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EVG expands collaboration with ITRI on heterogeneous integration process development – September 1, 2022

News: Suppliers

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EV Group of St Florian, Austria – a supplier of wafer bonding and lithography equipment for semiconductor, micro-electro-mechanical systems (MEMS) and nanotechnology applications – has expanded its collaboration with the Industrial Technology Research Institute (ITRI) in Hsinchu, Taiwan on developing advanced heterogeneous integration processes.

With the support of Taiwan's Department of Industrial Technology (DoIT) of the Ministry of Economic Affairs (MOEA), ITRI established the Heterogeneous Integration Chip-let System Package Alliance (Hi-CHIP) to help create an ecosystem covering package design, testing and verification, and pilot production, to achieve the goal of supply chain localization and expand business opportunities. As a member of the Hi-CHIP Alliance, EVG has provided several of its most advanced wafer bonding and lithography systems, including the LITHOSCALE maskless exposure lithography system, EVG850 DB automated debonding system, and GEMINI FB hybrid bonding system. The installation of these high-volume-manufacturing platforms at ITRI's facility should help enable EVG's and ITRI's shared customers to accelerate the development and transfer of new heterogeneous integration processes from R&D to customers' fabs.

In semiconductor manufacturing, 3D vertical stacking and heterogeneous integration – the manufacturing, assembly and packaging of multiple different components and dies into a single device or package – are increasingly important for higher performance beyond transistor scaling. 3D and heterogeneous integration are enabling high-bandwidth interconnects in advanced packaging to achieve overall system performance gains, and thus have become a crucial driver for artificial intelligence (AI), autonomous driving and other high-performance computing applications. As a result, the MOEA is proactively following up and bridging the resources with national-scale R&D projects such as 'AI Chip Heterogeneous Integrated Module Advanced Manufacturing Platform' and 'Programmable Heterogeneous 3D Integration'.

"As part of ITRI's mission to drive industrial development, create economic value, and enhance social well-being through technology R&D, we focused on developing new 3D and heterogeneous chip integration processes and forging close cooperation across the supply chain to enable continued

development and growth of the semiconductor industry," says Dr Robert (Wei-Chung) Lo, deputy general director of Electronic and Optoelectronic System Research Laboratories at ITRI. "Having the same fully automated high-volume-manufacturing systems in our research facility that our customers have in their fabs, including these new wafer bonding and lithography solutions from EV Group, enables our customers to immediately transfer process recipes developed at ITRI to their own fabs – providing short ramp-up time from lab to fab," he adds.

"Key to our Triple-i philosophy of invent-innovate-implement is our focus on engaging with world-leading research institutes, like ITRI, to accelerate the development and commercialization of new technologies that drive future innovations in the semiconductor industry," says Hermann Waltl, executive sales & customer support director and member of the executive board at EVG. "Our ongoing collaboration with ITRI gives us access to world-class research expertise and further enhances our process support infrastructure in Taiwan, which EVG has significantly expanded over the years to better meet the growing needs and challenges that our customers and partners in the region face. This includes our exceptional process and application engineering team based in multiple locations across Taiwan, which complements the services provided at EVG's Heterogeneous Integration Competence Center at our headquarters in Austria."

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