

## ○ Success Story – Socket Metrology

### Type of Customers

CyberOptics supplied multiple SQ3000 systems to leading international technology companies for socket metrology (solder ball and contact pin inspection), semiconductor jig, mobile phone sensor (light), and an ambient sensor inspection.

### Our Customers' Requirements

An inspection solution was needed that provided **stable, robust, and accurate metrology** to inspect parts faster and easier than was presently being done on CMM (coordinate measurement) machines. Inspection cycles were 5 minutes to measure 30 contact points, or balls; more than 5 hours for 2006 contact points, and more than 10 hours for more than 3,000 contact points.

With the number of pins increasing from year to year, a **new solution was needed to improve inspection speeds**, and the percentage of samples inspected – which was less than 5 percent.

Traditional CMM software, while comprehensive, was not the best solution. It was too slow; programming took too long, as did operator training. CMM machines require repeated adjustments to lighting, focus, illumination angle, and other parameters. This requires a major investment in engineering resources.

Socket inspection machines, while they could handle high volume manufacturing (HVM), were not capable of inspecting new socket design (a larger size than previously) due to the field of view (FOV) size limitation. HVM machines have limited measurement capabilities (such as x/y offset, and height measurements without any datum), and are limited in other critical measurements.

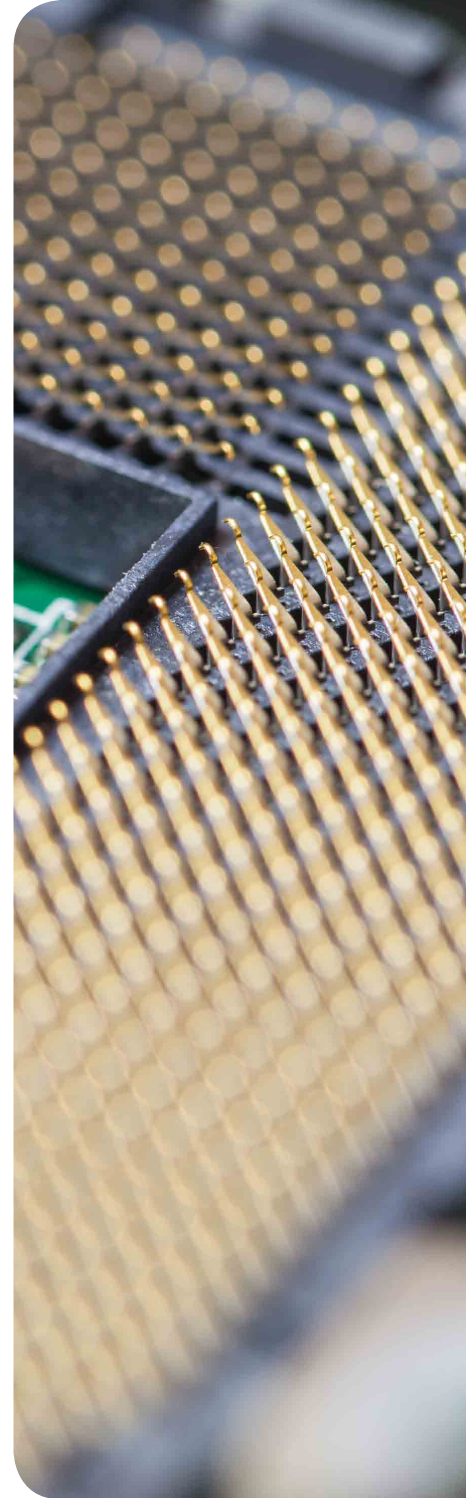
### Our Solution – The CyberOptics SQ3000™ CMM System

Using our proprietary Multi-Reflection Suppression (MRS) 3D sensor technology and **advanced measurement algorithms**, the SQ3000 can inspect all parts and CTFs (critical to function) in **a socket inspection that takes less than 13 seconds**, while a CMM machine would take 8 hours.

Inspection **performance is comparable to current CMM machines** with 6 µm in 3 sigma for all measurements.

The SQ3000 uses a **precision gantry system** to scan a wider range of socket/part sizes than possible with a CMM machine, providing a much **more complete view of the socket**. With easy programming, and a customized CMM user interface, **time and training costs are reduced**, as well as the engineering overhead previously required for correlation and matching.

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## The Result

All objectives were met: the speed and accuracy of inspections were increased, and the percentage of samples inspected rose dramatically. With greater automation, operator intervention and training costs were reduced. Improvements in our customers' quality control enhanced the impression of their customers.

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For more information on CyberOptics products, services, or solutions, visit our website at [www.cyberoptics.com](http://www.cyberoptics.com).



Contact CyberOptics today for more information

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