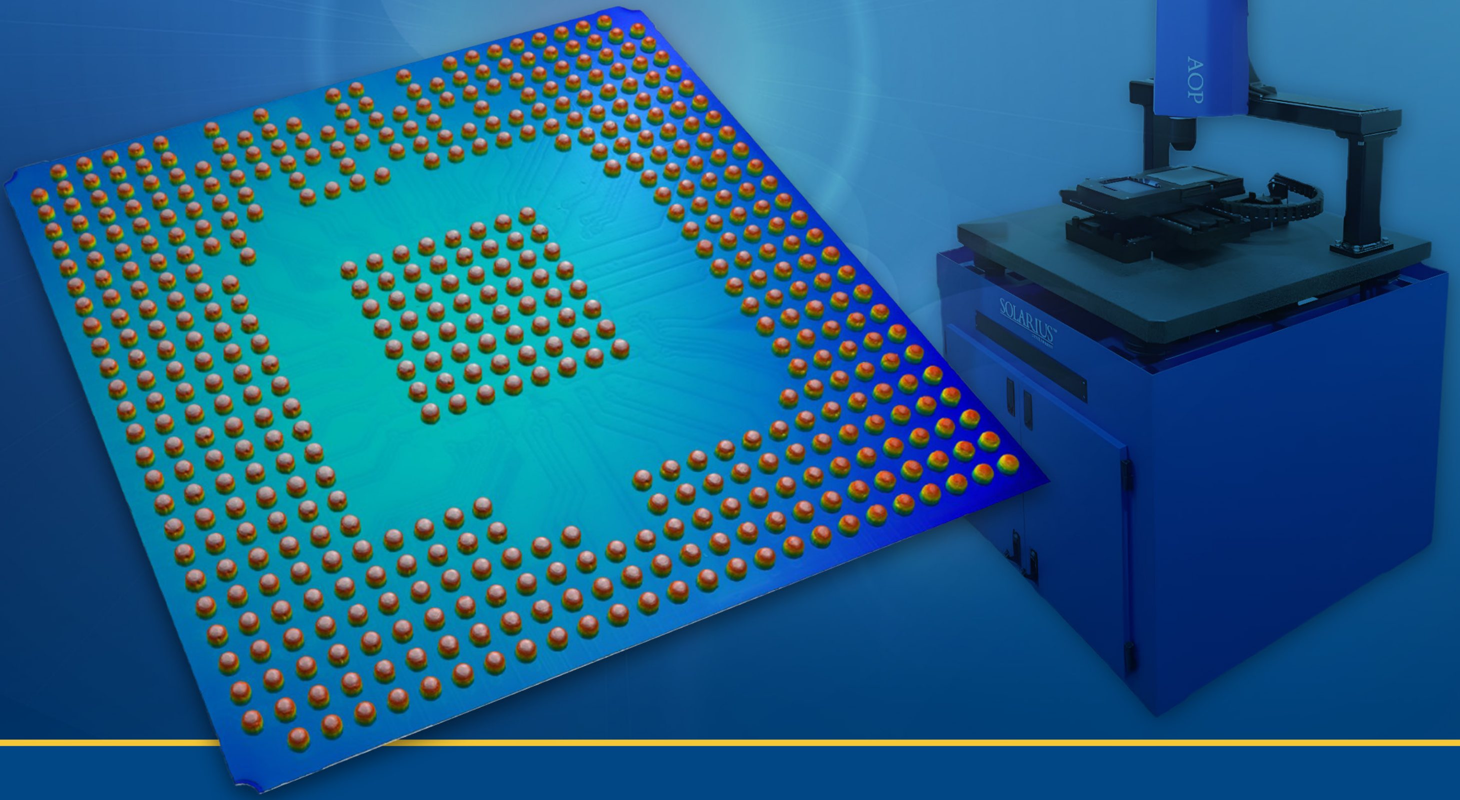
## Bump Height, Coplanarity and Warpage.




# AOP-BGA

## Optical Inspection of BGA (Ball Grid Array) bumps

Shorter routing path and efficient heat dissipation are some of the reasons why packaging industry relies on wafer level bumps and solder bumps.

In order to guarantee efficient interconnection, bump height, warpage and coplanarity are crucial measurement. In addition to bump size shrinking and bump density increasing, quality control is becoming more challenging. SOLARIUS AOP-BGA is a complete tool to accurately measure height, position, and other dimensional information of the ball with a diameter of less than 20 µm. Reliable check on all size ranges contacts are guaranteed.

