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STMicroelectronics and Advantest Collaborate on Advanced Automated Test Cell for IC Testing

- *Custom designed system applies Industry 4.0 concepts to minimize downtime and cost of ownership while improving automation, quality, and yield in semiconductor testing operations*
- *Combines advanced test equipment, autonomous loading vehicles, with full control and monitoring software for seamless operation and improved performance*

Tokyo, Japan and Geneva, Switzerland, November 30, 2020 -- Leading semiconductor test equipment supplier Advantest Corporation (TSE: 6857) and STMicroelectronics (NYSE: STM), a global semiconductor leader serving customers across the spectrum of electronics applications, announced that they have jointly developed an advanced, fully-automated final-test cell system that improves overall equipment efficiency and quality in semiconductor test and packaging operations. The pilot system has been deployed at ST's back-end fab in Muar, Malaysia.

The advanced test cell is comprised of Advantest's T2000 SoC test system and M4841 tri-temp automotive handler, equipped with a fleet of Autonomous Robotic Vehicles (ARVs) programmed to move trays of devices between the material repository and handler, all under the control of an ST Test Cell Controller (STCC). The jointly developed test cell incorporates a broad range of predictive-maintenance and operational features that minimize downtime, while ensuring full lot traceability and smart re-testing.

The STCC software monitors and controls the tester and handler while interfacing with ST's Manufacturing Execution System (MES), a real-time Industry 4.0 tracking system that manages work-in-process and equipment activity across the factory floor. The combination of test-cell hardware and software enables fully automated test operations that apply machine learning and smart monitoring to increase yields and overall equipment effectiveness (OEE), while cutting cost-of-ownership (COO).

The M4841 handler incorporates a comprehensive set of features, including auto speed optimization, auto socket cleaning, a belt-tension monitoring, an ESD protection, and multiple laser sensors that detect errors and make autonomous corrections.

"We have numerous ongoing projects addressing automation, analytics, and robotization across our global back-end operations, all designed to make our manufacturing processes more efficient and to meet the increasingly complex needs of our customers," said Fabio Gualandris, Executive Vice President, Head of STMicroelectronics' Back-End Manufacturing & Technology organization. *"The close collaboration with Advantest is a good example of what can be achieved to support a network of fabs that tests billions of chips a year."*

“Helping our customers achieve a fully ‘lights off’ automated semiconductor test production floor is one of our strategic goals,” said Yoshiaki Yoshida, Advantest President and CEO. “We are proud to partner with ST on this venture, which enables them to achieve their operational goals of employing ARVs and overhead transport to strategically improve their test-floor efficiencies,” he continued. “Advantest’s test cell is designed for this purpose, with our M4841 handler delivering an abundance of unique intelligent features that give customers a significant advantage in an evolving semiconductor supply chain.”

About STMicroelectronics

At ST, we are 46,000 creators and makers of semiconductor technologies mastering the semiconductor supply chain with state-of-the-art manufacturing facilities. An independent device manufacturer, we work with our 100,000 customers and thousands of partners to design and build products, solutions, and ecosystems that address their challenges and opportunities, and the need to support a more sustainable world. Our technologies enable smarter mobility, more efficient power and energy management, and the wide-scale deployment of the Internet of Things and 5G technology. Further information can be found at www.st.com.

About Advantest

Advantest (TSE: 6857) is the leading manufacturer of automatic test and measurement equipment used in the design and production of semiconductors for applications including 5G communications, the Internet of Things (IoT), autonomous vehicles, artificial intelligence (AI), machine learning, smart medical devices and more. Its leading-edge systems and products are integrated into the most advanced semiconductor production lines in the world. The company also conducts R&D to address emerging testing challenges applications, produces multi-vision metrology scanning electron microscopes essential to photomask manufacturing, and offers groundbreaking 3D imaging and analysis tools. Founded in Tokyo in 1954, Advantest is a global company with facilities around the world and an international commitment to sustainable practices and social responsibility. More information is available at www.advantest.com.

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