Amkor Factory Intelligence Enables Industry 4.0

TEMPE, Ariz., February 23, 2021 — Amkor Technology, Inc. (Nasdaq: AMKR), a leader in advanced packaging technologies that support high-growth markets, including smartphones and 5G, advanced automotive systems, high-performance computing and consumer IoT, recently unveiled new measures that help the company achieve Industry 4.0 initiatives, extending its leadership in quality and efficiency excellence.

Leveraging artificial intelligence, machine learning and interconnected systems, Industry 4.0 challenges companies to surpass factory automation and achieve factory intelligence. The goal of factory intelligence is to improve product and service quality, decision making speed on the factory floor and utilization of high-value assets.

Amkor now uses real-time, in-process decision making to drive gains in quality, asset utilization and efficiency. The application of Industry 4.0-era tools reduces cycle times for advanced packaging processing.

"Amkor's most advanced factories exemplify Industry 4.0," said Umesh Manathkar, Amkor Corporate VP and CIO. "K5 in Incheon is a superb example of a factory that is truly interconnected, automated and enriched with artificial intelligence and real-time big data analytics."

With deeply integrated systems, K5 has increased efficiency on the factory floor and throughout the manufacturing process. Amkor is now able to apply lessons learned from K5 planning, construction and operation to other facilities as they are upgraded.

Amkor aligns to an eight-pillar structure to ensure success in Industry 4.0. Five of the pillars are foundational, while three enable an intelligent factory framework. The foundational technology pillars are:

1) Autonomous machines and material handling
2) Industrial IoT for universal connectivity
3) Universal system integration with all backbone systems
4) Image analytics based on Artificial Intelligence and Machine Learning (AI/ML)
5) Big data analytics for correlating structured and unstructured data in near real time
6) Cybersecurity to protect enterprise data and intellectual property
7) Simulation to allow experimentation with manufacturing scenarios
8) Cloud computing, which enables scaling up of data gathering, analysis and decision making

By applying weighted scoring to continually monitor plant progress toward the automation goals supported and enabled by these pillars, Amkor has adopted a reliable standard for gauging Industry 4.0 readiness.

Since implementing Industry 4.0 initiatives, Amkor has seen a 60% improvement in productivity for process engineers from Engineering Data Analytics (EDA), and Fault Detection & Classification (FDC) will enable real-time quality control, which ties directly to quality improvements.

Amkor's QualityFIRST continuous improvement program is the cornerstone of its commitment to deliver zero-defect products. This is especially relevant for the automotive market, which demands zero defects in the component manufacturing process. Leveraging the intelligent factories of Industry 4.0 is a way to achieve zero-defect quality for automotive and other high-stakes applications.

"It's never been easier to take defects out of the manufacturing process," Manathkar continued, "and this is just one example. The Industry 4.0 innovations Amkor is leveraging yield improvements in every part of the manufacturing lifecycle."

Another example of the impressive possibilities unleashed by Industry 4.0 is unit-level traceability (ULT), a long-desired capability for many customers. With ULT, Amkor maintains visibility into materials and processes at every stage. Delivering the ULT data via standard B2B formats and delivery protocols further strengthens supply chain traceability.

Amkor continues to empower its customers with solutions that embrace proven new technologies. By transforming its factories into highly intelligent, automated systems, Amkor is leveraging Industry 4.0 tools to stay future-ready while delivering near real-time data accuracy with maximum efficiency.

About Amkor Technology, Inc.

Amkor Technology, Inc. is one of the world's largest providers of outsourced semiconductor packaging and test services. Founded in 1968, Amkor pioneered the outsourcing of IC packaging and test and is now a strategic manufacturing partner for the world's leading semiconductor companies, foundries and electronics OEMs. Amkor's operational base includes production facilities, product development centers and sales and support offices located in key electronics manufacturing regions in Asia, Europe and the USA. For more information, www.amkor.com.

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