CyberOptics to Present '100% Wafer Bump Metrology and Inspection' Technical Paper at the SEMICON Taiwan SiP Global Summit 2020

Minneapolis, Minnesota — September 3, 2020 — CyberOptics® Corporation (NASDAQ: CYBE), a leading global developer and manufacturer of high-precision 3D sensing technology solutions, will present at the SEMICON Taiwan Global SiP Summit on September 24, 2020 at 4:20pm. Tim Skunes, VP of R&D at CyberOptics, will share the technical presentation 'Fast, 100% 3D Wafer Bump Metrology and Inspection to Improve Yields and 3D System Integration'.

Advanced Packaging (AP) and wafer level packaging (WLP) continue to be among the most dynamic and rapidly evolving areas of semiconductor development and manufacturing. Most of these new processes take advantage of the third dimension, going vertical to continue packing more computing power into less space while circumventing the difficulties posed by further reductions in two-dimensional size. Packaging stacks include various configurations of single or multiple chips, interposers, flip chips and substrates, but in almost all cases, they rely on some form of bump to make the vertical connections between these components. The bumps may be solder balls, copper pillars or microbumps.

As the processes and features they create have become smaller and more complex, manufacturers face an increasing need for high-precision inspection and measurement to detect defects and improve process control. This need is amplified by the fact that these processes use expensive known good die, making the cost of failure extremely high. Bump metrology is fundamentally three-dimensional and bump height is just as important as size and location. Controlling bump height, both absolute and relative to neighboring bumps (coplanarity), is critical to ensuring good, reliable connections between stacked components.

Multiple Reflection Suppression™ (MRS™) sensor technology addresses this challenge by comparing data from multiple perspectives and fringe frequencies to identify and reject these spurious signals. The MRS sensor's unique optical architecture and the system's proprietary image fusing and processing algorithms provide accurate 3D characterization that is several times faster than conventional PSP. The NanoResolution MRS sensor has been developed for advanced packaging process control in what has been called the "middle-end" of the manufacturing process, where traditionally front-end and back-end processes overlap.

The MRS sensor integrated into CyberOptics' WX3000™ system provides sub-micrometer accuracy on features as small as 25µm. While retaining its ability to reject spurious multiple reflections, it adds the ability to capture and analyze specular reflections from shiny surfaces of solder balls, bumps and pillars, allowing accurate inspection and 3D metrology of these critical packaging features.

The MRS sensor is 2-3X faster than alternative technologies. With data processing speeds in excess of 75 million 3D points per second, it delivers production-worthy throughput greater than 25 wafers (300mm) per hour. Complete 100% 3D/2D inspection can be accomplished at high speed for bump metrology, vs. the current practice of sampling approach. Both 3D/2D data is attained at the same time vs. time-consuming alternate methods that require separate scans for 3D and 2D.

For more information, visit www.cyberoptics.com or booth #L0310 at Semicon Taiwan from September 25-26.

About CyberOptics
CyberOptics Corporation (www.cyberoptics.com*)* is a leading global developer and manufacturer of high-precision 3D sensing technology solutions. CyberOptics' sensors are used for inspection and metrology in the SMT and semiconductor markets to significantly improve yields and productivity. By leveraging its leading edge technologies, the Company has strategically established itself as a global leader in high precision 3D sensors, allowing CyberOptics to further increase its penetration of key vertical markets. Headquartered in Minneapolis, Minnesota, CyberOptics conducts worldwide operations through its facilities in North America, Asia and Europe.

Statements regarding the Company's anticipated performance are forward-looking and therefore involve risks and uncertainties, including but not limited to: a possible world-wide recession or depression resulting from the economic consequences of the Covid-19 pandemic; the negative effect on our revenue and operating results of the COVID-19 crises on our customers and suppliers and the global supply chain; market conditions in the global SMT and semiconductor capital equipment industries; trade relations between the United States and China and other countries; the timing of orders and shipments of our products, particularly our 3D MRS-enabled SQ3000 Multi-Function systems and MX systems for memory module inspection; increasing price competition and price pressure on our product sales, particularly our SMT systems; the level of orders from our OEM customers; the availability of parts required to meet customer orders; unanticipated product development challenges; the effect of world events on our sales, the majority of which are from foreign customers; rapid changes in technology in the electronics and semiconductor markets; product introductions and pricing by our competitors; the success of our 3D technology initiatives; the market acceptance of our SQ3000 Multi-Function inspection and measurement systems and products for semiconductor advanced packaging inspection and metrology; costly and time consuming litigation with third parties related to intellectual property infringement; the negative impact on our customers and suppliers due to past and future terrorist threats and attacks and any acts of war; and other factors set forth in the Company's filings with the Securities and Exchange Commission.

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For additional information, contact:

Carla Furanna
Head of Global Marketing, CyberOptics
952-820-5837, cfuranna@cyberoptics.com