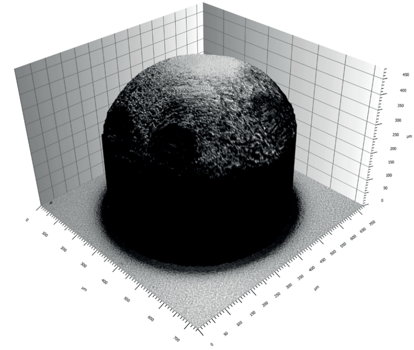
SOLARIUS™

Extending the scope of 3D Measurement

# Packaging **Quality Control**

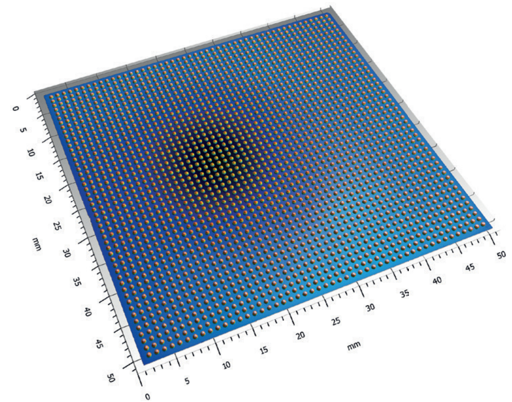
## Bump Geometry

Interconnection Quality is guaranteed by correct amount of soldering material. In order to determine soldering amount and then volume of the bumps it's important to measure bump height and diameter. In addition missing bump or incorrect positions are also an important quality check. Solarius AOP-BGA allows precise measurement bump shape even at low spacing and on steep slopes.



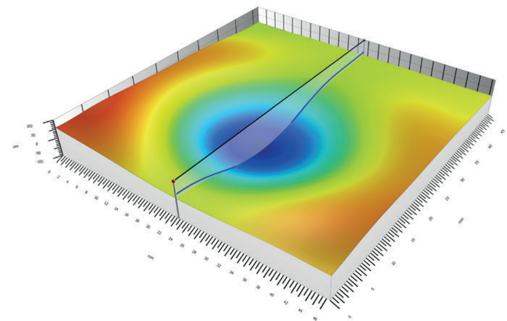
## Coplanarity

Not only the height of individual bumps is important, but also their heights in combination. A component equipped with bumps always lies on three points, which define the so-called „Seating Plane". The height deviation of all other solder points from the seating plane is understood as „seating plane coplanarity". If this value is too high, it can no longer be guaranteed that a suffcient electrical contact is es- tablished after reflow soldering, which is why coplanarity monitoring is an essential component in the process chain. Besides the seating plane, other reference planes are also useful, such as the global pla- ne, which is determined as a least-square plane by all bumps. Those values can all be obtained within one "shot" via Solarius technology.



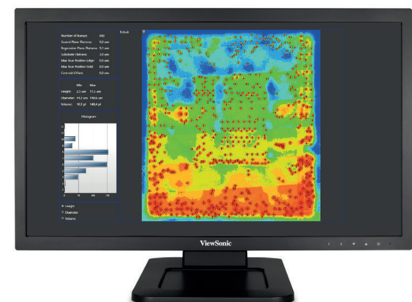
## Substrate Flatness

The coplanarity values are the result of the individual bump heights combined with the flatness of the substrate. This flatness is determi- ned at the same time as the measurement of the bump heights and provides information on the previous production processes.



## Software

Software that complies with common standards in the semiconductor industry is a basic requirement for the integration of BGA measuring systems into your process environment. The SolarScan NT software from Solarius offers a high degree of automation, simple recipe creation, automatic evaluations based on good/bad criteria and the export of all results obtained.





**Solarius Asia**

**Solarius Trading (Shanghai) Limited**

Unit C102, Block, Li Fung Plaza,
2000 Yishan Road
Shanghai 201103, China

inquiry@solarius-asia.com

**Solarius Europe**

**Solarius GmbH**

Nünningstr. 13
D-45141 Essen
Tel: +49 (0) 89 1800 6254

info@solarius-europe.com

**Solarius USA**

**Solarius Development Corp.**

2360B Qume Drive
San Jose, CA 95131
+1-408-435-2777

sales@solarius-inc.com

SOLARIUS™

**www.solarius-global.com**


240731_AOP BGA_NA_EN_v 1